Improving Equity and Attainment

through the development of research, evaluative and reflective skills

in Early Career Teachers

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University of Dundee

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Scottish Council of Deans of Education

Scottish Attainment Challenge Project

CONTENTS

1. Project Members

The University of Dundee (UoD) aspect of the national SAC Research Project was designed and developed, in consultation with appropriate colleagues, by:

- Professor Teresa Moran, Depute Dean, School of Education and Social Work
- Professor James Scott, Research Team Leader, SAC Research (2017-2019)

The project has been led by:

- Professor Teresa Moran, Depute Dean, School of Education and Social Work
- Professor James Scott
- Mr Derek Robertson

Other members of staff with leadership roles within aspects of the project have included

- Dr Yvonne Bain (now Professor Yvonne Bain, University of Aberdeen)
- Mrs Donna Dey

In addition to the above-named members of staff, the successive Associate Deans with responsibility for Initial Teacher Education (ITE) have been involved in discussion and comment on the Scottish Attainment Challenge (SAC), aspects of this specific university project and the implications of SAC/this project for the teaching, learning, course structures and teacher competences acquired within their programmes. The seven Project Leads for all relevant ITE, Early Career Teacher (ECT) and Postgraduate Taught (PGT) programmes and courses within the school have also been involved in either two or three rounds of consultation on, and discussion of, SAC and this specific project. ITE, ECT and PGT students have participated in interviews and discussions related to the project itself, as well as the development of their own capabilities.

One of our closely associated local authorities, Fife Council, cooperated strongly with the university in the establishment of elements of the project. Other local authorities, including the three Tayside authorities, have made teachers available for involvement in various aspects of the project. Although the project is principally aimed at the analysis, development and enhancement of SAC-related skills, attitudes, competences and leadership abilities among ECTs, there have also been significant involvements of PGT students and some more recent involvement of ITE students.

The views of these wider groups have influenced the project. Participants have indicated that these discussions – and their greater awareness of SAC and the issues surrounding equity and excellence – have influenced both their own practice and, to varying extents, the nature of activities within their schools.

2. Executive Summary

The Scottish Attainment Challenge (SAC) is one of the key educational initiatives currently being implemented in Scotland. It was announced by the First Minister at the launch of the national SAC Project in Dundee in February 2015. The Scottish Government website indicates that the Scottish Attainment Challenge (SAC) is "about achieving equity in educational outcomes" (Scottish Government, 2015) and proposes that: "equity can be achieved by ensuring every child has the same opportunity to succeed, with a particular focus on closing the poverty-related attainment gap" (*ibid.).*

This report forms part of an eight-university project jointly promoted by the Scottish Government (SG) and the Committee of Deans of Education (CoDE) in Scotland to research how, and how well, universities are developing pedagogies to support pre-service and early career teachers in reducing the attainment gap in literacy, numeracy and health & wellbeing (HWB).

This project has involved ITE, ECT and PGT students, along with members of staff, in understanding and researching how teaching, and thus learning, may be improved to ensure that the impact of equity-related issues – e.g. deprivation, poverty, illness and the pressures upon young carers –on teaching, learning and attainment is minimised. The project also has a practice-based focus on equipping teacher students at all levels to employ their improved skills to address equity-related issues within their school and classroom and to support them in developing more effective interventions to address the issues identified.

Three key findings from the UoD Team's own SAC-related research, verified by its joint work with local authorities, which have most influenced the design and implementation of the Dundee SG/CoDE Research Project were:

1. The need to involve classroom teachers in active participation in professional learning, leading to individual and wider research and analysis, in order to identify equity, learning and attainment issues impacting upon their own classes and in the consequent development and implementation of interventions to improve aspects of learning within their learner group(s).

2. The need for teachers and leaders at all levels of the educational service to analyse the key equity, learning and attainment issues within their class /school/service and for them then to be able to match these layered issues with *appropriate* service-wide, school-based, classroom-specific and learner-specific interventions.

3. The consequent need for teachers and educational leaders to develop and actively contribute to a 'research community' through which the research and findings of individual teachers can influence classroom-level, school-level and wider practice.

The key emphases within the UoD SAC Project have been derived from the national project and modified by Findings 1-3 from prior and continuing UoD research (see p.6). This resulted in the four Research Themes of Section 4 (pp.6-7). These address all four of the national questions but have been expressed as three local UoD research questions as follows:

1. How well were we addressing equity and attainment in our existing courses, what improvements are needed and what progress did we make by the "end" of the Project?

2. How can we involve, train and equip classroom teachers and potential school leaders for active participation in research and analysis to identify equity, learning and attainment issues impacting upon their own classes and in the consequent development and implementation of interventions to improve aspects of learning within their learner group(s).

3. How can we involve and commit university staff, teachers, headteachers and LA educational leaders to develop a 'research community' through which:

   a. the research and findings of individual teachers can influence both classroom-level and wider practice

   b. research, teaching and collaborative work with teachers and local authorities by university staff support the development of effective learning, research and teaching interventions to mitigate the impact of social/health/other inequities

   c. political leaders, strategic education managers and headteachers support the development of a research community focused on equity and make meaningful use of individual and grouped equity-based research in planning initiatives to address and mitigate the impact of inequity on learning and attainment.

A uniparadigmatic Mixed Methods Research (MMR)-based approach with a Pragmatic stance was adopted for this project, combining aspects of documentary analysis, a questionnaire employing both closed and open-ended questions, structured, open-ended interviews, analysis of student/staff-generated quantitative and qualitative research and analysis of national numeric, written and tabular data.

The analytical approach taken by UoD has involved the analysis and triangulation of a range of data sets, including:

1. The professional views of university staff and students regarding aspects of learning, teaching, equity and attainment.
2. Data on course provision, content and emphases within UoD, including changes made in the light of the development of the UoD aspect of the national SG/CoDE project.
3. Data resulting from SAC-related research carried out by UoD students, including:
   o Areas for intervention identified by students of the specific equity-related course and of other relevant postgraduate courses
   o equity-related interventions carried out
4. Data resulting from relevant aspects of SAC-related research carried out by UoD staff.

The findings from this UoD SAC research project have provided evidence of the original capability of UoD to support and encourage teacher learning and research related to equity and attainment/excellence. They have also identified - and led to the development of - improvements to the set of learning pathways and courses provided, as well as the quality and nature of learning experiences within each course.

A significantly broader set of student teachers at all levels from undergraduate to headteacher have undertaken research on equity and attainment as a result of this project and have carried out interventions at every level from addressing the needs of individuals/small groups of learners to carrying out whole-school improvements, all designed to reduce the impact of inequity and to improve learning and attainment. That research has itself been analysed by members of the UoD staff team, providing insights into the processes which class teachers and school leaders carry out in addressing inequity and underachievement.

Although there was a significant body of LA-funded (and thus unpublished) research on SAC within UoD, this national SAC research project has confirmed and consolidated the findings of some of that previous research as well as providing a set of new findings to set in the public domain. This current phase of SAC research has demonstrated that equipping teachers (at all levels) to understand, research and identify issues related to equity and attainment does appear to improve their practice. However, there is further work to be done in teacher education (at least within UoD, although this may be a wider issue) to ensure that the investigation of catchment/class/individual equity issues is appropriately linked by all of our students (and thus, almost certainly, by all teachers) to the accurate identification and implementation of interventions which are most appropriate to addressing the inequities and learning challenges uncovered.

Although a significant majority of the research/learning strands identified in Sections 4-8 of this report have been addressed, not all have been fully addressed, one has not (yet) been addressed to any significant extent and there is still significant work to do in further analysing the findings from student and staff research and then reporting upon these, although initial high-level findings are contained in Section 9.

Several aspects of the UoD project require to be further developed. These include:

1. Further refinement of relevant ESW teacher education courses to better equip student teachers at all stages of their careers to improve teaching, learning and attainment.
2. Specific attention to key ITE, ECT and PGT courses to support students in addressing the issues which their research identifies as crucial to improved learning and attainment by means of accurately focused interventions.
3. Further development of the undergraduate course to improve what is taught to students - and how - in the context of addressing inequity and improving attainment through research and focused interventions.
4. Addressing internal and external understanding of the Certificate course in Teaching and Learning for Equity, including improving the understanding of appropriate UoD members of staff and of appropriate LA staff, HTs and potential students.
5. Development of mechanisms to support and develop an Equity-based Research Community.

3. List of Abbreviations

ASNs	Additional Support Needs
CfE	Curriculum for Excellence
CLD	Community Learning and Development
CoDE	Committee of Deans of Education
DCC	Dundee City Council
DYW	developing the Young Workforce
ECT	Early Career Teacher
ES	Education Scotland
ESW	Education and Social Work
GTCS	General Teaching Council for Scotland
HWB	Health and Wellbeing
HT	Headteacher
ITE	Initial Teacher Education
KU	Knowledge and Understanding
LA	Local Authority
MEd	Master's Degree in Education
MMR	Mixed Methods Research
NIF	National Improvement Framework
NQT	Newly-qualified teacher
PEF	Pupil Equity Fund
PGT	Post-Graduate Taught
SAC	Scottish Attainment Challenge
SG/CoDE	Scottish Government/Committee of Deans of Education
SIMD	Scottish Index of Multiple Deprivation
SIP	School Improvement Plan
SPR	Standard for Provisional Registration (from GTCS)
SQH	Scottish Qualification for Headship
SW	Social Work
T&L	Teaching and Learning
UoD	University of Dundee

4. Introduction

This project has involved ITE, ECT and PGT students, along with members of staff, in understanding and researching how teaching, and thus learning, may be improved to ensure that the impact of equity-related issues – e.g. deprivation, poverty, illness and the pressures upon young carers –on teaching, learning and attainment is minimised. The project also has a practice-based focus on equipping teacher students at all levels to employ their improved skills to address equity-related issues within their school and classroom and to support them in developing more effective interventions to address the issues identified.

Taken together, the nature, importance and means of improving equity and attainment form a highly significant aspect of all taught courses provided within the University of Dundee's (UoD) School of Education and Social Work (ESW) to support the professional learning of pre-qualification, immediate post-qualification and later career postgraduate students. Students are taught from the first year of their pre-qualification courses onwards that deprivation is a very important member of a set of barriers to learning, all of which must be addressed through an appropriate range of teaching and learning approaches to ensure that the learners who will be in their schools and classrooms have equity of opportunity to excel in their learning and to demonstrate this through the highest possible levels of attainment .

Each ESW course is designed to ensure that students foster an ethos of inclusion for *all* pupils, demonstrate and enact fairness to all pupils and address all relevant barriers to learning (see Section 9). School placements, and the work undergraduate and new graduate students undertake before and after placements, are a key area for enhancing those students' understanding of children's backgrounds, their interaction with learning and the associated issues and factors which may manifest themselves in the classroom.

Equity and attainment also form one strand of research within the wider staff research programme. UoD has been involved in conducting research related to SAC since early 2016, when the University entered into an agreement to analyse and evaluate the work of Dundee City Council (DCC) in its implementation of the Scottish Attainment Challenge. DCC was one of the seven, later nine, "SAC Authorities" announced by the First Minister at the launch of the national SAC Project in Dundee in February 2015.

The time lag between national launch of SAC and the early stages of implementation varied across the nine Challenge Authorities but was significant in almost all cases, as many of the staff appointed to support the nine Challenge Projects did not take up posts until well through Session 2015-16, or even into early 2016-17. Thus, the UoD SAC Research Team's commencement of activities in early 2016 was timed well in terms of examining how SAC-related developments were being planned and established, as well as implemented and modified in the light of initial experience. After initial work from early 2016, three annual reports on the progress of SAC-related developments in DCC were produced in 2017, 2018 and 2019.

This report does not contain findings specifically related to UoD's work with DCC, as this was a commercial contract for which permission has not been granted for publication. It is possible, however, to see a little of the outcomes of this work in the 2018 Education Scotland Inspection Report [1] on DCC which states:

A research partnership with the University of Dundee, funded through the Scottish Attainment Challenge, is highlighting key messages as the Scottish Attainment Challenge evolves. These include an increased level of understanding data and use of research amongst headteachers as well as a strengthened understanding of SIMD and the impact this can have on learning and attainment. However, the research highlights a need for swift strategic decisions about the extent and reach of the Scottish Attainment Challenge targeted work across the city, particularly to include a greater proportion of the Dundee's children and young people living in SIMD 1 and 2.

(Education Scotland, 2018, p.15)

Aspects of the findings from this work have, however, influenced UoD's approach to the national Scottish Government/Committee of Deans of Education (SG/CoDE) SAC Research Project which is reported upon in this document, as have findings from preliminary and subsequent self-analysis by UoD teaching teams (and their students) within the School of Education and Social Work. Research work by some UoD staff members on aspects related to equity, transitions, SAC itself and its implementation across Scottish local authorities (LAs) have also supported the framing and implementation of the UoD response to the national SAC Research Project.

Four key findings from the UoD Team's own SAC-related research, verified by its joint work with DCC, which have most influenced the design and implementation of the Dundee SG/CoDE Research Project were:

4. The need to involve classroom teachers in active participation in professional learning, leading to individual and wider research and analysis, in order to identify equity, learning and attainment issues impacting upon their own classes and in the consequent development and implementation of interventions to improve aspects of learning within their learner group(s).

5. The need for teachers and leaders at all levels of the educational service to analyse the key equity, learning and attainment issues within their class /school/service and for them then to be able to match these layered issues with *appropriate* service-wide, school-based, classroom-specific and learner-specific interventions.

6. The consequent need for teachers and educational leaders to develop and actively contribute to a 'research community' through which the research and findings of individual teachers can influence classroom-level, school-level and wider practice.

7. The need for political leaders, strategic education managers and headteachers to be aware that 'one size fits all' approaches will not generally produce the greatest impact on equity and that widespread interventions require to be planned and developed in the light of collated classroom and school-based research and analysis.

The UoD response to the SG/CoDE Research Project has been influenced by the first two of these four findings and some aspects have been influenced by the third. The fourth issue has influenced the project to a more limited extent, as strategic LA/school leadership of SAC is not a main focus of the national SAC research project.

The vehicle to take forward UoD's work within the SG/CoDE Research Project has been a project involving students and staff within the School of Education and Social Work and comprising the following Research Themes – with associated professional learning, building

outwards from the university itself through schools and local authorities to national and international contexts:

1. Self-analysis by, with and among course leaders and staff of all relevant undergraduate and postgraduate courses within ESW to ensure that equity and excellence in learning and attainment are key foci. Involvement of students in the process of course analysis. Analysis of course specifications, content and assessment to ensure that appropriate learning experiences and opportunities to demonstrate knowledge, skills and understanding in these contexts are present in each course.
2. Development of a new taught Certificate course to provide principally ECTs, but also more experienced staff, with the necessary knowledge and understanding, skills and research approaches to understand and investigate how equity impacts on teaching, learning and attainment. [Accompanied by improvements to aspects of the ITE course and some PGT courses.]
3. Student (ECT and PGT) research-based activities, including:
    i. Research and analysis by students to consider Scottish and international approaches to redressing the impact of inequity, in its various manifestations.
    ii. Identification by students of appropriate data to analyse catchment, class and individual factors and to analyse achievement and attainment.
    iii. Analysis, development and use of effective analytical tools to capture appropriate data.
    iv. Based on the above, identification of effective interventions to improve equity (and the contexts within which these interventions are most effective).
    v. Design and use of focused interventions to address individual needs as identified by the above processes.
4. Staff research and analysis on the pursuit of excellence and equity (and their interrelationships) to identify key issues and strategies – at student, school and local authority levels.

To date, three cohorts of students have passed through the Certificate course on Teaching and Learning for Equity and a fourth is in progress (although delayed by the global pandemic). Two of these three cohorts have been comprised solely of ECT students. The middle cohort was a mixed group of ECTs and promoted school staff. Each of these cohorts has developed skills in researching and addressing equity issues and the body of findings from their research continues to develop. This has been accompanied by a parallel group of research projects by PGT students (mostly promoted school or local authority staff), drawn from four successive PGT cohorts, and by research by staff of the School of Education and Social Work, both on the strategic development of the national SAC initiative, on specific aspects (e.g. school-based case studies, numeracy) of equity and attainment and on the research, findings, activities and outcomes of the student groups noted.

Aspects of the findings from these processes and issues identified during the research are analysed are examined in Sections 8-10.

5. Research Questions

Questions 1-4 of the set of national research questions relating to the overall SG/CoDE SAC Research Project were used to interrogate current practice in UoD at the beginning of the SG/CoDE Research Project. They have subsequently been used during the UoD project to test changing perceptions and practice across staff and students within the School of Education and Social Work and will again be used near the conclusion of the Project to ascertain progress in these four areas.

The key emphases within the UoD SAC Project have been derived from the national project and modified by Findings 1-3 from prior and continuing UoD research (see p.6). This resulted in the four Research Themes of Section 4 (pp.6-7). These address all four of the national questions but have been expressed as three local UoD research questions as follows:

4. How well were we addressing equity and attainment in our existing courses, what improvements are needed and what progress did we make by the "end" of the Project?

5. How can we involve, train and equip classroom teachers and potential school leaders for active participation in research and analysis to identify equity, learning and attainment issues impacting upon their own classes and in the consequent development and implementation of interventions to improve aspects of learning within their learner group(s).

6. How can we involve and commit university staff, teachers, headteachers and LA educational leaders to develop a 'research community' through which:

    a. the research and findings of individual teachers can influence both classroom-level and wider practice

    b. research, teaching and collaborative work with teachers and local authorities by university staff support the development of effective learning, research and teaching interventions to mitigate the impact of social/health/other inequities

    c. political leaders, strategic education managers and headteachers support the development of a research community focused on equity and make meaningful use of individual and grouped equity-based research in planning initiatives to address and mitigate the impact of inequity on learning and attainment.

6. Framing the Question

Using its experience of SAC-related research as a stimulus to enhance the process, the UoD team has approached the national SAC research questions through a framework combining national emphases with key findings arising from its own SAC-related research. This framework is expressed in the three research questions of Section 5, linked to the set of UoD project research themes set out in Section 4 (pp.6-7).
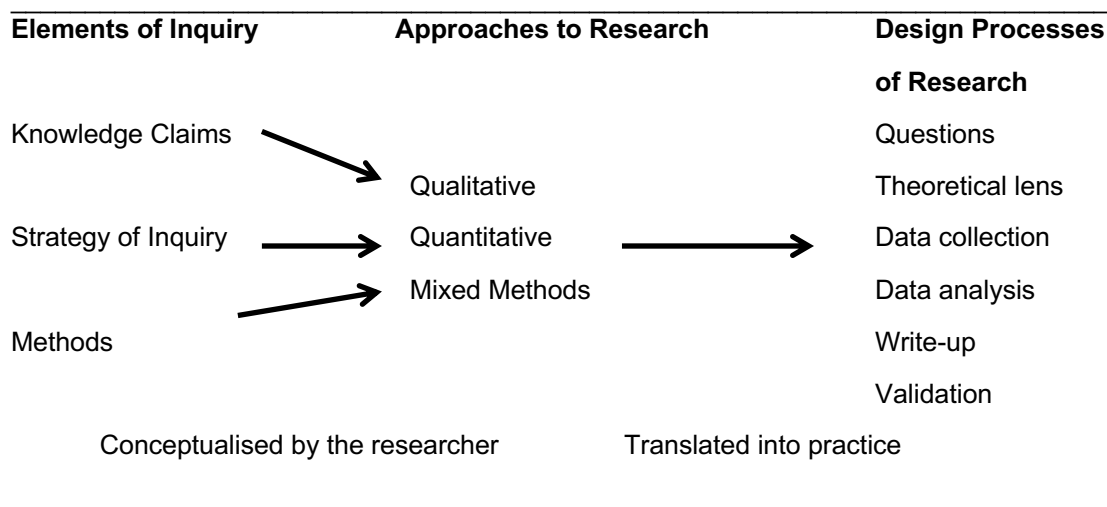
Thus, the framework for the UoD SAC Research Project comprises the following:

1. Analysis of existing UoD undergraduate, ECT and postgraduate educational courses to ensure they provide appropriate support for undergraduate students, ECTs and PGT students in developing their professional and academic skills and knowledge in order to work effectively with pupils from SIMD 1-40 backgrounds. This process involves analysis of UoD staff knowledge and attitudes, analysis and, where needed, improvement of courses and capturing student views and feedback.

2. As a result of findings from preliminary research before part 1, the need to develop a bespoke course in researching and addressing equity at a classroom level was identified. The development of this course and its subsequent amendment and improvement became the second part of the UoD framework.

3. As a result of part 2 and also of preliminary research by staff in scoping and developing the UoD project, the need to research the effects of inequity and how these may be addressed in a range of context was identified. These contexts include:

   o The research and findings of individual teachers (from ECTs to school managers) in order to identify class/school issues and influence both classroom-level and wider practice.

   o The research and findings of university staff, in order to support the development of effective learning, practitioner research and teaching interventions to mitigate the impact of social/health/other inequity.

   o Inputs from LA managers, headteachers and colleagues to analyse and address equity at local, national and international levels in order to make meaningful use of individual and grouped equity-based research in planning initiatives to address and mitigate the impact of inequity on learning and attainment.

4. A key desirable outcome of the research being carried out by ECTs , later postgraduate students and staff was considered to be the development of a 'research community', including LA and school managers as the development proceeds, focused on equity and attainment through which the research and findings of individual teachers can influence both classroom-level and wider practice and through which school and LA leaders can harness the developing research capability of their colleagues to address a range of equity-related issues affecting individual schools and LAs, as well as providing exemplification of good practice for the wider educational community.

7. Methodological Approach

Research theorists describe research design as a set of steps and choices through which the researcher defines a research pathway. One influential theorist, John Creswell (2003) played a central role in the development and understanding of Mixed Methods Research (MMR). His comprehensive approach influenced the adoption for this study of a methodological approach based on the work of the wider group of MMR theorists (e.g. Cohen, Manion and Morrison (2011), Denzin and Lincoln (2003) or Sarantakos (2005)) within which Creswell is a leading voice. Creswell's research approach is summarised in Figure 7.1:

Figure 7.1   Research Design: Elements, Approaches and Design Processes

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Elements of Inquiry	Approaches to Research	Design Processes of Research
Knowledge Claims		Questions
	Qualitative	Theoretical lens
Strategy of Inquiry	Quantitative	Data collection
	Mixed Methods	Data analysis
Methods		Write-up
		Validation
Conceptualised by the researcher	Translated into practice	

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From Creswell (2003, p. 5)

Preliminary research for this study had suggested that it might be best framed using an MMR approach (Creswell, 2003; Cameron, 2011; Tashakkori & Teddlie, 2003). Consideration of Creswell's (2003) three central Elements of Inquiry (knowledge claims, strategies of Inquiry and methods) supported the concept that MMR would offer the most appropriate philosophical approach and would yield an effective research design to take this study forward, not least because it was evident in initial scoping of the project that both quantitative and qualitative data would need to be gathered and analysed. Creswell's (2003, pp. 6-12) Knowledge Claims parallel other researchers' consideration of ontology, epistemology, methodology or, more globally, paradigms (Kuhn, 1962; Guba & Lincoln, 1994).

Creswell's four Knowledge Claim Positions are Postpositivism, Constructivism, Advocacy/Participatory and Pragmatism. Aspects of all four _could_ have had relevance for this study. Pragmatism is, however, strongly associated with problems whose analysis necessitates a study with multiple data sets and a need to adopt both qualitative and quantitative methods. Cherryholmes (1992), Creswell (2003), Cohen _et al._ (2011) and Tashakkori and Teddlie (1998) all see Pragmatism as the appropriate philosophical underpinning for MMR studies using pluralistic approaches.

Strategies of inquiry, or _methodologies_ (Crotty, 1978; Mertens, 1998, 2003), operate at a more applied level than the philosophical self-placement inherent in paradigms (Creswell,

2003). The three principal sets of methodological strategies used in the social sciences are those associated with quantitative, qualitative and MMR approaches. In this study, the analysis of several sets of statistical data suggests the need for a quantitative approach but other aspects e.g. documentary analysis and interviewing suggest a qualitative strategy. The need to collect and analyse both qualitative and quantitative data suggests an MMR strategy.

The final element of inquiry (Creswell, 2003, p. 17) informing a research approach relates to *methods* of data collection and analysis. The choice of methods relates to whether the intent is to specify the type of information to be collected in advance of the study or to allow it to emerge from participants in the project (Creswell, 2003, p.17). Given the nature of the UoD Project's research questions, there is an evident need to use both predetermined (e.g. statistical analysis and questionnaires) and emerging methods (e.g. participant interviews, students' research findings), as well as a mixture of open/closed questions, multiple forms of data and a mixture of statistical and textual analysis. This is a further indicator of the need for an MMR approach.

The 'Five Ps': A Conceptual Framework for Mixed Methods Research

A year after Creswell and Tashakkori's brief definition of MMR in the *Journal of Mixed Methods* (2006), Creswell and Plano Clark provided further support for of MMR: "Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of the research problems than either approach alone"   (Creswell & Plano Clark, 2007, p.5).   Cameron (2011) advanced this process by identifying the key components - 'the 5Ps': Paradigms, Pragmatism, Praxis, Proficiency and Publishing - of a rationale for using an MMR approach, thus addressing the challenges, controversies and crises faced by MMR researchers (Onwuegbuzie & Collins (2007, p.304)). Cameron's 5Ps, with aspects of the work of Tashakkori and Teddlie (2003, 2010) and Onwuegbuzie and Collins (2007), form the framework for this research. Details of the "5Ps" Approach are offered in Appendix 1.

Given the discussion above, a uniparadigmatic MMR-based approach with a Pragmatic stance was adopted for this project, combining aspects of documentary analysis, a questionnaire employing both closed and open-ended questions, structured open-ended interviews, analysis of student/staff-generated quantitative and qualitative research and analysis of national numeric, written and tabular data.

8. Analytical Approach

Sections 3 to 6 have demonstrated how the UoD aspect of the SG/CoDE SAC Research Project has engaged with SAC-related research and has sought to address the four national research questions related to SAC through blending the university's own significant prior experience of SAC-related research with the four national research questions.

As identified in Section 6, the analytical framework for the UoD SAC Research Project comprises the following:

1. Analysis of existing UoD undergraduate, ECT and postgraduate educational courses in order to ensure they provide appropriate support for undergraduate students, ECTs and postgraduate students in developing their professional and academic skills and knowledge in order to work effectively with pupils from SIMD 1-40 backgrounds. This process involves analysis of UoD staff knowledge and attitudes, analysis and, where needed, improvement of courses and capturing student views and feedback. This is a continuing process, initiated in advance of the formal launch of the national SG/CoDE project.

2. As a result of findings from the earliest phase of part 1, the need to develop a bespoke course in researching and addressing equity at a classroom level was identified. The development of this course and its subsequent amendment and improvement became the second part of the UoD framework.

3. As a result of part 2 and also of initial research carried out by staff in scoping and developing the UoD project, the need to research the effects of inequity and how these may be addressed in a range of context was identified. These contexts include:

   o The research and findings of individual teachers (from ECTs to school managers) in order to identify class/school issues and influence both classroom-level and wider practice.

   o The research and findings of university staff, in order to support the development of effective learning, practitioner research and teaching interventions to mitigate the impact of social/health/other inequity.

   o The research and findings of university staff and postgraduate students, combined with research inputs from LA managers, headteachers and colleagues (probably as working parties) to analyse and address equity at local, national and international levels in order to make meaningful use of individual and grouped equity-based research in planning initiatives to address and mitigate the impact of inequity on learning and attainment.

The analytical approach taken by UoD has involved the analysis and triangulation of a range of data sets, including:

1. The professional views of university staff and students regarding aspects of learning, teaching, equity and attainment.
2. Data on course provision, content and emphases within UoD, including changes made in the light of the development of the UoD aspect of the national SG/CoDE project.
3. Data resulting from SAC-related research carried out by UoD students, including:

- o   Areas for intervention identified by students of the specific equity-related course and of other relevant postgraduate courses
- o   equity-related interventions carried out
4. Data resulting from relevant aspects of SAC-related research carried out by UoD staff.

These research strands have been analysed as follows:

1. Analysis of UoD Courses
    a. Analysis of findings from interviews with course leaders and students, including content, approaches to equity and attainment, student awareness (of equity and excellence/attainment/achievement) and satisfaction, areas for improvement and recent improvements.
    b. Documentary analysis of course descriptors and teaching materials, analysis of reports on courses, including content, approaches, areas for improvement and recent improvements.
2. Research by ECT and PGT into equity and its impacts on learning and achievement; analysis of their findings and identification of an intervention to address the most significant equity-related issue for their class. This includes:
    a. Identification of catchment/class issues driven by inequity. Analysis of these to identify a rationale for, and approach to, an equity-related intervention.
    b. Identification of a curricular area and an appropriate type of intervention to be carried out by the student.
    c. Analysis of outcomes achieved with respect to the original issue(s) identified.
3. Analysis by staff of students' approaches to equity, as expressed in their research project work on equity. This includes analysis of:
    a. The nature and frequency of equity-related issues identified by students.
    b. The evidence gathered by students for identification of each equity-related intervention.
    c. The categories and nature of the interventions carried out by students across relevant courses.
    d. The correlation between students' identification of deprivation/learning issues within their LA/school/class and their rationale for intervention.
    e. The nature and effectiveness (including the evidence gathered to demonstrate that effectiveness) of interventions

9. Analysis

The research framework developed in Sections 4-8 is analysed here:

A   Analysis and Improvement of UoD Courses

This area provided an entry to the UoD project, as it had the potential to address almost all of the national and UoD research questions. As a result, research commenced on this thread as soon as the UoD bid for participation in the national project had been lodged. Three phases of research and analysis have been carried out within this thread so far, although there are still matters to be taken forward (see Section 11).   The three completed phases are:

I.   Initial research to establish the extent to which equity and excellence were key foci of relevant UoD Education courses (ITE, ECT, PGT). Gaps in provision were also sought.
II.   Analysis of relevant courses, including open-ended questioning and interviews with relevant staff members, to establish strengths and areas for development
III. A wider analysis of student, staff, teacher, headteacher and local authority views.

In addition, some preliminary research (through meetings with Associate Deans, course leaders and key members of staff) had been undertaken before the UoD bid was submitted.

Phase (i) of this research area was carried out as soon as the UoD bid had been accepted. Analysis of the findings identified that most UoD ITE, ECT and PGT course leaders were confident/very confident that their course(s) met students' needs to understand, plan for and act upon (in)equity. There was, however, a mismatch between their views and available evidence in two contexts: (a) whether equity/excellence were being specifically addressed across courses in a manner consonant with the National Improvement Framework and the national SAC programme and (b) whether courses' learning opportunities supported students at *all* stages of learning from undergraduate student to HT learner. Identified issues related to ECTs, but also to aspiring Middle Leaders and Deputes.

The preliminary research (confirmed by subsequent initial research findings) suggested the most obvious gap in provision was related to ECTs. Thus, the development of an equity-related course for ECTs (and others) was included in the final version of the UoD bid.   Lesser gaps in equity-related learning pathways available to some groups of postgraduate students were also identified. Minor adjustments were made to the Into Headship course, further strengthening the focus of aspiring headteachers on equity. The new Teaching and Learning for Equity module (part of a new equity-related Certificate course instituted as a result of the preliminary research) was also made available more widely across Masters pathways to reach more Masters-level students.

Phase (ii) - comprising analysis of all relevant ITE, ECT and PGT courses - took place near the end of the first full year of the UoD SAC research project. Methods employed included a questionnaire (using closed and open-ended questions) and semi-structured interviews with course leaders and members of staff teaching some of the courses. The purposes of this phase of the research were to identify progress, i.e. how equity and excellence were either being introduced into, or enhanced within, ITE, ECT and PGT courses. In so doing, strengths, good practice and areas for development were identified within the different courses and the UoD SAC research project team sought to identify if/how colleagues were involving, training and

equipping classroom teachers and potential school leaders for active participation in research and analysis related to the equity, learning and attainment issues impacting upon their own classes and schools.

Findings from Phase (ii) centred on specific taught courses. They were published to Course Leaders and their teams to assist them in ensuring that relevant ESW courses were appropriately amended so that each course would address equity and excellence in a manner relevant to the needs of the student group (or groups) engaged with the course. However, ESW managers (the Depute Dean, with relevant Associate Deans) also used the findings to consider strategic issues related to student pathways through ESW from undergraduate to doctoral research and also the influence of these courses on professional pathways from student teacher to HT (and/or local authority management/ leadership).

A summary of course-related findings (covered in more detail in a previous report) follows:

The Undergraduate Course

In Year 1, students undertake a joint module with SW and CLD students, focused on equity and related issues. Each pedagogical module examines the use/effectiveness of differentiation and interventions. A key focus on inclusion lies in the pedagogy module linked to the final school placement. During this, students research the specific needs of pupils in their classroom. Each curriculum module considers how to make that curriculum area accessible to all. An elective module across third and fourth year, *Health and Wellbeing*, provides a key focus on aspects of poverty and inclusion. In fourth year, a new module, *Policies, Practices and Issues in Education,* has been added, initially to target the National Improvement Framework (NIF) and "closing the gap".

The PGDE Courses and the 'Learn to Teach' Programme

Primary PGDE students familiarise themselves during placements with the context of the catchment and classroom in which they are working. For many this will mean teaching children from SMID 1-40 areas. One summative assignment requires students to analyse the role inclusive practice plays in raising attainment. Pre-assignment, students learn about SAC, the pupil Equity Fund (PEF) and improving outcomes in Literacy, Numeracy and HWB, as well as considering the interventions for equity as identified in the NIF. This draws on student learning/experience in order to improve awareness and develop their future practice.

Secondary PGDE students study the impact Numeracy and Literacy have on the life chances of young people. Early in the course, students debate key issues in Scottish education including the NIF, Closing the Equity Gap, SAC, PEF and Developing the Young Workforce (DYW). This focus provides students with an understanding of the issues resident in all classrooms. During subject-specific inputs they are further challenged to consider how to meet the needs of *all* learners and are introduced to strategies, activities and resources that provide opportunities for all learners to access the curriculum.

Information from sources such as PISA and SSLN is used to identify issues affecting attainment and to support planning appropriate and engaging learning experiences for young people, especially from more deprived backgrounds. During placements, students investigate the SIMD profile of the school (and other catchment-related factors), considering implications for

their practice. There is an expectation that they will gather and evaluate information about all of the learners in their classes to ensure they are meeting learners' needs (including ASNs).

Postgraduate Courses for Early-Career Middle Leaders, Deputes and Headteachers

Having addressed "gaps" in ESW's provision with respect to equity, the pattern established with pre-qualification and ECT students is continued with aspiring middle leaders, deputes and headteachers. UoD offers all parts of the SCEL suite of courses for Middle Leaders and Into Headship and In Headship for deputes/headteachers. Each course has core components which examine inclusion and equity and aspects of the programme of assignments specifically evaluate these issues. For students who continue to an MEd. in Strategic Educational Leadership, built upon the individual SCEL courses, these core components of the individual courses are augmented by optional modules in the areas of equity, additional support needs and inclusion.

Phase (iii) - an analysis of performance, strengths and weaknesses in all relevant ITE, ECT and PGT courses - took place in June 2019. 20+ teacher educators, NQTs, headteachers and local authority personnel were interviewed using a structured but open-ended approach, seeking to identify their viewpoints on the strengths and areas for further development evident within the relevant UoD undergraduate and ECT courses (with a particular emphasis on equity and excellence), to identify differences and synergies and to inform future developments within ESW.

A summary of the findings from this phase is contained in Table 1.

Table 1 UoD Teacher Education Courses: Strengths, Development Areas and Significant Comments

Views of Participant Group	Areas of Strength	Areas for Further Development	Comments
NQTs	Collegiate approach. Supportive culture.	Amplify advice on addressing poor behaviour and ASNs. Make explicit links to GTCS SPR	Placements need to be more focused on the professional file and the GTCS SPR.
Teacher Educators	The "attainment gap" is well-linked to wider issues of poverty and HWB. This is well structured, using a variety of resources. The new Masters modules on Equity and Equality and Teaching and Learning for Equity. Neoliberal hegemony is challenged effectively. Clear focus on informed KU of pedagogy to improve T&L. Permeating foci on values and societal issues.	Importance of role of the teacher should be more prominent in courses; too much emphasis on inter-agency working. Emphasise teaching fundamentals. Provide a more unified explanation of Scottish Government policy initiatives; offer more opportunities for students to debate these policies – philosophy and implementation.	Changing policy initiatives are challenging to accommodate timeously in Masters courses; less of an issue in PGDE. We are placing many students in very challenging classes at very early stages in their development; good planning and preparation for this is essential. Are we losing sight of the wider aspects of learning e.g. the Arts?

Head Teachers (HTs)	Students/NQTs are willing to engage in professional dialogue. Students/NQTs are willing to engage in professional reading and professional learning opportunities (better than more established staff).	WE ALL need to work harder on developing a culture that understands the 'story behind the learner'. Link PGDE year more closely to Induction year. Improve mentoring for ECTs. Improve LA/TEI partnerships - damaged by staff turnover.	Challenges for ECTs of absorbing wider school context while concentrating on teaching well. A sense that the Donaldson SCQF 11 vision is slipping. Issues re NQTs changing schools after Year 1. Remove dependence on ES
Local Authority (LA) Staff	Students/NQTs are good at working collaboratively. Students/NQTs are willing to engage in professional reading and professional learning opportunities.	Improve LA/TEI partnerships, as these have been damaged by staff turnover. Continued need for a focus on how the informed use of data can help to address the attainment gap.	Schools are struggling to cope with requests for placements. Need for care by schools and TEIs in avoiding placements that might not be best suited to the student's stage of development.

Despite attempts to focus discussion on equity and attainment and on courses/methods to improve these, these findings suggest that there was a significantly greater concentration on equity among UoD staff, all of whom were already engaged in devising better ways of assisting students' learning about, and sharpening their focus on, equity and attainment. In the other three constituencies, all of whom appeared focused on more general issues such as probation, placements, becoming an effective teacher and collaborative working in school, the focus on equity and attainment was less (to much less) evident, although it did appear with all 3 groups to a limited extent. It was particularly interesting that Numeracy – deliberately highlighted in our courses (more so than the focus given to Literacy and HWB, as it is the greatest issue for at least two of them) – did not emerge within the interviews, except from UoD staff. This issue will be further considered in considering the findings presented in Part B of this section.

Although not a part of the interview process summarised in Table 1, there has been significant and consistent feedback throughout the project from students participating in the ECT and PGT courses that they feel better equipped to deal with inequity. Across our four associated LAs, both HTs and relevant LA personnel have also consistently noted the overall strength of candidates for DHT and HT posts who have undertaken Into or In Headship and/or who are pursuing a full Master's degree, especially when compared to candidates who have not had such learning experiences. This is also true of ECT Teaching and Learning for Equity students but there are still too few of these for consistent messages about their quality to have returned from HTs or LA staff to any extent.

B   Student Research

The second UoD project thread encouraged groups of students to learn about and research equity and attainment and to use their improved understanding in planning a key intervention based on the identified needs of their learners and their wider community. UoD staff members supplied the academic input and are engaged in developing a strategic overview of

students' activities through analysing data derived from the students' work (see Part C of this section).

(i)   Undergraduate Students

As noted in Part A of this Section, undergraduate students are now carrying out limited research into equity and designing interventions to combat equity. Since this is a relatively new addition to the undergraduate course, the data related to this research has not yet been considered alongside findings from ECT student research or other SAC-related research. It is intended to add this data to the wider set of data obtained from ECT and PGT students. Given that the extent and nature of the undergraduate research is not as comprehensive as that carried out by ECT and PGT students, this will require some work by UoD staff to compare and align findings. This is considered further in Section 11, with other related issues.

(ii)   ECT Students

ECTs (and some later-career students) gained access to new PGT modules and the Certificate course in Teaching and Learning for Equity. Three cohorts of ECT students have completed the course (but the fourth cohort has been delayed because of the global pandemic); several of the students listed in Table 2 have used this learning opportunity as a focus within their Masters pathway. Students carried out two phases of research:

I. Involving academic research on the factors linking deprivation and low achievement, researching appropriate strategies to improve learning in one or more of the three key areas of literacy, numeracy and/or health and wellbeing, analysing the schools' catchment and the SIMD profile of the school, identifying the impact on key pedagogical and pupil engagement issues in their class and combining the outcomes of this research to identify a practitioner research project in which they would implement an intervention (as part of class work and of the school improvement plan (SIP)) in one or more of the three key areas.
II. Involving gathering, analysing and using data, amending their practice in the light of the data gathered, implementing an intervention and producing a research report on the two phases of their work, along with a "plain English" PowerPoint/Prezi presentation for parents to explain how their children's learning had been enhanced and improved.

Table 2a contains the equity-related issues identified by each of the ECT students and the curricular area which formed the specific focus of their intervention:

Table 2a   ECT Student Research and Interventions to Improve Equity

Cohort	Student	Issue 1	Issue 2	Principal Focus
EC1	1	Poverty	Poor Literacy	Literacy
EC1	2	Poverty	Closing attainment gap	Literacy
EC1	3	Poverty	Closing attainment gap	Specific Pupil Group
EC1	4	Poverty	Student engagement	Literacy
EC1	5	Deprivation	Low attainment	Numeracy
EC1	6	deprivation	Closing gender gap	Pedagogy
EC1	7	Deprivation	Poor Literacy	Literacy
EC1	8	Poverty, housing	Specific Learner Needs	HWB
EC1	9	Poverty	Closing attainment gap	Literacy
EC1	10	Poverty	Low attainment	Literacy
E2	11	Poverty	Low attainment	HWB
EC2	12	Closing the Gap	Poor Literacy	Literacy
EC2	13	Poverty	Parental engagement	HWB
EC2	14	Poverty	Attachment	Literacy
EC2	15	Child poverty	Poor behaviour	HWB
EC2	16	Poverty	Closing attainment gap	HWB
EC2	17	Closing attainment gap	Poor Literacy	Literacy
EC2	18	Inequity	Poor Numeracy	Numeracy
EC2	19	Deprivation	Closing attainment gap	Literacy
EC2	20	Poverty	Poor Literacy	Literacy
EC3	21	Deprivation	Low attainment	Numeracy
EC3	22	Poverty	Poor Literacy	Literacy
EC3	23	Social inequity	Social immobility	Pedagogy
EC3	24	Poverty	Poor Literacy	Literacy
EC3	25	Pupil voice	Deprivation	Numeracy
EC3	26	Poor motivation	Poor Literacy	Literacy
EC3	27	Deprivation	Parental engagement	Pedagogy
EC3	28	Poverty	Poor Literacy	Literacy
EC3	29	Deprivation	Setting	Pedagogy

The results are analysed in Part C below.

(iii)   PGT Students

Postgraduate students in taught courses (PGTs), such as Into Headship, In Headship and a range of Masters Pathways, have also been involved in academic research on the factors which link deprivation and low achievement, although at a more strategic level than their ECT colleagues.

Their research involved them in researching, planning, implementing and reporting upon a strategic project which they lead within their school. The project must be relevant to their school improvement plan (SIP) and they are encouraged to consider SAC, PEF and the NIF as key foci for their strategic project. As a consequence, a significant subset of each of four cohorts of PGT students has taken up this option for their final project; again, several students listed in Table 2b have used this learning opportunity as part of their Masters pathway.

Table 2b PGT Student Research and Interventions to Improve Equity

Cohort	Student	Issue 1	Issue 2	Principal Focus
PG1	30	Deprivation	Leadership of learning	Improved learning
PG1	31	Deprivation	Parental engagement	HWB (& Communication)
PG1	32	Closing the Gap	Raising Attainment	Specific Pupil Group
PG1	33	Positive destinations	Community engagement	Curriculum
PG1	34	Deprivation	Student engagement	HWB
PG1	35	Inequity in digital learning	Quality of L&T	Digital Learning
PG1	36	Inequity in digital L&T	Quality of L&T	Digital Learning
PG2	37	Inequity: Special Needs	Improving Lit. & Num.	Specific Groups
PG2	38	Inequity of Support	Parental engagement	HWB
PG2	39	Poor emotional resilience	Poor behaviour	HWB
PG2	40	Poverty-related gap	Positive destination gap	Specific Pupil Group
PG2	41	Closing the Gender Gap	Poor Literacy	Literacy
PG2	42	Closing attainment gap	Leadership of learning	Pedagogy
PG2	43	Closing attainment gap	Specific Learner Needs	Specific Pupil Groups
PG2	44	Deprivation	Poor behaviour/relns.	HWB
PG2	45	Deprivation	Split community	Vison, engagement
PG2	46	Closing attainment gap	Specific Learner Needs	Self-analysis
PG2	47	Closing the Gap	Raising Attainment	Closing the Gap
PG2	48	Closing attainment gap	Staff Attainment Skills	Pedagogy
PG3	49	Poverty-related gap	Closing attainment gap	Pedagogy
PG3	50	Positive destinations	using ICT to support learn	Digital Learning
PG3	51	Food poverty	Student engagement	HWB
PG3	52	Transition issues	Positive destination gap	Specific Pupil Group
PG4	53	Poverty-related gap	Student engagement	HWB
PG4	54	Inequity: Special Needs	Play-based learning	Specific Groups
PG4	55	Improved community eng	work-related learning	Pedagogy
PG4	56	Very High deprivation	Student engagement	HWB
PG4	57	Inequity of Support	Community engagement	HWB
PG4	58	Deprivation	Poor Numeracy	Numeracy
PG4	59	Inequity in Literacy	Improving reading	Literacy
PG4	60	Underachievement	Inequitable curriculum	Curriculum

These results are also analysed in Part C below.

C   Staff Analysis of Student Approaches and Interventions.

The student activities studied were drawn from students within the 4 LAs with which the UoD works most closely; three of the four LAs are well-represented in both tables and the fourth is strongly represented in Table 2a but absent from Table 2b.

Members of the UoD staff team engaged in gathering data on student projects from both groups (ii) and (iii) and it has been noted earlier that group (i) will be added to this programme at a later time. A summary of the initial findings from this work follows here.

Tables 2a and 2b have been derived from the larger body of data collected; they help provide a high-level summary of the UoD Team's analysis of students' research. The data sets collected include:

1. The nature and frequency of equity-related issues identified by students.
2. The evidence gathered by students for identification of each equity-related intervention.
3. The categories and nature of the interventions carried out by students across relevant courses.

4. The correlation between students' identification of deprivation/learning issues within their LA/school/class and their rationale for intervention.
5. The nature and effectiveness (including the evidence gathered to demonstrate that effectiveness) of interventions.

Much fine detail of catchment data and the specific actions of individual students and the outcomes generated by them have been omitted here, partially to ensure anonymity (as there are still relatively few students who have been involved) and partially because of the space restrictions on this report. That data has been retained for future publication.

Analysis of ECT Students' Research Projects

Across the 3 cohorts analysed in Table 2a, 29 ECT students completed the final project of the Teaching and Learning for Equity module, passed the course and are represented in the table. A further 4 students failed and a small number of others deferred their studies for appropriate reasons or have not yet completed their studies (e.g. due to the COVID-19 situation); these students are not (yet, in some cases) represented. In each cohort, students were predominantly from Primary School backgrounds.

The catchment/class issues identified by students as impacting on the learning of their class were as follows:

a) Poverty   (16 instances: 55%)
b) Deprivation   (7: 24%)
c) Social inequity   (2: 7%)
d) A need to "Close the gap" (2: 7%)
e) Others   (2: 7%).

Deprivation was consistently defined by students as encompassing more factors than poverty alone (e.g. health, young carers, parenting issues). Social inequity was identified in schools where two or more contiguous parts of the catchment demonstrated significant SIMD differences. "Others" included a case where a pupil survey had identified a need and a case where poor motivation was an issue, for various reasons.

Students also identified a consequent learning issue resulting from the catchment/class issue. All four LAs from whom the students were drawn have significant learning issues in Literacy and Numeracy. In at least two of the four, Numeracy is a significantly greater issue, particularly after Primary 3; in one, Literacy and Numeracy are approximately equally significant.

The main learning issues identified by students as impacting on the learning of their class were as follows:

a) Attainment (either 'closing the gap' or overall poor attainment)   (10: 33%)
b) Literacy   (9: 31%)
c) Pupil/Parent Engagement   (2: 7%)
d) Numeracy   (1: 3%).

The remaining 7 entries were all individual entries (gender inequity, specific pupil needs, attachment issues, behavioural issues, social immobility, deprivation and setting) and were generally specific to a very small number of pupils in the class.

Given the Numeracy issues across the 4 LAs and the focus of the course itself on improving teaching and learning, the balance of specific issues was surprising, although the focus on attainment appeared to reflect teachers' concerns about how "successful" they and their classes were perceived to be – by parents, the school and the LA. In an attempt to understand how students were approaching the perceived issues of inequity, UoD staff analysed the nature, focus and outcome of the interventions they carried out. One collated data set is published here, although the UoD team holds further, more detailed data for future publication.

The principal intervention areas were: (i) Literacy (mostly related to Phonics) (15: 52%), (ii) HWB (5:17%), (iii equal) Numeracy (4: 14%), (iii equal) Pedagogy (4: 14%). The remaining instance related to the specific learning needs of a small group within the class.

Discussion

There appears to be a significant mismatch between the specific issues identified for intervention and the interventions carried out. Slightly fewer than a third of the learning issues identified related to Literacy but over a half of the interventions were to improve Literacy. Despite the background LA or school issues with Numeracy, only one student identified Numeracy as an issue, yet 4 students decided to carry out a Numeracy intervention (the others being to address general low attainment or deprivation). Three students had identified engagement/ behaviour issues but 5 decided to carry out an HWB intervention (the others being to address general low attainment or specific needs).   One pedagogical intervention addressed an issue of setting but the others were attempts to address parental engagement, social immobility and gender issues. Although a major part of the work of UoD course staff relates to consideration of LA/school issues and identification of individual learners' issues, it appears that this did not always carry through into the identification and implementation by students of appropriate interventions.

Analysis of PGT Students' Research Projects

Across the four postgraduate cohorts of middle/senior school leaders in Table 2b, 31 PGT students (from a larger set of students undertaking these courses) completed a final equity-related project and passed the course. None of the students who undertook an equity-related project failed the course, although 4 of the students who took a non-equity project did fail. Three others have deferred their studies for appropriate reasons.

The main overarching catchment/school issues identified by PGT students as impacting on the learning of their school were as follows:

a) Closing the (varied) Gap (10: 32%)
b) Deprivation (7: 23%)
c) (equal) Digital learning inequities (2: 6%); specific pupil needs, (2: 6%); Support needs, (2: 6%); Positive destinations (2: 6%)
e) Others (community engagement, emotional resilience, food poverty, Literacy, transitions, underachievement) (6: 20% in total).

Deprivation was identified by students in a manner similar to the ECT definition.

The main issues identified by students as deriving from the identified school /catchment issues were as follows (1 student identified 2 issues, providing 32 in total:

a) Engagement (by parents, learners or the community) (9: 28%)
b) Weak overall attainment (4: 13%),
c) (equal) Literacy (3: 9%)
   (equal) DYW/positive destinations (3: 9%).

Five factors: leadership of learning, learning and teaching, Numeracy, behavioural issues and specific learner needs tied for fifth place with two occurrences. The remaining 3 entries were all individual entries (digital learning, play-based learning and curricular structure) but were generally major whole-school projects affecting all or many learners and teachers.

The balance of specific learning issues was also surprising here, with little or no emphasis on Numeracy or Literacy, although this time the focus on attainment clearly identified students' concerns about overall attainment and this was particularly marked in the minority group of secondary Deputes. In an attempt to understand how students were approaching the perceived issues of inequity, UoD staff analysed the nature, focus and outcome of the interventions they carried out. In general, these were larger-scale interventions than those seen with the ECTs, but a significant group of primary-based students (almost all from small schools) focused on the specific needs of a small group, or groups. Even in these latter cases, Literacy and Numeracy were uncommon.

Again, only one data set is quoted here. The main intervention areas were: (i) HWB (9: 29%), (ii) specific learning needs (6: 19%), (iii) pedagogy (4: 13%), (iv) digital learning (three large-scale secondary projects to enhance the learning of all/many pupils) (3: 10%). Two themes tied for fifth place with two occurrences each – curricular structure (secondary) and Literacy (primary). The remaining four instances related to leadership of learning, curricular tracking, positive destinations and Numeracy.

Discussion

Again, there appears to be a mismatch, more so between the school/catchment issues and the learning issues than between the specific issues identified for intervention and the interventions carried out. This is quite surprising given the greater experience. promoted status and, at least theoretically broader vision, of these students. Almost a third of the learning issues identified related to pupil/parent/community engagement and this aligned well with the HWB interventions. After this identifiable correspondence, the remaining issues and interventions are frequently difficult to match up, with Literacy and Numeracy only the subjects of intervention to a very limited extent.

10. Conclusion   [2-3pp]

The findings from this UoD SAC research project have provided evidence of the original capability of UoD to support and encourage teacher learning and research related to equity and attainment/excellence. They have also identified - and led to the development of - improvements to the set of learning pathways and courses provided, as well as the quality and nature of learning experiences within each course.

A significantly broader set of student teachers at all levels from undergraduate to headteacher have undertaken research on equity and attainment as a result of this project and have carried out interventions at every level from addressing the needs of individuals/small groups of learners to carrying out whole-school improvements, all designed to reduce the impact of inequity and to improve learning and attainment. That research has itself been analysed by members of the UoD staff team, providing insights into the processes which class teachers and school leaders carry out in addressing inequity and underachievement.

Although there was a significant body of LA-funded (and thus unpublished) research on SAC within UoD, this national SAC research project has confirmed and consolidated the findings of some of that previous research as well as providing a set of new findings to set in the public domain. This current phase of SAC research has demonstrated that equipping teachers (at all levels) to understand, research and identify issues related to equity and attainment does appear to improve their practice. However, there is further work to be done in teacher education (at least within UoD, although this may be a wider issue) to ensure that the investigation of catchment/class/individual equity issues is appropriately linked by all of our students (and thus, almost certainly, by all teachers) to the accurate identification and implementation of interventions which are most appropriate to addressing the inequities and learning challenges uncovered.

A range of specific outcomes has also emerged with respect to the UoD research questions. These include:

1. **Addressing equity and attainment in our existing cours**es

All relevant ITE, ECT and PGT courses within ESW have been analysed three times. An initial course leader-based survey, followed by a full review of each course, led to a number of changes to the undergraduate course, extended provision within the set of courses appropriate for ECTs and provision of a wider set of pathways involving research on equity and attainment for PGT students, particularly middle leaders and aspiring/substantive headteachers. A first few students from the programmes supported by the UoD project have now moved on to using equity and/or the improvement of attainment as key foci within their full Masters degree programme.

UoD staff members' awareness of SAC, PEF, 'Closing the Gap'(s) and the NIF have been the subject of interviews, cross-course discussions and focus groups. The third research phase demonstrated a high degree of awareness of these issues among the staff sample chosen, although this has still to be more fully tracked across all educational staff members. Some input has also been made to SW and CLD students to ensure that their awareness of these agendas is also at an appropriate level.

2. Involving, training and equipping teachers and school leaders for active participation in research into equity, learning and attainment issues

The principal foci of the UoD project with respect to teachers have been (a) to equip them to research and analyse their own classes in order to identify issues of inequity impacting on learners' abilities to learn and attain at the highest possible level and (b) to provide structured support for the development of their own abilities to develop and implement interventions to improve aspects of learning within their learner group(s).

There have been significant successes within these processes, as over 60 ECT and PGT students have completed courses in which they have successfully carried out the processes outlined in (a) and (b) above. Likewise, the amended ITE course is now supporting each cohort of undergraduate students in learning the basic processes of research and intervention, ready for more detailed application after graduation. The new module and certificate course in Teaching and Learning for Equity has seen three cohorts of students, almost all ECTs, complete the course by learning about equity and attainment, researching within this field and carrying out focused interventions to improve the learning of their class. A fourth cohort will begin after the summer break. Other Masters students have taken/are taking the course as part of their Masters degree. For students in promoted school posts, the Into Headship course has been adapted to encourage students to address equity and attainment as key elements of their research and their leadership project.

There have, however, been some issues, as staff changes in several associated LAs have seen interest in supporting the full Certificate course in Equity diminish, particularly in one LA, with significantly more students taking the key equity-related module than completing the full Certificate course. However, some of those students have used their equity module as part of a move upwards to a full Masters degree programme. UoD itself, also partially due to staff changes (3 of the original 4 members of the original UoD project team have either retired or been promoted to another university), will look to improve how it can internally highlight, as well as externally advertise, the importance of this Certificate. (See Section 11.)

3. Involving university staff, teachers, headteachers and LA educational leaders in developing a 'research community' focused on equity and attainment

Significant numbers of individual ITE, ECT and PGT teachers have carried out individual research into equity and attainment, analysing issues at classroom and whole-school levels and carrying out class-based or whole-school interventions as a result of their findings (and as part of the wider SIP). A majority of ECT students and a large majority of PGT students have demonstrated that they have influenced classroom-level and/or wider practice. A minority of these have demonstrated improved attainment as a result.

From a group of 6 UoD staff members engaged in wider SAC research activities, two have so far been involved in carrying out research related to students' actions within this project and one is about to publish an initial paper on LAs' responses to the national SAC project itself. Since the space to report findings related to analysis of students' research is strictly limited within this paper, a further paper will be produced to consider the linkages between

classroom-level research, teacher interventions and school equity profiles. Only a very high-level summary is provided in Section 9 (and that slightly exceeded the page count).

As noted earlier, one of the four major purposes of the project was to develop an equity-based research community encompassing the 4 LAs, united and supported by UoD. This aspect has not (yet) happened to any significant extent, partially due to LA staff turnover (and consequent priority changes, as noted by LA interviewees themselves in Table 1), partially due to greater supply staffing constraints than had been expected in almost all of the 4 LAs and partly due to promoted staff changes within UoD. Mechanisms for resolving these issues and achieving this valuable outcome are discussed in Section 11.

11. Taking ideas forward [2pp]

The UoD aspect of the national SG/CoDE SAC Project continues. Although a significant majority of the research/learning strands identified in Sections 4-8 have been addressed, not all have been fully addressed, one has not (yet) been addressed to any significant extent and there is still significant work to do in further analysing the findings from student and staff research and then reporting upon these, although initial high-level findings are contained in Section 9.

Several aspects of the UoD project require to be taken forward. These include:

6. Further refinement of relevant ESW teacher education courses to better equip student teachers at all stages of their careers to improve teaching, learning and attainment.
7. Specific attention to key ITE, ECT and PGT courses to support students in addressing the issues which their research identifies as crucial to improved learning and attainment by means of accurately focused interventions.
8. Further development of the undergraduate course to improve what is taught to students - and how - in the context of addressing inequity and improving attainment through research and focused interventions.
9. Addressing internal and external understanding of the Certificate course in Teaching and Learning for Equity, including improving the understanding of appropriate UoD members of staff and of appropriate LA staff, HTs and potential students.
10. Development of a mechanisms to support and develop an Equity-based Research Community.

Course Improvements to Enhance Students' Abilities

Three phases of research and analysis have been carried out within this thread so far. The need now is for the ESW Leadership Team, with course leaders, to ensure that each of the relevant ITE, ECT and PGT courses is reviewed in the light of the need to provide appropriate learning, research and project work in the context of equity and attainment for students at each stage of their academic/professional development.

The findings of this report have identified two specific issues, as well as the overarching need to continue to sharpen the focus of all ESW teacher education courses on individual needs, equity, learning and improved attainment. The first of these requires ESW to further develop the ITE course to set a stronger foundation of knowledge and skills with respect to researching pupil issues and needs and then identifying appropriate interventions to address the issues uncovered. The second requires this process to be carried through ESW's ECT and PGT course in a systematic manner appropriate to the stage and experience of the students concerned. This may require improvements to a range of courses for practising teachers and school leaders.

Publicity and Understanding

Again, the findings of this report have identified two issues. The first, that of limited publicity for, and limited LA engagement with, the Certificate course in Teaching and Learning for Equity, has not stemmed the flow of students for the principal module but has significantly diminished the number going on to complete the Certificate course. Some students, however, have opted for a full Masters pathway strongly angled towards improving Equity and Attainment.

It is necessary, however, for ESW to publicise the course appropriately with all relevant LAs and to involve relevant LA coordinators in supporting and promoting the course. Equally, it will be necessary for ESW to ensure that all relevant staff understand the changing learning pathways and ensure that an Equity and Attainment Masters pathway for early and middle-career teachers is appropriately advertised and supported, alongside the Strategic Educational Leadership pathway incorporating the SQH and the Into and In Headship courses.

Research Community

Again, there are two issues to be taken forward here. The first concerns the incorporation of data from ITE students' research and interventions into the UoD staff data sets to support a broader analysis of students' understanding of (in)equity and of how they convert that understanding to appropriate action. Given that the extent and nature of the undergraduate research is not as comprehensive as that carried out by ECT and PGT students, this will require some work by UoD staff to compare and align findings.

The second relates to the development of a coherent and ultimately self-sustaining research community focused on mitigation of the impact of equity on teaching, learning and attainment is still very much 'works in progress'. The full development of a wider research community involving PhD students within the university and the full group of educational staff within ESW will need to be accomplished by other means than physical attendance at an ESW Equity-Based Conference Day, although there is some concern within ESW (and across some other universities) that employing an on-line forum as a vehicle for such a complex development is not necessarily guaranteed to be successful. Other mechanisms (e.g. linkages to LA in-service days, joint planning with 'new' LA coordinators, use of existing UoD events and conferences and an on-line support forum) will need to be developed to take this forward. So far, a significant degree of progress has been made in establishing foundations for these subsequent moves. This will require effective partnership working for further progress to be made.

5. References   [1 page]

Bazeley, P. (2010). Computer-assisted integration of mixed methods data sources and analyses. In Tashakkori, A. & Teddlie, C. (Eds.), *Sage Handbook of Mixed Methods in Social & Behavioural Research* (pp.431-467). Thousand Oaks, CA: Sage.

Cameron, R. (2011). Mixed Methods Research: The Five Ps framework. *The Electronic Journal of Business Research Methods, 9*(2), 96-108. Retrieved from www.ejbrm.com

Cherryholmes, C.H. (1992). Notes on Pragmatism and Scientific Realism. *Educational Researcher, 14, 13-17.* Retrieved from:
http://www.educ.ttu.edu/uploadedFiles/personnel-folder/lee-duemer/epsy5382/documents/Notes%20on%20pragmatism%20and%20scientific%20realism.pdf

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education.* Abingdon: Routledge.

Creswell, J.W. (2003). *Research design: Qualitative, Quantitative and Mixed Methods approaches (2nd ed.).* London: Sage Publications.

Creswell, J.W., & Plano Clark, V.L. (2007). *Designing and conducting Mixed Methods Research.* Thousand Oaks, CA: Sage Publications.

Creswell, J.W., & Tashakkori, A. (2007). Differing perspectives on Mixed Methods Research. *Journal of Mixed Methods Research, 1*(4), 303-308.

Crotty, M. (1978). *The foundations of social research: Meaning and perspective in the research process.* London: Sage Publications.

Denzin, N.K., & Lincoln, Y.S. (2003). *Strategies of Qualitative Inquiry (2nd ed.).* Thousand Oaks, CA: Sage Publications.

Education Scotland (2018). Inspection of Local Authorities. How well is Dundee City Council improving learning, raising attainment and closing the poverty-related attainment gap? Livingston, Scotland: Education Scotland. Retrieved from:
www.education.gov.scot/Documents

Greene, J. C. (2007). *Mixed methods in social inquiry.* San Francisco, CA: John Wiley & Sons

Guba, E.G., & Lincoln, Y.S. (1994). Competing paradigms in Qualitative Research. In N.K. Denzin & Y.S. Lincoln, *Handbook of Qualitative Research* (pp. 105-117). Thousand Oaks, CA: Sage Publications.

Johnson, R.B., & Onwuegbuzie, A.J. (2004). Mixed Methods research: A research paradigm whose time has come. *Educational Researcher, 33*(7), 14-26. Retrieved from
www.tc.umn.edu/~dillon/CI%208148%20Qual%20Research/Session%2014/Johnson%20&%20Onwuegbuzie%20PDF.pdf

Kuhn, T.S. (1962). *The Structure of scientific revolutions.* Chicago, IL: University of Chicago Press.

Mertens, D.M. (1998). *Research methods in education and psychology; Integrating diversity with quantitative and qualitative approaches.* Thousand Oaks, CA: Sage.

Mertens, D.M. (2003).   Mixed methods and the politics of human research: the transformative-emancipatory perspective.   In A. Tashakkori & C. Teddlie (Eds.). *Handbook of mixed methods in social and behavioral research.* Thousand Oaks, CA: Sage Publications.

Morgan, D.L. (2007). Paradigms lost and pragmatism regained. Methodological implications of combining qualitative and quantitative methods. *Journal of Mixed Methods Research. 1*, 48-76.

Morse, J. (2003).   Principles of mixed methods and multimethod research design.   In A. Tashakkori & C. Teddlie (Eds.). *Handbook of mixed methods in social and behavioral research.* Thousand Oaks, CA: Sage Publications.

Onwuegbuzie, A.J., & Collins, K. (2007). A typology of Mixed Methods sampling designs in social science research. *The Qualitative Report, 12*(2), 281-316. Retrieved from: http://www.nova.edu/ssss/QR/QR12-2/onwuegbuzie2.pdf

Patton, .Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage Publications.

Sarantakos, S. (2005). *Social research (3rd ed.).* Basingstoke: Palgrave Macmillan.

Scottish Government (2015). *Scottish Attainment Challenge*. Retrieved from http://www.gov.scot/Topics/Education/Schools/Raisingeducationalattainment

Tashakkori, A., & Teddlie, C. (Eds.). (2003).   *Handbook of mixed methods in social and behavioral research.* Thousand Oaks, CA: Sage Publications.

Tashakkori, A., & Teddlie, C. (Eds.). (2010). *Sage handbook of mixed methods in social and behavioral research.* Thousand Oaks, CA: Sage Publications

Teddlie, C., & Tashakkori, A. (2009) *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences.* Thousand Oaks, CA: Sage Publications.

APPENDIX

Appendix 1: The "Five Ps Approach to Mixed Methods Research

The key elements of the "5Ps" approach to Mixed Methods research, as defined by Cameron (2011) are:

P1: Paradigms
Tashakkori and Teddlie (2009, p.84) describe six contexts for MMR which have been re-grouped by others, generating three principal means through which MMR researchers deal with paradigms: the aparadigmatic, multiparadigmatic and uniparadigmatic stances.

In aparadigmatic research, paradigms are ignored and methodology is considered as independent of epistemology (e.g. Patton (1990). The aparadigmatic position is not quite untenable but all researchers have some form of philosophical position, stated or not, influencing their work.

Multiparadigmatic research employs more than one paradigm, through the 'complementary strengths' thesis, the 'multiple paradigms' thesis or the dialectical thesis (Tashakkori & Teddlie, 2003). These either use different paradigms in separate parts of the research (Morse, 2003), or select a 'best fit' paradigm for the design, or mix sets of assumptions, understandings, predispositions, values and beliefs (Greene 2007, p.12). None of Tashakkori and Teddlie's attempts to exemplify the multiparadigmatic approach explain why or how paradigms are selected for mixing. Issues of incommensurability, where mixed paradigms have conflicting ontologies and/or epistemologies, can potentially cause problems.

This study, however, adopts a uniparadigmatic stance, where a single paradigm supporting quantitative *and* qualitative methods is selected. In principle, this resolves the issues of dealing with multiple paradigms based on incompatible approaches. Although not without issues, Pragmatism is often chosen (Johnson & Onwuegbuzie, 2004; Morgan, 2007) as the philosophical basis for MMR, originally because it was the only significant stance available to most mixed methods researchers. Teddlie and Tashakkori (2009), however, see Pragmatism as *the* most appropriate MMR paradigm and there is significant academic backing for this stance. Other paradigms may be employed, especially Realism (now freed from Positivist ontology and Marxist associations), either in the form of Scientific Realism or Critical Realism (which also fits well with the need to analyse how the processes of improving equity and attainment are planned, led, implemented and analysed).

P2: Pragmatism
Within Cameron's 5Ps framework (2011), pragmatism (with a 'small p') is not a reference to Pragmatism. As she (*ibid.*, p.101) suggests, it describes researchers in understanding key debates in MMR literature and then adopting and effectively defending an informed stance at the interface between philosophy and methods. Patton (2002) suggests a pragmatic approach to reduce bias and enhance flexibility (Patton 2002, pp. 71-72).

P3: Praxis
Praxis is 'the practical application of theory' (Cameron, 2011, p.102). Here, the key relate to methodological and data integration, also to concerns regarding over- or under-elaboration

of integration in design. MMR designs are well integrated when 'methods intentionally interact with one another during the course of the study' (Greene, 2007, p.125). Cameron agrees with Bazeley that the level of integration in some MMR studies is too low, seeing integration as a function of 'the extent that different data elements and various strategies for analysis of those elements are combined … thereby producing findings that are greater than the sum of the parts' (Bazeley, 2010, p. 432).

P4: Proficiency
MMR researchers must be 'methodologically trilingual' (Cameron, 2011, p.104), i.e. capable of using quantitative, qualitative and mixed methodologies. There is, however, a danger of superficiality rather than genuine integration in this. Bryman's (2008, as cited in Cameron, 2011, p.104) study of MMR-based articles in social journals over the decade 1994-2003 found almost half presented qualitative and quantitative findings separately and only 18% offered genuine integration. This project attempts integration of data, instruments, analysis and reporting.

P5: Publishing
The 'fifth P' is either Publishing or Politics, depending on the context. Both words convey aspects of the issue as P5 addresses the challenges of presenting (and being enabled to present) MMR research within the research community. This concerns the willingness of publishers/other academics to accept MMR research, due to their own innate paradigmatic views. It is therefore appropriate to be mindful of the audience(s) served by this report.