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Knowledge Utilisation Mapping Study: Scottish Education System

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Knowledge Utilisation Mapping Study: Scottish Education System

Final report

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Table of Contents

Executive Summary

Introduction

This report presents the findings from the Knowledge Utilisation Mapping Study project conducted by the Robert Owen Centre for Educational Change and commissioned by Scottish Government. The research was undertaken from April to October 2018.

Aims

Two main questions framed the research, each with related sub questions:

1. How do practitioners in Scotland engage in research and act on research evidence?

2. What factors influence practitioners' ability to make the best use of evidence?

In defining research evidence, the study included three main types:

- School level data, often collected routinely to help understand pupil's attainment and achievement

- Accessing secondary research findings and knowledge such as books, and academic journals

- Conducting practitioner enquiry and action research, whether individually or collaboratively.

Research strands and methods

The research project comprised three strands:

- A literature review

- A qualitative strand with interviews and focus groups with 67 key informants at various levels of the education community in six local authorities. A total of 6 head teachers, 8 depute head teachers/ senior management team members, 3 principal teachers, 4 Attainment Advisors and 5 regional improvement collaborative leads were interviewed. Ten focus groups with primary and secondary teachers were conducted across the six local authorities (41 participants in total)

- An on-line survey of 1,036 practitioners across Scotland to help validate the findings from the qualitative strand. Responses were received from all local authorities in Scotland although the numbers from each authority were not necessarily proportionate to the size of their staff complement.

Limitations of the research

The purpose of our qualitative sampling and selection of participants was to obtain insights and perspectives from key stakeholders; however, the findings cannot be generalised to all of the participant groups. The research also included a national survey to validate the qualitative findings. This analysis suggested that there was a strong level of consensus across participants in both the quantitative and qualitative strands of the project. The relatively high levels of engagement with data and research across participants and respondents could indicate that those participating in the research are not typical of the population of Scottish teachers. Nevertheless, the findings are salient, particularly those regarding factors that influence engagement with and use of data and research evidence.

Key findings

Literature review

- There is general agreement that teachers' roles have developed to incorporate a greater focus on research engagement and practitioner enquiry. Government, OECD and international research literature concur that teachers' engagement with research is crucial for school and teacher effectiveness.

- There is little literature on the extent and nature of practitioner engagement with research in Scotland. In contrast, there is more literature on the factors influencing teachers' engagement with data and evidence. This emphasises that data and research is most valued by practitioners when it informs effective learning and deals with specific aspects of practice.

- The literature suggested that research is only likely to make a difference to practice if: the available evidence is in a form that teachers can readily understand and apply; there is a culture of research engagement in the education system; and there is time to access this material.

- Specialist and partner professionals, such as educational psychologists and speech and language therapists also have a key role in building teachers' capacity to gather and use data/ research evidence.

Qualitative findings

- The qualitative findings revealed that engagement in research was viewed as central to teachers' professional identity. Overall, the research, particularly the insights from Attainment Advisors and Regional Improvement Collaboratives (RIC) leads with their strategic overview, illustrate a growing but uneven capacity in the system regarding practitioner research engagement and skills.

- The research evidence and data that practitioners engage with is most commonly school-level data or online summaries of research findings to assess school context, levels of pupil attainment and inform planning and pedagogical approaches in the school.

- Overall, the considerable body of literature regarding the factors influencing practitioner engagement with research aligns with the findings from the qualitative strand of this study. In particular, teachers are more likely to seek out and use knowledge when it can be seen to be readily applied to promote effective learning.

- The most compelling factor seen as influencing practitioner engagement with research is that of time. Providing the time and space for practitioners to meaningfully engage in collaborative professional dialogue regarding data, research and their practice was seen as crucial. The literature indicates this, but the qualitative findings bring this into sharp relief. While school planning, accessible research sources and personal motivation can offset the impact of time pressures on research engagement to some extent, the current nature of teachers' workload acts as a systematic inhibitor to increased research engagement. Participants, especially Attainment Advisors, RIC Leads and head teachers stressed that the current workload of practitioners places considerable time limits on the extent to which they could engage in research and innovate beyond the basic scrutiny of school-level data. Time for dialogue between practitioners and researchers is a particularly important factor in translating research findings and data-informed insights into classroom practice.

- Despite our participants reporting generally high levels of confidence in their skills regarding data and research use, they also report requiring support to analyse and critically evaluate research evidence. Guidance

from Attainment Advisors, educational psychologists and academic colleagues is key for supporting this process, at least initially. Attainment Advisors have an increasingly important role in acquiring research knowledge and mobilising this across the system, particularly in their local authorities.

- Head teachers and other school leaders usually see it as their responsibility to keep abreast of knowledge on pedagogy and 'what works'. Subsequently, they are important intermediaries in knowledge translation. Moral and practical support from school leadership, the local authority and Attainment Advisors is crucial in building a culture of research engagement and capacity at local level.

- There were limited examples of collaborative research projects within and across schools where teams of teachers and their head teachers focussed on a particular challenge, again within the context of raising attainment. These were usually supported by external critical friends such as university colleagues and Attainment Advisors and facilitated by the Attainment Scotland Fund. Teachers and head teachers find that involvement in small-scale, collaborative interventions with associated enquiry to monitor impact can help to build confidence and capacity of staff to engage with research.

- The resources and funding provided by the Attainment Scotland Fund has helped build systems and capabilities that have fostered use of data and research. This has included resourcing staff to focus on data use and enquiry as well as drawing on external sources of expertise.

- There were examples of local authority programmes to build practitioner capacity and skills, however, in some cases; there was a reduction in local CLPL as financial cut backs continued to affect staffing levels. Strategic participants noted that the emerging brokering role of the RICs in coordinating and facilitating partnerships and sharing of information should enhance the mobilisation of knowledge across the system. Practitioners also called for improvements in the scope, accessibility and usability of research information in repositories accessed via central portals.

Quantitative findings
- The survey findings largely echoed the key themes in the qualitative findings, particularly calls for dedicated time to engage with research evidence.

- More than half of respondents (59%) indicated that they were currently involved in one or more research-related activities.

- Almost four out of five respondents reported using data/research material *to inform teaching and learning* while just over two thirds indicated its use in *understanding the impact of teaching and learning*.

- The supports rated as most helpful in planning and developing practice were: *taking part in structured collegiate discussions*, *CLPL courses/opportunities* or *working with colleagues in other schools/centres*. These seemed to be those that offered both the dedicated time and opportunity to collaborate with colleagues. Practitioners also regularly used web searches to find relevant evidence.

- Substantial numbers of staff thought they already possessed relevant research skills, but respondents also generally stated that they needed support to develop their skills, particularly in relation to analysis of quantitative and qualitative data.

- A large majority of respondents indicated a need for the following; *dedicated time to engage with research evidence* (84%)*, national advice and support on engaging with research evidence* (79%), *opportunities to work with colleagues on research activities* (74%) and *partnerships with research specialists (74%).*

Discussion
The research findings highlight a number of issues for consideration.

Time and workload
The most important factor seen as influencing practitioner engagement with research is that of time. The findings highlighted the importance of teachers having sufficient time to access, interpret and apply data and evidence and that current workload can inhibit this process.

Relationships between practitioners, researchers and policymakers
The literature and our findings highlight the importance of researchers working closely with practitioners and other partners to better convey research findings to influence practice and educational thinking but also to enhance research skills. Given this, the education and policy community could consider how academics and others can work more collaboratively at a local level with teachers.

The influence of key actors

The findings identified a number of key actors that were important conduits for knowledge transfer and mobilisation in education. This included: Attainment Advisors; Educational Psychologists and other allied professionals; academic researchers; and leads at school and local authority level. These findings suggest that the education and policy community could explore how these actors can be further supported in their knowledge mobilisation and leadership roles and how such arrangements become more consistent across Scotland.

Resourcing research engagement across local systems

In addition to local authority and other personnel supporting practitioner research engagement, there were examples of local authority professional learning programmes aimed at building practitioners' data and research capacity and skills. The value of investing in such central support to deploy specialists, provide CLPL and promote the transfer of knowledge across local authorities appears clear.

The value of collaboration to foster engagement with research and data

While there were limited examples of collaborative practitioner research within and across schools, such arrangements demonstrated that teams of teachers supported by their head teachers and others could enhance the capacity of staff to systematically engage with data and research.

Accessibility of research findings

A strong theme across the literature review and our empirical findings was the issue of how academic findings regarding effective education approaches could be conveyed in a more valuable way to inform teachers' practice. This suggests there is scope for academics and policy partners, working with practitioners, to explore how research findings can be better communicated to the teaching profession while retaining appropriate rigour.

Existing educational infrastructure

Currently, at the policy level, the Attainment Challenge and the associated Attainment Scotland Fund are working as drivers to focus teachers' attention on the value of evidence-based practice. At the same time, aspects of teachers' professional environment may not always be conducive to practitioners' engagement with data and research. For example, as discussed above, time emerged as a significant barrier impacting on engagement with research.

The findings also indicate that the education landscape is changing as the Regional Improvement Collaboratives (RICs) are established. This presents opportunities for knowledge mobilisation and teacher engagement with data

and research. Further consideration, therefore, could be given to how strategic RIC policies and approaches regarding knowledge mobilisation coherently articulate with, and support, the use of data and research at regional and local levels.

List of acronyms

CAR: Collaborative Action Research

CLD: Community Learning and Development

CLPL: Career-long Professional Learning

EEF: Educational Endowment Foundation

EIS: Educational Institute of Scotland

ES: Education Scotland

FRH: Flexible Route to Headship

GTCS: General Teaching Council for Scotland

ITE: Initial Teacher Education

NQT: Newly Qualified Teachers

PEF: Pupil Equity Fund

RIC: Regional Improvement Collaborative

SCEL: Scottish College for Educational Leadership

SERA: Scottish Educational Research Association

SLT: Speech and Language Therapists

SQH: Scottish Qualification for Headship

1. Introduction:

1.1 About this research:

This report presents the findings from the Knowledge Utilisation Mapping Study project conducted by the Robert Owen Centre for Educational Change and commissioned by Scottish Government. The research was undertaken from April to October 2018. It responds to commitments made within the Research Strategy for Scottish Education and builds on previous research on what works regarding mobilising Knowledge into Action in education (Chapman et al 2015).

1.2 Background and context:

In April 2017, Learning Analysis published '[A Research Strategy for Scottish Education](#)'. The research strategy aims to support the four priorities set out in the National Improvement Framework. Currently, there are three key strands of the strategy:

- To support the research infrastructure and independent research

- To develop a knowledge base of "what works"

- To empower practitioners to produce and use evidence and data.

The research presented in this report responds most primarily to the third aim of the strategy. In the strategy, a commitment was made to undertake research which would inform the Scottish Government about what changes are needed within the current system to help empower practitioners to produce and use research evidence. This research explores the current capacity of the Scottish education system to use research evidence.

There is a lack of research and literature exploring how research evidence is taken up and used in the context of education (Chapman *et al* 2015). What literature does exist highlights the complexity of the process of practitioner engagement and the importance of collaboration and interpersonal relationships in encouraging the use of research evidence. The research reported here is a response to this lack of empirical research regarding how practitioners in Scotland engage in research and act on research evidence. In particular, our research seeks to identify key factors that influence practitioners' engagement with research and use of data and evidence. This will help us understand and identify what actions and system changes could

help practitioners engage in research and more effectively use research evidence to inform their practice.

The importance of practitioner research engagement and enquiry as part of strategies to promote teachers' skills to tackle educational inequity has been highlighted in the literature. Teacher quality and effectiveness is a crucial element in promoting positive educational outcomes irrespective of social/economic background (Ko et al., 2013) and in the classrooms of the most effective teachers, 'at risk' students learn at the same rate as those from advantaged backgrounds (Hamre & Pianta 2005).

For improvement to take place, there needs to be a focus on the development of teachers' knowledge and skills and for the process to be inspired by what Mincu (2013) refers to as 'inquiry-minded leadership', where school leadership values and supports research engagement and links this to learning and school planning. Research has demonstrated that the most effective school improvements are also locally owned and led by teachers and school leaders, collecting and using data appropriately, conducting enquiry, and working in partnership and collaboration with like-minded professionals and stakeholders (Ainscow et al 2012; Chapman 2014, 2008; Chapman 2012; Cochran-Smith and Lytle 2009; Earl and Katz, 2006; Hadfield and Chapman 2009; Kerr et al 2003). These themes are explored in more detail in Chapter 3.

1.3   Aims and research questions:

The focus of this research was to explore and map how research evidence currently flows through the education system and, to identify the factors that facilitate or inhibit how research evidence influences educational practice and decisions among school actors in Scotland. In defining research evidence, the study includes three main types:

- School level data often collected routinely to help understand pupils' attainment and achievement;

- Accessing secondary research findings and knowledge such as books, and academic journals;

- Whilst the study focussed primarily on research *evidence*, other information about how practitioners engage in research activities more broadly (e.g. practitioner enquiry/action research) and the mechanisms to share emerging evidence more at school, cluster, local authority or regional level was also captured.

Two main questions framed this research, each with related sub questions:

1. How do practitioners in Scotland engage in research and act on research evidence?

- What types of research, evidence and data do educational practitioners currently use to inform, plan and develop teaching interventions?

- How do those who make or influence school-, cluster- and local authority-level education decisions access research evidence?

- To what extent, and how, do educational practitioners critically evaluate the research evidence used to inform their pedagogy?

2. What factors influence practitioners' ability to make the best use of evidence?

- What skills and resources do educational practitioners need to be able to understand research evidence, including data they have gathered themselves?

- What organisational, capacity and skill constraints currently hinder or promote the effective utilisation of research evidence?

- How is capacity at classroom, school, cluster, authority and regional level related to the effective use of research evidence?

The findings will inform a second and forthcoming strand of the Scottish Government's work in this area; "What changes to organisational structures and capacity may be warranted to help embed evidence from research in the education system?"

2. Methodology:

2.1 Introduction:

In order to address the research aims, the methodology entailed a three-strand approach (Figure 2.1).

- The first strand was a literature review with two aims: (i) to provide an overview of what is currently known about how research evidence is used within the Scottish education system and (ii) to provide an appropriate framework to inform the subsequent qualitative study.

- The second strand comprised a qualitative study and involved interviews and focus groups with key stakeholders at different levels of the education system.

- The third strand involved an on-line validation survey to help complement and corroborate the findings emerging from Strands 1 and 2.

Figure 2.1. Overall timeline of the project
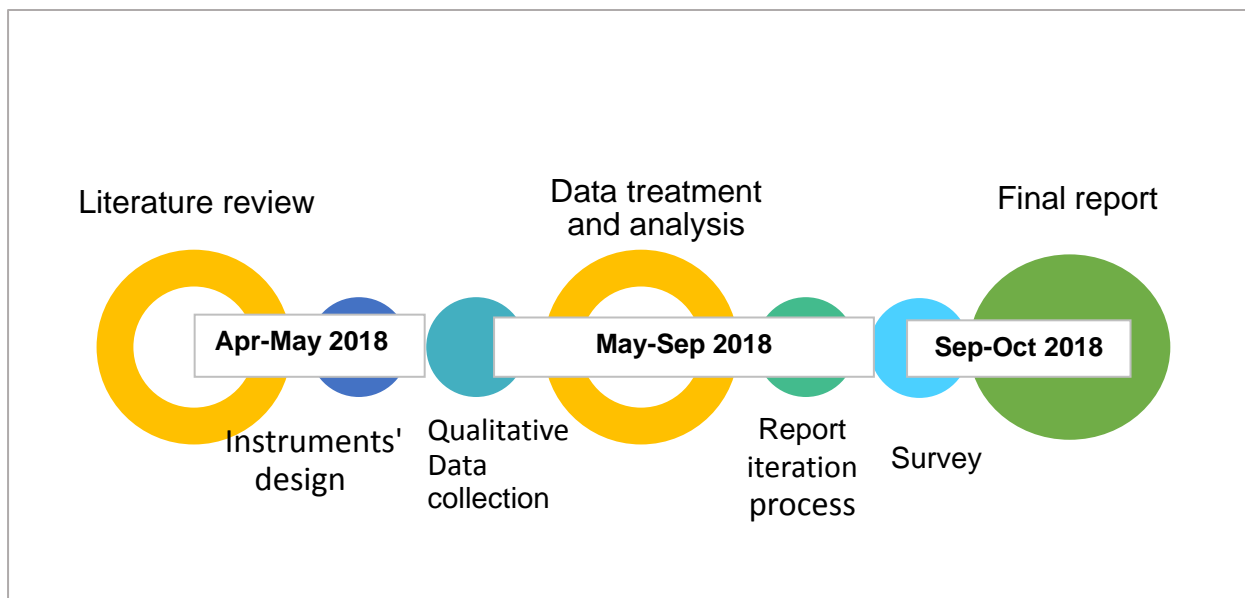
2.2 Strand 1: Literature review

A literature review provided an overview of research engagement and evidence in the context of education. It identified evidence on the extent to which research is embedded in the education system and explored the factors that influence the nature and level of research engagement in education. The review adopted a variant of the systematic review approach.

Systematic reviews summarise large bodies of evidence to help explain differences among studies on the same question. A systematic review "involves the application of scientific strategies, in ways that limit bias, to the assembly, critical appraisal, and synthesis of all relevant studies that address a specific question" (Cook et al., 1997). Our variation on the systematic review approach involved limiting the time spent reviewing the source databases, due to the time allotted, while still maintaining rigorous selection criteria and applying a systematic framework to the review approach. This approach is informed by a 'best evidence' model (Slavin, 2008), and generates a sufficiently comprehensive, criterion-based analysis of the available literature. It also uses a robust, consistent method in retrieving, appraising and synthesising the literature.

The review searched for relevant references from the year 2000 onwards in recognised bibliographic databases using relevant search terms. The search terms were focussed on the main research questions and remit of the study. Where the databases allowed, phrase searching was employed to locate literature across the following sources. Education Resources Information Centre (ERIC); British Education Index (BREI); Google Scholar; SCOPUS; The EPPI-Centre Library; The Australian Education Index (AUEI); Scottish Government website including archived pages and professional association outputs and publications etc. Given the very limited literature that focussed on the Scottish and UK context, the search included international sources that had concentrated on research engagement and evidence in the context of education. The research team drew on the literature review conducted for a previous study (Chapman et al 2015) to highlight relevant concepts of knowledge mobilisation and how other professions, mainly the medical sector, use data and evidence.

The selection criteria were guided by the terms of reference of the project and, where possible, assessments about the quality/ strength of the evidence to support claims were made. Key criteria included:

- Relevance within the Scottish/ UK context

- Aim and design of the study

- Robust peer-reviewed methodology

- Quality of data and analysis

- Theoretical and/ or ideological stance

- Plausibility of claims and associations based on evidence presented.

It was not always possible to apply all of the above selection criteria to each source. In instances where it was not possible to filter for criteria such as peer reviewed literature, we took a pragmatic approach to assess the quality of the evidence and its relevance on the information provided in the text. Across the various literature sources, we referenced 63 papers and publications. These were mainly empirical in nature, ranging across quantitative and qualitative methods, with a minority including some theoretical and conceptual content and some discussing use of research evidence in policy contexts. Those that were empirical largely focused on factors influencing teachers' use of evidence and its mobilisation.

2.3 Strand 2: Qualitative study

Strand 2 addressed the main aims of the project: i.e. to explore and map the extent to which research evidence is used and how it flows through the education system. This strand also looked at identifying the factors that facilitate or inhibit how research evidence influences educational practice and decisions among school actors in Scotland. This strand did this by eliciting relevant information from key stakeholders including classroom practitioners and school leadership teams and other stakeholders such as Attainment Advisors working with local authorities and the strategic leads of the RICs.

Given the paucity of relevant literature, this strand was crucial in providing up to date information about how research influences education decisions at all levels of the system in Scotland. This strand provided insight into the perspectives and experiences of educational practitioners. A qualitative approach was appropriate as it provides 'in-depth, intricate and detailed understanding of meaning, actions, non-observable as well as observable phenomena, attitudes, intention and behaviours (Cohen et al., 2011; p.219). Similarly, Evans (2009) states that qualitative research is valuable because it acknowledges 'the studied phenomena as complex, developing, [and] multifaceted' (Evans, 2009: p.113).

2.3.1 Cases and participant selection

The approach for Strand 2 began at the strategic level, engaging with the leads across the six RICs. Five out of the six invitees were able to take part in an interview.

The research team then identified an appropriate local authority within each RIC area. Table 2.1 provides the sampling rationale for the authorities in which to conduct the Strand 2 interviews and focus groups. This rationale was informed by the research teams' knowledge of research engagement-related activity across Scotland gleaned from the teams' previous and current national research and development work with schools and local authorities. In each of the selected local authorities, the team invited the Attainment Advisor to take part in an interview. Attainment Advisors were seen as key informants for this strand, particularly given their knowledge of developments across the schools in the context of the local authority and wider Scottish education policy, and their role in building capacity of practitioners and leaders to undertake self-evaluation, enquiry and collaboration in the context of raising attainment. The research team interviewed four Attainment Advisors in total. Two advisors had other commitments that prevented them taking part in an interview during the fieldwork period.

The team worked with RIC leads to identify two schools (one primary and one secondary) in the selected local authorities. When the team contacted each school leader for interview, they also negotiated identification of an appropriate group of practitioners in the respective schools who were invited to take part in a focus group. A total of 6 primary schools and 5 secondary schools took part in the research.

By working down from the strategic level, the qualitative research strand was able to frame the interview data within the various regional and local policy frameworks and contextual factors. This allowed for a more nuanced and informative analysis of the nature of research evidence use across levels of the Scottish education system and the key drivers and inhibitors involved.

Table 2.1: Strand 2 Sample rationale

RIC	Local Authority	Rationale
The West Partnership	Renfrewshire	Secondary schools operate whole school and collegiate working groups to develop a number of curricular and support areas.
Forth Valley & West Lothian Collaborative	Clackmannanshire	There is a history of engagement with research across a number of schools in these authorities springing from their SIPP* involvement.
The Northern Alliance	Argyll & Bute	There are a number of primary schools in the authority working together to build research capacity using CAR**. These represent good

		examples of school-led (as opposed to LA-led) initiatives.
South East Alliance	East Lothian	Schools are involved with Scottish Universities' Insight Institute (supports programmes of knowledge exchange).
South West Collaborative	South Ayrshire	Head teachers have been sharing data among their family schools to identify and share good practice as well as identifying areas for improvement. Local authority intends all schools will be consistently data literate to drive improvement across the system.
The Tayside Collaborative	Dundee City	The council has a history of building research capacity across schools and partner organisations. Local evidence-based interventions and sharing evidence are a key priority for the authority.

* School Improvement Partnership Programme. ** Collaborative Action Research

2.3.2 Methods and data gathering

The research methods employed within the qualitative strand, interviews and focus groups, were designed to gather relevant information from different tiers of informants that could provide insights on the research questions. These were:

- Interviews with RIC leads
- Interviews with the Attainment Advisor responsible for the identified local authority
- Interviews with each school's head teacher. Often the head teacher would either also invite other members of their senior management team such as depute head teachers to join the interview or invite them to be interviewed separately;
- Focus groups with practitioners including class teachers and CLD and nursery staff.

Interviews were typically conducted face-to-face, but for some of the Attainment Advisors and RIC leads telephone interviews were used when requested by the informant.

Table 2.2: Breakdown of informants involved in the qualitative strand

Individual interviews conducted	
Head teachers	6
Depute head teachers / other senior management team members	8
Principal teachers	3
Attainment Advisors	4
RIC leads	5
Number of focus groups with practitioners (Inc. teachers, CLD, nursery staff)	
Ten involving a total of 41 practitioners	

The data gathering processes were completed between May and September 2018. The total numbers of interviews and focus groups completed during this timeframe are contained in Table 2.2. In total, 67 individuals took part in the qualitative strand.

2.3.3 Processing data and thematic analysis

All interviews and focus groups were audio recorded and transcribed into MS word documents. Transcriptions were analysed using the DEDOOSE 8.0.42 qualitative analysis program. Each file was initially coded using 54 codes generated from the research questions, including sub questions used in the interview and focus group topic guides, as well as themes emerging from the literature review. This initial analytical framework was further developed as other codes were generated from each transcript. The codes were organised into thematic clusters that corresponded to the research aims and questions of the study.

2.3.4 Limitations

Qualitative methods provide in-depth insights regarding participants' perspectives and practices. However, even when the sampling and selection of participants is for the purpose of obtaining a range of insights and perspectives, the findings cannot be generalised to all of the participant groups.

Two strategies were selected to address this limitation. First, Strand 3 of the study involves a national survey to validate the qualitative findings to assess the representativeness of the qualitative responses. Second, findings from the qualitative strand were triangulated to compare emerging themes within and across the participant groups. This analysis suggested that there was a strong level of consensus across participants in both the quantitative and qualitative strands of the project. The relatively high levels of engagement with data and research across participants and respondents could indicate that those participating in the research are not completely typical of the population of Scottish teachers. Nevertheless, the findings are salient, particularly those regarding factors that influence engagement with and use of data and research evidence. For example, those teachers motivated to use data and research findings report encountering challenges in this process which is pertinent to strategies to support all teachers, including those less motivated to engage with evidence.

2.4 Strand 3: Validation survey

The emerging qualitative findings from Strands 1 and 2 informed the design and content of an on-line survey of practitioners. The survey complemented and corroborated the findings of the literature review and qualitative strand. It also supported the generalisability of the findings from Strand 2. Teachers across Scotland were invited to participate via directors of education, professional associations such the Education Institute for Scotland (EIS) and the Robert Owen Centre's educational networks as well as through Education Scotland contacts. In total, 1, 036 responses were received by the time the survey closed. Details of who responded are summarised in Chapter 5 of this report.

2.4.1 Analysis of quantitative data

Analysis of the survey data focussed on analysis of frequencies for each of the variables using SPSS (Statistical Package for the Social Sciences). This reflected the main purpose of the survey, namely, to obtain an indication of how common the main themes emerging from the qualitative strand of the research were in a larger sample of educational practitioners.

3. Literature Review:

3.1 Introduction

The main aims of the literature review for this study were to provide an overview of what is currently known about how research evidence is used within the Scottish education system. Theoretical literature and empirical evidence from outside of Scotland was used to support and develop this understanding.

The role of research in education in Scotland is one that is often discussed. The ways in which teachers and practitioners engage not only with, but in, research is of increasing interest to local and national governments, regulatory bodies and academic institutions, as well as the practitioners themselves. Previous research in Scotland (Chapman *et al.*, 2015) highlights how the use of educational research varies between practitioners, between schools and between local authorities. This section summarises the key findings from the review. The findings are arranged under the following themes that align with relevant research questions for the study:

- national policy stance and context

- importance of practitioner engagement with research

- extent of practitioner engagement with research

- factors influencing practitioner research engagement.

3.2 National policy stance and context

Since the Governmental acceptance of the recommendations of the Donaldson report, there has been a general agreement that practitioners in Scotland should engage in professional learning in a regular and meaningful way as part of their normal activity (Donaldson, 2010). Indeed, teachers' roles have developed to incorporate a greater focus on professional development, with practitioner enquiry being a key theme in their professional identify (Forde, 2015; De Paor and Murphy, 2018).

Within the Curriculum for Excellence, the Building the Curriculum documents contain overarching guidance on various aspects of the curriculum, including the use of data. "Curriculum for Excellence – Building the Curriculum 5: A Framework for Assessment" is made up a number of individual documents relating to assessment, quality assurance and moderation, profiling and

standards[1]. These provide the overarching framework for assessment and the use of data within CfE. In particular, "Building the Curriculum 5: A Framework for Assessment: Recognising achievement, profiling and reporting" illustrates the wide range of information and evidence that can be used to assess learners' progress and achievements. These guidance documents, therefore, reflect the Scottish Government's expectation that teachers should be able to gather and use information such as:

> "Pupil progress records (PPRs), Individualised Educational Programmes (IEPs); Coordinated Support Plans (CSPs); class teacher assessment records, whole school/centre; monitoring, tracking and profiling records over time, attainment data including SQA; information, personal, pastoral and learning support needs information and strategies"

> (Scottish Government 2010. p7)

Education Scotland has produced national guidance on Curriculum for Excellence (Education Scotland 2016), which also clarifies expectations around assessment and the use of appropriate data and information. In 2017, the Scottish Government published the National Improvement Framework for Scottish Education, which aims to ensure the better use and national reporting of data on key improvement priorities. This, together with the other inter-related national policy and guidance documents, again reinforced the emphasis on the role of data within the education system. Indeed, the latest iteration of the National Improvement Framework highlights the importance of data and 'all available evidence on educational performance' within the developing RICs (Scottish Government 2012).

In the recent Research Strategy for Scottish Education (2017), the Scottish Government recognises the role of independent research in supporting continuous improvement in the education system. The strategy draws on recommendations from a report by the OECD (2015) which recommended that developing an evidence base from evaluation and research was essential in establishing and embedding 'what works' within the education sector in Scotland. Before publication of the Research Strategy, a round table discussion of educational researchers and Scottish Government representatives noted that there was a professional gap between practitioners and researchers and that dialogue between practitioners and researchers is

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[1] https://education.gov.scot/scottish-education-system/policy-for-scottish-education/policy-drivers/cfe-(building-from-the-statement-appendix-incl-btc1-5)/Building%20the%20Curriculum

an influential factor in translating research into classroom practice (Royal Society of Edinburgh, 2016). The literature indicates that there is a lack of dialogue between the academic and practitioner communities (Williams and Coles, 2007). This is exacerbated by teachers' level of understanding of statistical and quantitative research methods and perceptions regarding what 'research' is. In their study of teachers' engagement with research in the Republic of Ireland, De Paor and Murphy (2018), found that teachers often believed that research could only be valuable if it was genuinely 'scientific' and heavily quantitative in nature. However, as we shall see, the findings presented in this report suggest a somewhat different perspective amongst Scottish practitioners.

In recent years, UK politicians and governments, according to Payne (2013), have placed a greater value on certain types of research and data. Organisations such as Skills Development Scotland (SDS) and the Scottish Qualifications Authority (SQA) have worked with the Scottish Government in recent years to develop ideas about desirable data, evidence and capacities needed to assess effectiveness with the context of the Curriculum for Excellence and strategies such as the Scottish Attainment Challenge (Payne, 2013). Ozga (2004) has written that policy makers in Scotland and beyond have looked at ways to use evidence to inform practice in education and that this has developed a focus on 'what works'. In their review, the OECD stated that in Scotland:

> Insufficient use is made of assessment information to support children's learning progress and curriculum development. Too many teachers are unclear what should be assessed in relation to the Experiences and Outcomes, which blurs the connection between assessment and improvement.

OECD 2015 p.11

The OECD review also recognised the importance of systematic formative evidence and professional judgement, however, some academic researchers such as Payne (2013) have expressed their concerns about the heavy reliance and emphasis on quantitative data in Scottish Education policy. Although the Scottish Government appreciates the value and importance of educational research, Payne (2013) suggests that their focus on quantitative data, and their understanding of 'real' research, i.e.: empirical and often quasi-experimental based, has implications for the expectations and perceptions of teachers and practitioners regarding the nature of research (Payne 2013).

The landmark report into teacher education in Scotland by Graham Donaldson paraphrases Cochran-Smith (2009) to stress that:

> If we are to achieve the aspiration of teachers being leaders of educational improvement, they need to develop expertise in using research, inquiry and reflection as part of their daily skill set. Outstanding teachers often use research and data to identify areas for improvement and take direct action to address any underperformance.

<div align="right">Donaldson 2010. p70</div>

The GTCS Standards for Registration have embedded the expectation that teachers will have a level of research awareness as part of their professional role. For example, item 2.3.2 states that teachers should have "Have knowledge and understanding of the importance of research and engagement in professional enquiry" (GTCS 2012, p. 12) and that registered teachers should:

> "Know how to access and apply relevant findings from educational research; know how to engage critically in enquiry, research and evaluation individually or collaboratively, and apply this in order to improve teaching and learning".

<div align="right">GTCS 2012 p.12</div>

Muschamp (2013) believes that research should play an integral role in teaching and cites Hargreaves (1996) who also reports that there is a strong role for research in educational practice, arguing that education should become an evidence-based profession, much like that of medicine. However, Hargreaves argues that there should not be a reliance on narrow data collection. Humes (2007) asks whether teaching can 'ever become a fully research-based profession in the way that, arguably, medicine is?' (p. 81). In a literature review of how knowledge is mobilised into action, Chapman also cautioned that:

> … Education is underpinned by a differing set of values and beliefs that lead to certain assumptions about the nature of the teaching and learning process which are quite distinct from effective processes associated with medical healthcare. As Mitton et al. (2007) helpfully remind us, there is not one 'off the shelf' set of recommendations for developing or recommending knowledge into action strategies.

<div align="right">Chapman *et al* 2015</div>

3.3 Importance of practitioner engagement with research

The concept of the teacher as researcher has been evident in the US since the 1950s (Corey, 1949). During the late 1960s and 1970s in the UK the concept of teacher action research developed largely independently from that of the United States as ideas of curriculum development in the UK changed to recognise the importance of teacher agency and reflective and reflexive practice. A key proponent of the concept was Lawrence Stenhouse who saw the effective teacher as someone who conducts and engages with research (Stenhouse,

1975). More recent literature argues that being actively and collaboratively engaged in inquiry is critical to school and teacher effectiveness (Elliott, 2009; Hargreaves & Fullan, 2012). Some such as Hamersley (1993) argue that teacher research can be useful but is limited and 'does not substitute for educational research of a more conventional kind' (Hamersley 1993 p. 441). Rütten and Gelius (2014) argue that it is vital for practitioners, in their case allied health professionals, to engage with research and draw from innovations and tested interventions in order to improve their practice.

Reeves *et al* (2010) reported on a pilot project funded by the Scottish Government and GTCS that looked at how practitioner research could contribute to requirement of the Chartered Teacher Initiative on pupil learning. Their study found that participants reported the practitioner research experience improved their understanding of learning theory and wider literature, improved their analytical skills and reflection and increased their attention to issues of evidence and pupil learning. Participants valued their enquiry projects, seeing them as developing their teaching. While Reeves et al (2010) state that this finding requires further research to corroborate the impact on classroom practice and they argue that the political framing of such activity is crucial. They stress that if practitioner research is used as part of a strategy to tackle promoting attainment then it cannot be 'disembodied from the particularities of classroom life' or ignore aspects of professional judgement in favour of privileging that evidence seen as objective and generalisable. Ozga (2004) also refers to how the Chartered Teacher Initiative reflected the Scottish educational policy stance on aligning the use of research evidence with the development of the teacher profession. This is also reflected in teachers' performance measurement and review.

Christie and Menter (2009) provide insights on building teachers' capacity to engage with and conduct their own research. They reflect on initiatives such as the 'Schools of Ambition' and the Applied Education Research Scheme (AERS) in Scotland. They suggest that indicates a 'key element of effective capacity building lies in collaborative approaches'. Christie and Menter argue there are sound reasons for using collaborative approaches to build teachers' research capacity and skills.

> Collaborative approaches to research are arguably more ecologically valid, especially where research teams include the professional practitioners who actually mediate the learning processes. Furthermore, collaborative approaches are arguably both economically and political sound. Collaborative approaches offer the potential for pooling scarce resources in terms of methodological knowledge and skill and they articulate well with a wide range of political policy.

> Christie and Menter (2009 p350)

Such arguments align well with aspects of the SIPP collaborative model and its rationale. The benefits of collaborative teacher enquiry for effective practice have been consistently demonstrated in the international research literature (e.g. Fullan, 2013, Chapman et al. 2012, Chapman and Hadfield 2010, Ainscow et al., 2012, Cochran-Smith and Lytle, 1993, p. 18-19). The literature reveals that practitioner inquiry can support school development in challenging times but only if it facilitates teacher agency rather being a top-down imposition (Cochran-Smith and Lytle, 2009). Chapman *et al* (2011) in their evaluation of the English Extra Mile initiative argue that school improvement that is informed by action research and that tackles inequality is much more likely to emerge as a result of collective capacity, that empowers teachers, rather than through centrally driven, top-down mandates underpinned by accountability mechanisms.

Judkins et al. (2014) reported the perceived benefits of using research as: encouraging more deep reflection on teaching practice; challenging thinking; providing new and innovative ideas to inform teaching and learning and encouraging teachers to look beyond school and gain a wider perspective. Teachers also reported benefits of their use of research for learners as being improved achievements and attitude, teachers creating more varied and innovative lessons and learners being more engaged.

Forde (2015) notes that there has been a growing appreciation of teacher research in Scotland, but there remains confusion over what this is and the ways in which it may support professional practice. With the introduction of Curriculum for Excellence, Forde (2015) argues teachers' roles have developed, to incorporate a greater focus on professional development, with practitioner enquiry being understood as a dominant theme of this.

De Paor and Murphy (2018), state that 'teacher research has been identified as a transformative model of (continuous professional development)' (p. 169). This is further supported by Cochran-Smith and Lytle (1993, p. 18-19), who claim 'teachers who engage in self-directed inquiry into their own work in classrooms find the process intellectually satisfying'.

To understand some of the challenges involved in initiatives seeking to promote practitioner enquiry and engagement, Reeves and Drew (2013) carried out research, in which they explored the impact of various aspects of practitioner enquiry in Scotland. Through three studies, carried out between 2003 and 2010, Reeves and Drew (2013) identified a number of issues relating to the use of practitioner enquiry as a basis for professional learning. Firstly, they recognised the iterative relationship between professional learning and everyday practice. Just as professional learning influences practice,

practice, they argue, can be seen to influence professional development. The two processes should not be seen as mutually exclusive, but rather, co-dependant. Developing an appreciation of the complex relationship between professional learning and the complexities of practice is, they claim, essential in securing sustainable change. This can be seen as reflected in how research is perceived by practitioners. As discussed by Brown (2007), the relevance of research to everyday practice is important for practitioners, but the importance of practice for research is less well considered.

Describing practitioner enquiry as a means to support professional learning is further considered by Reeves and Drew (2013), who describe the typical perception of enquiry and learning as being evaluative and having a specific end-point. What is important, they argue, is appreciating the cyclical nature of enquiry, as knowledge feeds into and influences practice, which, in itself, generates new knowledge. What is needed, they argue, is 'a system which is capable of continually creating, disseminating and testing knowledge across and around the network of activities that it performs' (Reeves and Drew, 2013, p. 46).

The School Improvement Partnership Programme (SIPP)[2]in Scotland conducted as a pilot between 2013-15 included Collaborative Action Research (CAR) as an integral component. The SIPP was a collaborative school improvement model that promoted working across classrooms, schools and local authorities to tackle educational inequity with teachers working together using CAR to innovate, test and refine new approaches to tackle the attainment gap. A team of University of Glasgow researchers worked with Education Scotland and local authorities to broker and facilitate partnerships within and across schools in a number of Scottish local authorities. This group supported teachers in building their capacity to conduct CAR to assess the impact of their innovation projects. The SIPP model encouraged staff to learn from each other, experiment with their practice and monitor and evaluate change.

The evaluation of the SIPP found that practitioner engagement with research was facilitated by establishing the key overall principles for CAR; local authorities and head teachers ensuring time for teachers to develop

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[2]

https://education.gov.scot/improvement/research/The%20School%20Improvement%20Partnership%20Programme

professional dialogue, networks and plan their enquiry projects; promoting leadership at all levels; ensuring practitioner ownership of the enquiry process and supporting practitioners to develop appropriate enquiry methods (Chapman et al, 2016).

3.4 Extent of practitioner engagement with research

There is little empirical evidence in the literature regarding the scale and nature of practitioner engagement with external research in either Scotland or elsewhere. What evidence there is suggests that the use of evidence and engagement in research in educational practice in the UK remains limited and is often lacking in depth (Goldacre 2013; Rickinson, 2005). The literature tends to focus specifically on the extent of practitioner action research, including its benefits and the factors that promote it. Judkins et al. (2014) report that evidence-informed practice in education in the UK is in its inception and evidence is patchy and dependent on individuals' enthusiasm and experience of enquiry.

3.5 Factors influencing practitioner research engagement

In comparison to available literature on the extent and nature of practitioner engagement with research there is more literature on the factors that facilitate practitioners' own research and, to some extent, their engagement with external research evidence.

Perceived relevance of research evidence and activity

A common theme in the UK and international literature is that practitioners seek knowledge that can be seen to have a clear and applied use for their practice. It appears that research is most valued when it deals with specific aspects of practice; is focussed on classroom activity; and when its application results in effective learning of students (Brown, 2007; Galton, 2000; Ozga 2004). Brown (2007) found, however, that practitioners in England were less likely to be interested in research that supported teachers in interpreting data, or in designing their own research project. As we shall see in Chapter 4, this is at odds with research elsewhere in this report, which indicates that teachers can value engaging in their own research. However, again, the important motivating factor is that such engagement will help improve their practice and ultimately benefit learners.

Relatedly, practitioners' sustained investment in enquiry and research has been found to be supported by access to what they perceive to be meaningful data that helps them make a difference to learners' outputs (Schneller and Butler, 2015).

An evaluation of the School Improvement Programme (SIPP) in Scotland found that establishing collaborative enquiry teams of practitioners working within and across schools promoted teacher's confidence to engage with research and use data. This included accessing and acting on external research evidence (Chapman *et al* 2016, 2015). Judkins et al. (2014) also found that teachers are more likely to engage with research if they are practitioner researchers themselves.

Research/ information and data literacy

Practitioners' information literacy may be a factor limiting their use of research information, further exacerbated by perceived challenges of lack of time and lack of ready access to information sources (Williams and Coles, 2007). In their research, Williams and Coles (2007) surveyed 312 teachers and 78 head teachers from nursery, primary and secondary schools in Scotland, England and Wales and supplemented this with qualitative research. The research found that practitioner attitudes to the use of research evidence was generally positive but there were inhibiting factors such as lack of time and difficulty in accessing sources. The study found that information literacy was an important skill in supporting research engagement. The researchers reported teachers were:

> Less confident in finding and using research information than they are in dealing with information generally…they expressed concerns about the construction of effective search strategies and were generally less confident in evaluating and using research information.

Williams & Coles, 2007 p.204.

Williams and Cole (2007) found that UK teachers valued the internet as a source of ideas and knowledge This was partly because of ease of access but also, it is argued, because of 'issues of trust' and credibility (Williams and Coles, 2007, p. 205). However, the authors stress that teachers need to be aware of a broader range of sources than they currently use. They suggest the need for more effective local information dissemination and networking strategies. In this regard, Williams and Coles (2007) commend the establishing of portals and consolidated sites to provide access to relevant research evidence and information. However, they also stress such sources are only likely to make a significant difference if there is:

> …The development of a research culture and ethos (e.g. Hargreaves, 1999; Nutley & Davies, 2000), but also on the development of an information culture and ethos.

(Williams and Coles, 2007 p.205)

Building capacity and networks for research engagement

Canadian research conducted by Cooper et al (2017) found robust networks to share research evidence along with and leadership structures to help 'filter' research were important to translate research into action. Recommendations from this study included time was crucial along with training to build practitioners' capacity regarding research literacy and evidence-informed practices.

Evidence from the Education Endowment Foundation (Speight *et al* 2016) reveals that teachers who took part in an action research project, the *Research into Practice – Evidence-informed Continuing Professional Development* project, to improve feedback to pupils struggled to engage with academic literature that could inform their practice. While attitudes toward using research evidence improved, there was no evidence teachers were more likely to use research to inform their teaching practice after being involved in the pilot. The teachers found it difficult to understand how best to use the literature and how it was relevant to what they did in their classroom. There were also challenges of finding time for teachers to implement lessons from research into their practice. This contrasts with findings from the evaluation of SIPP (Chapman *et al* 2016, 2015), which found teams of teachers could effectively develop enquiry networks that had a sustained and positive impact on their practice and learner outcomes. The difference between the pilots could be due to the differences in the nature of the practitioner action research and how this process was supported. The SIPP adopted a collaborative approach framed by particular principles and initial support from university researchers over a three-year period to build capacity. In contrast, the action research reported by EEF involved a one-year pilot. SIPP used the whole of the first year to establish shared understanding of the project approach, building trust and a networked infrastructure to support teachers' collaborative action research. It also involved activity to ensure strategic buy in and allocation of time for teachers to plan and acquire and use evidence. As Speight *et al* (2016) note, their evaluation found that the strength of teacher networks and time available to use research findings appeared to be important factors influencing the Research into Practice pilot.

Research - practitioner dialogue and access to evidence

The dialogue between practitioners and researchers is an influential factor in translating research into classroom practice (Royal Society of Edinburgh, 2016). There appears to be a lack of such dialogue, which is exacerbated by practitioners' understanding and/or confidence regarding statistical and quantitative research methods (De Paor and Murphy, 2018).

Potential issues regarding academic research 'fitting' with policy requirements can limit availability of evidence in the system, for example difference in priorities and timescales (Whitty, 2006; Humes, 2007). In Scotland, there have been efforts to bridge this divide with an increased focus on teacher research and with Government making research findings available (Forde, 2015; Chapman et al., 2015).

Importantly, Williams and Coles (2007) note from their UK study that it cannot be assumed research findings will reach even those teachers willing to seek out information and the research community should build into their research activity 'appropriate dissemination strategies' and produce outputs including reviews and summaries of research in an accessible format and style. But Williams and Coles conclude with a caution that even when teacher-friendly summaries and outputs are provided by academics:

> '… The provision of a targeted range of pre-digested information cannot compensate for the richness of the knowledge base available to a teacher with the motivation and skills to search more widely.'

> Williams & Coles, 2007 p.205

Thus, implying that summary information alone is not sufficient and teachers also require access to more detailed knowledge along with a desire and skills to elicit such knowledge.

Cooper *et al* (2017) in a Canadian study, found teachers acquired information, in this case about assessment practices, largely from other teachers, rather than from research. When asked what would promote access to research evidence, teachers requested research summaries, videos, engaging websites, professional readings, but most of all having opportunities to share ideas with colleagues. Like Williams and Cole, Cooper *et al* (2017) stress:

> Educational researchers have an important and increasing responsibility to ensure their research is shared with practitioners in a way that is relevant, meaningful, and easy to comprehend

> Cooper *et al* (2017. p206)

Ozga (2004) reminds us he transfer of research evidence and related knowledge to education practice is complex and relies on particular conditions, stating that:

> Educational research is difficult to transfer to practice because its findings may vary with context, or they may be interpreted differently, or they may contradict policy directions

> Ozga (p1 2004)

She argues the complex interplay and relationship between researchers, policy makers and practitioners and their agendas should be considered when trying to understand the knowledge transfer and mobilisation.

Promoting an environment for, and culture of, research engagement

Creating the right environment to nurture a culture of evidence-informed practice is a theme in the literature regarding promoting practitioner engagement with and in research. For example, practitioners are more likely to become engaged in research and enquiry when they feel ownership and have agency in their own learning and inquiry processes (Schneller and Butler 2015).

Specialist and partner professionals are seen as have a key role in supporting practitioners' research activity but also for building their capacity to be more research capable. For example, schools' speech and language therapists (SLT) have been found to have a key role in demonstrating usefulness of research evidence, nurturing staff confidence to take risks with practice informed by research evidence (Judkins et al., 2014). The role of educational psychologists in building research capacity in the education system capacity and fostering practitioners' research skills has been identified by Government.

> Educational Psychologists are in a key position to support and carry out research to evolve an evidence base for educational practice, inform policy and strategy, explore new ideas and to evaluate and encourage reflective practice.[3]

The likelihood of practitioner engagement with research has also been associated with levels of professional development. Galton (2000) concluded from a survey of 302 teachers that less experienced members of staff appeared to use research less frequently. Further, the least qualified and experienced members of staff were less likely to cite examples of relevant research. Galton, therefore, suggests professional development is critical in the use, appreciation and application of research. Galton's research is likely to have less relevance to the situation in Scotland as it pre-dates the policy focus in Scotland on increasing the research content and emphasis within initial teacher education.

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[3] Retrieved from https://www1.bps.org.uk/networks-and-communities/member-microsite/scottish-division-educational-psychology/role-educational-psychologist

Government and other organisations and institutions can shape practitioner thinking about educational research and influence structural factors, provide advice and practical support (Humes, 2007). There are some important initiatives to systematically support practitioner engagement and participation in research, for example, the General Teaching Council for Scotland (GTCS) conducted the Teacher Researcher Programme (TRP) 2003-14 but there is no empirical evidence available of its overall impact.

Humes (2007) argues that practitioners in Scotland and elsewhere, if they are to truly appreciate research as a professional activity, should be encouraged through a culture which values such enquiry as a long-term perspective. He further argues that it will be difficult to maintain teachers' interest in such activities, if schools and local or national governments do not support this process. Humes (2007) considered a range of structural influences that influence educational research in Scotland, in particular, the variety of organisations and institutions that can foster and support practitioner engagement in research. One such example was given as the GTCS' Teacher Researcher Programme (TRP). The TRP initiative was formed in 2003, to encourage practitioners to both engage with, and participate in, research activities (GTCS, 2004). The support offered to practitioners wishing to undertake research included financial assistance, access to facilities and resources and providing avenues with which to disseminate findings. The TRP was suspended in 2014, in order to revise the strategy, ensuring it was fully responding to the needs of the profession (GTCS, online).

Humes (2007) also notes the role of curriculum bodies, including what is now Education Scotland in establishing relationships between teachers and research. Humes commented that educational research, supported by systematic reviews of national and international evidence, supported both the implementation of the curriculum, as well as providing an opportunity to evaluate the impact of resources and interventions. Yet, despite the promise of a greater research agenda, Humes argued changes within the organisation had led to limited impact. The research for our study suggests that the evolving role of the Attainment Advisors in Education Scotland might lead to greater impact than has previously been reported. Payne (2013) argues that Education Scotland's commissions little research within Scotland, instead promoting research conducted elsewhere. The reasons for this are not made clear but Payne suggests that this may go some way in explaining why teachers in Scotland spend little time in conducting their own research (Brown, 2007).

This lack of practitioner engagement with and in research has also been seen as linked to the level of activity in national associations. For example, the

Scottish Education Research Association (SERA), formed in 1974, aims to contribute to 'the improvement of education through promoting and sustaining high quality educational research' (SERA, 2006, p.1). SERA has links with the both the British and European Educational Research Associations, as well as being a founding member of the World Educational Research Association in 2009. Amongst such agencies, SERA promotes the importance of educational research within an international context (Payne, 2013).

As a membership organisation, SERA is open to individuals with either a professional or academic interest in educational research in Scotland. As Nisbet (2005) identifies, the makeup of the core of this membership has fluctuated regarding representation from practitioners, researchers and policy makers. Recent trends have shown teachers and practitioners account for less than ten percent of all members, whilst the majority of memberships stem from academic disciplines (Payne, 2013). SERA membership has fallen in recent years (Payne, 2013) and the low percentage of teachers and practitioners who make up the membership may reflect the lack of engagement with research from professionals.

3.6 Literature review summary and implications

The main aims of the literature review were to provide an overview of what is currently known about how research evidence is used within the Scottish education system and what factors influences this. These findings would then inform the qualitative study (Strand 2). Before summarising the main themes across the research literature regarding how research evidence and data are used in the education system it is worth highlighting that the literature largely focuses on teachers' use of extant knowledge resulting from academic research studies that can inform practice. Further, the majority of the literature focuses on the factors that influence teachers' access and application of such research evidence. There is also a body of literature that does address teachers' own classroom based research, but again, this largely examines those factors that inhibit or facilitate such practice. The key findings from our literature review can, therefore, be summarised as:

National policy stance and context

- The policy context in Scotland has created an expectation that practitioners in Scotland should engage in professional learning in a regular and meaningful way as part of their normal activity. Correspondingly, teachers' roles have developed to incorporate a greater focus on research engagement.

Importance of practitioner engagement with research

- Government, OECD and international research literature concur that teachers' engagement with research is crucial for school and teacher effectiveness within the education system in Scotland.

- The reported benefits of practitioners engaging with research include: encouraging deeper critical reflection on teaching practice; providing new and innovative ideas to inform teaching and learning; encouraging teachers to look beyond their own school and gain a wider perspective; and improved learner engagement and attitude and learners being more engaged. Teachers who engage in self-directed inquiry into their own work in classrooms can find the process intellectually satisfying.

- The literature indicates practitioner engagement with and in research can help support school improvement in challenging times when resources are limited but only if it facilitates teacher agency rather being imposed from above.

Extent of practitioner engagement with research

- There is little literature on the extent and nature of practitioner engagement with research in Scotland. There is some indication that the use of educational research in Scotland varies between practitioners, between schools and between local authorities; that evidence informed practice is in its inception; and use of evidence is dependent on individuals' enthusiasm and experience for the opportunity to engage with enquiry.

Factors influencing practitioner research engagement

- A considerable body of literature regarding the factors influencing practitioner engagement with research exists. A common theme is that practitioners seek knowledge which can be clearly seen to have an application to practice. Research is most valued when it demonstrates effective learning, deals with specific aspects of practice or is focussed on classroom activity.

- Practitioner engagement with research, particularly teachers' own classroom-based research, can be facilitated by establishing a shared understanding of the value of research evidence; investing time in developing professional dialogue and networks to support research engagement; associating leadership development with use of research evidence and inquiry; ensuring practitioner ownership of the enquiry process and supporting practitioners to develop appropriate enquiry methods.

- While practitioner attitudes to the use of research evidence are generally positive, their level of information literacy and understanding and/ or confidence regarding statistical and quantitative research methods can be a factor limiting their use of research information and data. This exacerbates the reported challenges of finding time to access or conduct research and to access information sources.

- Teachers value social media as an accessible source of ideas and knowledge. The use of Twitter and Facebook requires users to have a level of critical awareness to assess the credibility and validity of the knowledge available.

- Establishing online portals to provide access to relevant research evidence and information is important. Such sources are only likely to make a significant difference if there is a culture of research engagement across the profession, time to access this material and if the available evidence is in a form teachers can readily understand and apply.

- Specialist and partner professionals are seen as having a key role in supporting practitioners' research activity and also in building their capacity to be more research engaged.

These findings provided insights that augmented the research questions pertinent for the Strand 2 qualitative research and were reflected in the topics covered in the interviews and focus groups. Conceptually, these findings can be grouped into two broad themes:

a) **Practitioner agency and culture**, Practitioners are more likely to be engaged in enquiry when they have high levels of ownership and agency regarding their professional practice and related research engagement. This is supported by a school and wider professional culture where such agency is valued, promoted and facilitated by leaders and policies. This emphasises the importance of:

b) **Structural factors** affect practitioners' ability to engage in and with research beyond school-level data. This is particularly the case for engaging with extant academic evidence and conducting their own action research. Such factors include national and local policy and strategies that support practitioner research engagement by facilitating greater time to access, plan and engage with data and evidence. This also includes promoting meaningful academic-practitioner dialogue and local professional and networks and leadership at all levels.

4.   Strand 2: Qualitative Research

4.1 Introduction

This section presents the qualitative findings emerging from the focus groups and interviews involving teachers, head teachers, Attainment Advisors and RIC leads. The findings are reported in sections that reflect the main research aims and related research questions, i.e.:

1. How do practitioners in Scotland engage in research and act on research evidence?

- What types of research, evidence and data do educational practitioners currently use to inform, plan and develop teaching interventions?

- How do those who make or influence school-, cluster- and local authority-level education decisions access research evidence?

- To what extent, and how, do educational practitioners critically evaluate the research evidence used to inform their pedagogy?

2. What factors influence practitioners' ability to make the best use of evidence?

- What skills and resources do educational practitioners need to be able to understand research evidence, including data they have gathered themselves?

- What organisational, capacity and skill constraints currently hinder or promote the effective use of research evidence?

- How is capacity at classroom, school, cluster, authority and regional level related to the effective use of research evidence?

- What actions could contribute to a more effective and coherent use of evidence and information across the school system?

This chapter includes findings from all types of participants involved in the research. Findings are discussed collectively, and where differences emerged between participating groups, this is noted. As covered in Section 2, the respondent groups included in this study are teachers (including classroom teachers and promoted teachers); head teachers, depute head teachers (sometimes these were interviewed in joint interviews with their head teacher);

Attainment Advisors and the RIC leads. Occasionally, for the focus groups, where head teachers could invite those they thought had particular relevant experience of research engagement, the mix of the group could also include practitioners from other groups working with the school such as Community Learning and Development and outdoor learning specialists.

4.2 How do practitioners in Scotland engage with research and act on research evidence?

This section reports on the participants' responses regarding the nature and extent of their engagement with research and how they use research evidence and other data.

4.2.1 The extent of engagement with data and research

All of the teachers and head teachers involved in the interviews and focus groups reported that they were or had engaged with some form of research beyond the use of school-level and assessment data as part of their professional role over the past few years. However, head teachers and teachers' understanding of what counts, as "research evidence" was broad and covered online information and knowledge, including social media accounts from other practitioners and to a lesser extent systematic and rigorous studies arising from academic research and practitioner enquiry. Teachers and head teachers stated that research was part of a modern teacher's professional identity and responsibilities. However, as we shall consider, they had clear views regarding what was required to help better incorporate the use of data and research into their practice.

The overall theme emerging from the teacher and head teacher interviews and focus groups was that the majority of these participants were willing to engage with research. Whilst Attainment Advisors and RIC leads, with their strategic and national perspective, recognised an increased engagement with research across the educational profession, they also noted that there was scope to increase consistency of engagement nationally. In addition, these stakeholders noted while there was evidence of positive developments within local authorities regarding supporting practitioners to use data and evidence, further developments were negatively impacted by the reduction in teams at the centre. For example, they commented that the capacity of quality improvement officers, whose role it would have been to support research engagement, had been detrimentally influenced by economic cuts.

I think if you looked at how that [research, self-evaluation and use of data] works across the country…it's a very varied picture, you have some schools where it works really well and other schools where it doesn't, and everything in the middle of that.

<div align="right">Attainment advisor</div>

4.2.2 Sources used to access data and research evidence

Head teachers and teachers typically reported use of routine **school-level data**. They noted that local authorities were increasingly providing data that included additional pupil information to assist teachers to tailor their teaching to learners' needs and also monitor progress over time. School-level data included national standardised assessments and other types of standardised tests that were judged to support the understanding of impact of particular teaching approaches.

Probably everything that we're using, which is quite vast, we have a lot on there, we do a lot of assessments, we have a lot of data on each and every child, everything we use and everything that we have has the information there to look into…Before the standardised testing came in last year we had the PIPS which was at the beginning and the end, which I think, personally, gave us a bigger, a better picture of where the children were at the start and the end within this year…We've also used … phonological awareness assessments this year …at the very beginning of Primary 1, which gave us a really good starting point for where our grouping would be ability-wise and then what they needed to learn…and throughout the course of the year, that assessment was done again … so we can see the improvement but also at Primary 2 what needs to be picked up on right at the beginning of Primary 2.

<div align="right">Teacher, Primary school, focus group.</div>

As noted in other sections of this report, head teachers, RIC Leads and Attainment Advisors reported an increase in local authority support for head teachers and teachers regarding additional data interpretation. These participants also stressed this support could be affected by levels of appropriate staff at the local authority.

Teachers frequently reported having accessed ideas about pedagogical developments and innovation through **social media** and using this medium to share their own findings, experiences and ideas. For both teachers in primary and secondary schools this seemed to be the most common way of knowledge sharing.

There was consensus across teachers and head teachers that their engagement with research should have a direct and positive impact on their practice and benefit pupils' learning and wellbeing. Moreover, the research practitioners valued most was that produced by those who "know the

classroom reality" and was based on actual school practices and teaching and learning strategies which have worked in similar contexts.

> Sometimes when you read these articles, you think, 'When was the last time you were a teacher?' They are nice in theory, but sometimes you are like, 'I don't see that this would work.'

<div align="right">Teacher primary school, focus group</div>

Head teachers and teachers, therefore, valued platforms and media like Twitter, Facebook, blog posts and YouTube Ted Talks because of the short, accessible and focussed format of the information. Such material was usually produced by peers or those working closely with practitioners and was, therefore, seen as "credible" and relevant. In contrast with more traditional research outputs such as literature reviews, books, journal articles and project evaluation reports, the short videos and blog posts were often seen as providing clear 'starting points for further inquiry'. Attainment Advisors and some RIC leads stressed that practitioners required a good level of critical awareness in order to discern whether information available via such sources was sufficiently robust. Nevertheless, one RIC lead stressed that Twitter had been a useful source of information for teachers regarding pedagogy and effective approaches.

> Twitter is a fantastic tool if used right, it's a fantastic resource for educationalists. What I've noticed in the last year is the volume of classroom practitioners who now tweet or re-tweet and engage with what someone is saying about research. So, there is much more we can do there to make it accessible. People nowadays are using their smart phone and not necessarily going to a library to access a document.

<div align="right">RIC lead, interview</div>

In relation to use of more **academic sources of evidence**, some head teachers reported they would draw on this kind of evidence to try and develop summaries of findings for their staff to read and consider.

> A lot of these documents when you look at them can be quite dry, they can be quite lengthy; so, they're not immediately accessible to people who feel they have no time as it is. So that's why you need to find the research, really, and give them the access to the bits that are relevant…it is about making it more accessible for everyday reading with short, snappy summary bits. And once you've got the claw in or the wee hook in, then people will say, 'Alright, I would read a bit more about that,' then they'll read the next bit…but to get to that point is actually quite difficult.

<div align="right">Head teacher, Secondary school, Interview</div>

Some teachers and head teachers involved in the study reported using the National Improvement Hub to access research and information via the

Educational Endowment Foundation's (EEF) research database and toolkit. Some also mentioned having used the **GTCS research portal**. There was variation across head teachers, teachers and attainment advisors regarding how easy it was for teachers to locate the types of research they were looking for via these two portals. Some of these groups had found it relatively straightforward to access research findings and thought the sources useful. Others within these same groups reported the opposite experience and this was usually because the titles of sources did not clearly indicate the potential applicability of the research to the teacher. Where teachers and head teachers saw the EEF material available via the Education Scotland portal as useful, this was because it often provided an indication on what had been evaluated or demonstrated as being effective and thus warranted consideration for use in practice.

> The Education Endowment Foundation has been a source as well, with regards to loads of feedback regarding whether something is 'low cost high impact, high cost low impact', so that's been used and we certainly have promoted that as a source, a website to go to, to get additional information, because that's got credibility as well around it, and certainly promoted by Education Scotland.
>
> Head teacher, secondary school, interview

Overall, it was head teachers, attainment advisors and those in more strategic positions who were more likely to report accessing academic summaries of research on effective teaching and leadership. Attainment advisors acknowledged that this aspect of their role had developed over time. Head teachers and attainment advisors frequently reported that their role meant they had to maintain levels of knowledge regarding school management and effective teaching approaches.

> I feel that we need to be that step ahead of everyone else [staff] because they do come to us for advice or if we've got a development in the school, it's about taking the next steps
>
> Depute head teacher, secondary school, and joint interview

Attainment advisors stressed that their role required that they regularly access relevant research in order to acquire knowledge that could support and advise teachers and head teachers in their work to promote attainment and achievement. Attainment advisors were more likely than other groups to report systematically accessing research articles, books and other readings on effective teaching and tackling the attainment gap in order to inform those they worked with.

That [research involvement] is a fundamental thing as well, and one of the things we are trying to notice and pass that message on I suppose. And in terms of your professional role, you're facilitating people to do this and you do you find yourself having to use evidence yourself to do the role you do.

<div align="right">Attainment advisor</div>

4.2.3 How and why is data and research evidence used

The qualitative findings revealed that *how* data and evidence were used and *why* they were used were inter-related. Head teachers and teachers reported a range of ways and related reasons for using data and research evidence. Table 4.1 summarises the most commonly reported ways data and evidence were used, the related rationale and the number of participants stating these reasons. These factors are discussed further in the following sub-sections.

Table 4.1: Nature and rationale of research engagement reported by head teachers and teachers

Rank	Nature and rationale of engagement with research	Number of participants stating this
1	Undertaken as part of the requirements for professional development programmes or training e.g. leadership, postgraduate and nurture qualifications.	13
2	Planning school and classroom interventions/ informing learning and teaching approaches. This activity could be facilitated through the Attainment Challenge and with a focus on, for example; numeracy; literacy; involving parents in children' learning; social and emotional support/ health and wellbeing initiatives; cross-curricular projects.	12
3	Collecting and analysing data to understand the impact of an intervention such as those in 2 above. Teachers reported using range of methods. This could draw on analysis of test results, survey data and observation etc. There were examples of collaborative teacher enquiry.	11
4	Professional reading activity to: keep up-to-date with subject developments/ improve awareness of curriculum area; developing new teaching and learning strategies, practice critique etc.	11
5	Providing evidence-based feedback to colleagues.	5
6	Informing broader collegiate working and staff meetings.	4
6	Understanding educational policies and related developments.	4

Across the qualitative strand of the research, there were relatively few examples of teachers reporting working together to conduct small-scale, in-school studies to assess new pedagogical approaches. According to those interviewed or in the focus groups, this type of activity was often initiated by a committed teacher completing a professional development qualification. It also

occurred where local authority, attainment advisor and academic colleagues had encouraged and supported this type of practitioner enquiry.

In one example, a consortium of five primary schools, facilitated by their PEF funding, had worked together to develop collaborative enquiry projects that reflected their learning priorities and plans. Their collaboration included teachers, supported by a team of university colleagues, working in 'trios' within the respective schools to interrogate school-level data to identify priorities and a focus for learning interventions and strategies for pupils in SIMD deciles 1 and 2. These groups then developed learning and teaching strategies associated with collaborative action programmes to assess and understand their impact. Over a year, the schools involved reported they were able to demonstrate: improved teacher confidence and engagement with research and enquiry approaches; impact on specific learning outcomes; and embedding of the approaches into the school systems. As one head teacher involved in this collaborative stated:

> Engaging staff in Collaborative Action Research allowed practitioners at all levels to think critically and reflectively about their own practice in order to improve the overall quality of teaching and learning experiences for our children. Working in collaborative trios/groups across cluster schools encouraged networking between establishments; identifying examples of good practice and areas of development. Overall, most groups reported that attainment levels for each focus group had increased as a result of the CAR process improving overall teaching and learning. By allowing class teachers to take ownership of their own professional development, they were more motivated and willing to engage in research throughout the CAR process. The collaboration with the university has allowed practitioners…to access expertise and support with their own professional development. The cyclical nature of the CAR process has allowed all practitioners to continue with, and lead development projects in other curricular areas across other schools within the cluster.
>
> Head teacher, primary school, interview

In another example, teachers had used Improvement Methodology to understand the appropriateness of a particular concept-driven approach.

> We had four members of staff who worked with one of the numeracy staff tutors who did a Small Test of Change within their classrooms… there was lots of little projects that went on and [Depute Head teacher] also leads the Growth Mindset, so we also had to look at Growth Mindset for staff and the children's readiness for learning…and I think that it's amazing how it's just become part of practice and how it's developed and moved on.
>
> Head teacher, primary school, interview

There was an indication that some teachers, particularly in primary schools, saw a need for support from "experts" including university colleagues and local authority data specialists to assist with building their skills to more effectively gather, interpret and critically assess data and information.

The interviews and focus groups indicated that there were a number of particular drivers influencing teachers and head teachers' use of data evidence. These are discussed below.

Teachers' commitment to improving learner outcomes

Teachers and their head teachers frequently stated that a key motivation for their engagement with data was to inform practice to make a positive difference to learners.

> I think 100% of the professional research and enquiry activities that have been undertaken at this school the session will all be about specific needs of children and would be to how professionals and teachers can actually best support and challenge a youngster in their learning so that they're going to, So I think 100% of the professional learning and enquiry they've undertaken this session would be about specific children rather than I think more global issues

> Head teacher, secondary school, interview

> I think I tend to find my enquiry and research is just reactive to whatever I'm teaching or where I am as a class-based teacher. I have been at a previous school for 11 years, so when I came here, it was a lot of research around new resources and different ways this school was working.

> Teacher, primary school, focus group

For teachers, engagement with research evidence in its broadest definition was seen as necessary to maintain their awareness of developments in effective pedagogy in order to promote positive learning experiences and outcomes of their pupils.

The influence of national policy initiatives

Practitioners reported that the expectation they would use research evidence and data to inform their practice had increased in recent years and saw a key driver here as education policy developments which emphasised the use of evidence-informed practice. These included two main drivers; Firstly, head

teachers and strategic informants referred to developments in concepts of teacher professionalism and skills that included use of data and evidence to inform practice such as those reflected in the GTCS teaching standards.

Secondly, there was consensus across all those involved in the qualitative research strand that the ever-expanding focus on improving attainment and tackling the attainment gap had been a major factor influencing teachers' increased use of school-level data and evidence.

> I think with everything that's coming out…the Scottish Government's raising the awareness of the importance of research and…I think a lot of people within Education anyway would certainly agree that everybody has dipped their toe and doing lots of different things

Head teacher, primary school, interview

The influence of professional qualifications

Some teachers reported having completed, or currently completing, a Masters qualification and head teachers frequently noted that their headship courses involved a research component. There were examples of how involvement in such professional development courses had stimulated and framed the use of existing data but also promoted the collection of new information. Again, this was often influenced by the context of closing the attainment gap. For example, the following quote illustrates how one head teacher's research project focused on school leadership to promote attainment, facilitated a more systematic use of data.

> I finished my *Into Headship* qualification last September, so that was part of Masters learning. I was looking at carrying out a strategic change across the whole school and it was looking at leadership. I had a project that I had to do within school so we looked at raising attainment in numeracy and that linked with our School Improvement Plan at that time. It was taking it right back to an analysis of the whole school – involving the parents, the children, and the staff – to look at what our strengths and our weaknesses were and it went a bit deeper at looking at the whole culture of the school, the whole culture of the staff mindset, where we were for taking on change … There was a big chunk of training for all the teaching staff…they all undertook conceptual number training and then that changed practice within the classrooms … And I have to say, since we've started conceptual number, our attainment in numeracy has risen at all levels over the last two years.

Head teacher, primary school, interview

Where teachers had completed Masters projects, head teachers often ensured that the learning informed wider practice in the school or informed pilot projects. There were also instances where the findings from practitioner research informed local authority planning and wider dissemination.

> The nursery is running different interventions which are associated with the Attainment Challenge linked around attainment in literacy specifically, and for the purposes of distributive leadership, they've taken on leadership roles of each intervention, so there's two staff for each intervention, and they're the ones collecting the data; they're the ones that are using that data, and they're using that data to inform how the intervention progresses. And so we use that data; we take the data that we get, and we also send that centrally so that they can analyse that and see if overall we're having an impact.
>
> Teacher, primary school focus group,

The influence of head teachers and leaders

Teachers frequently reported that head teachers were important sources of encouragement and advice regarding accessing and using data and research. Attainment advisors and RIC leads also highlighted the role of the head teacher in establishing a culture of evidence use in the schools. The importance of the role of head teachers and leaders as a facilitating factor is discussed further in Section 4.3.3.

4.2.4 To what extent, and how, do educational practitioners critically evaluate the research evidence used to inform their pedagogy?

There was consensus across the attainment advisors involved in this study that there was considerable variation regarding the extent to which educational practitioners critically evaluated the knowledge and research evidence available to them, including information accessed via social media.

There was evidence of critical engagement with the research evidence where teachers were able to work collaboratively on their enquiry projects and receive guidance from attainment advisors, educational psychologists and university researchers. Teachers, head teachers and attainment advisors spoke about how professional dialogue and cross-referencing with other research could assist this process.

> … You know, cross-checking that it is accurate and not just a story that they want…I think sometimes they're so immersed just in their subject and being aware of some of the higher level [e.g.] curricular models and professional research.
>
> Head teacher, secondary school, interview

47

Attainment advisors highlighted the need for practitioners to have an awareness of relevant research but also an ability to critically evaluate the findings. Whilst toolkits like the EEF portal can be helpful, attainment advisors recognised the need for teachers to be able to assess the relevance of the materials for their own context.

4.2.5 Summary: How do practitioners in Scotland engage in research and act on research evidence?

- All participants in the study recognised the importance of school-level data and research to their profession and felt the expectation to engage with research had increased in recent years

- All of the teachers and head teachers involved in the research reported they routinely used school-level data.

- Social media and other online platforms emerged as an important way in which teachers access and share knowledge from their enquiries. Teachers value evidence or signposting produced by those who understand the classroom reality. Scottish platforms – the EEF Learning and Teaching Toolkit and the GTCS research portal – were also highlighted as sources of existing research and interpretation.

- There were relatively few examples of collaborative research projects where teams of teachers and their head teachers focussed on a particular challenge.

- Those with a leadership and strategic role, including head teachers, RIC leads and attainment advisors, reported that they also accessed academic research outputs to stay up-to-date on educational concepts and learning and teaching developments to support teachers.

- There was evidence of practitioners requiring support to critically evaluate academic research evidence. Guidance from attainment advisors, educational psychologists and academic colleagues was seen to be essential for supporting this process, at least initially. However, teachers and head teachers sometimes reported more support was also needed to develop their analysis skills regarding more sophisticated use of school-level and assessment data.

- There were examples of head teachers and teachers participating in courses, including Masters level programmes. The findings from this type of research was often drawn on by head teachers to inform teaching approaches in their school.

- A key motivator for engaging with research evidence was to support classroom practice to make a positive difference to learner outcomes. Accessing and using data was often driven by a desire to improve attainment, within the context of key national priorities such as the Scottish Attainment Challenge. Other key drivers informing engagement with research evidence included the GTCS Standards and supportive leadership within individual schools.

- Research participants highlighted the role played by local authority support for data analysis and interpretation. There was evidence of scope to increase levels of research engagement both between and within local authorities.

4.3 What factors influence practitioners' ability to make the best use of evidence and effectively engage in research?

This section considers the range of factors that participants reported could facilitate or inhibit practitioners' access to, and use of, research evidence. This included, the types of skills needed, as well as the resources, and additional support they believed needs to be in place. Again, findings are discussed collectively, and where differences emerged between participating groups, this is noted.

4.3.1 Skills and resources that educational practitioners need to be able to understand research evidence

Those participating in the qualitative strand of the project reported there had been both an increase in awareness of the need to engage with research and a **growth in practitioners' confidence** in using research evidence and data. There was consensus that practitioners required a level of **'data literacy'** to be able to understand the implications of pupil assessment data for their teaching practice. Generally, teachers and their head teachers would discuss data together in order to reflect the findings in their teaching and plans. Support from local authority colleagues (including data officers), attainment advisors and other external sources were reported to be helpful in this process, particularly, regarding the interpretation of data.

As noted elsewhere in this report, attainment advisors and RIC leads stressed that teachers should also be able to **critically evaluate** the quality of research

evidence that was accessed to inform practice. Working **collaboratively** with other practitioners and external colleagues such as attainment advisors and academic researchers was seen as facilitating opportunities for critical dialogue and scrutiny.

Teachers and head teachers frequently reported that involvement in small-scale interventions with associated monitoring of impact, helped to build the confidence and capacity of staff to engage with research. As one depute head teacher commented engaging staff in small-scale, applied research had increased teachers' confidence to take risks in adapting their practice.

> We've started smaller to see the impact of it before up-scaling lots of things. I think that it's moving more towards a culture of, 'Right, we'll try this within our context; let's see if this works,' on a smaller scale, and then it can be up-scaled if it is successful within the context, and if not, I think people are less afraid to say, 'Do you know what, that maybe doesn't work for us, let's try/adapt it in a certain way that actually does meet the needs of the specific context that we're working in.
>
> Depute head teacher, primary school, and interview

The RIC leads also highlighted the value of practitioners' involvement in **collaborative enquiry** and this capacity was being developed in some of their local authorities.

Collaborative approaches, with schools and local authorities working in partnership to plan, implement and research innovations were seen as contributing to the development of practitioners' and leaders' capacity to use and generate data.

> I think the collaborative action research is a good vehicle because it facilitates teachers working together and it gives them access to research in a particular area ... and it encourages them to really think about what they would like to focus on…I think that's a good model.
>
> Head teacher, primary school, interview

Such collaboration was usually framed by a shared desire to tackle the attainment gap using evidence-informed strategies.

One RIC lead stressed the increased number of head teachers who had completed Scottish Qualification for Headship (SQH) or Flexible Route to Headship (FRH) and now Excellence in Headship had both built capacity and led to a change in mindset. This RIC lead felt that many head teachers now recognised the importance of accessing research as part of their professional role. Another RIC lead highlighted that newly qualified teachers (NQTs) and

others who had recently completed **further qualifications** were also more likely to engage with research and data.

> It's very variable, I think what we're seeing at the moment is practitioners and leaders who have come through recent professional learning opportunities, for example NQTs or those who have come through middle leadership opportunities or into headship are actually much more used to analysis and critical enquiry around research.
>
> RIC lead, interview

Those with a strategic overview of the education system such as the attainment advisors and RIC leads reported an improvement in teachers' engagement with data over the past five years but noted that achieving a 'deeper', critical engagement with research and accessing more theoretically informed material, then translating this into practice was more challenging.

> I think the engagement with more quantitative [assessment] data and people being willing to really look at that I think has improved…Engagement with research, if we're talking about it as looking at journal articles or books – no I think, but my reason for saying that: it's hard for teachers to do that on their own…I know through the GTCS, you can access some of the databases, but actually unless you know how to search them and how to filter the results you get back, I'm not sure how useful a tool that is for a busy teacher
>
> Attainment advisor, interview

More support, therefore, was seen as required to help practitioners, especially classroom teachers, to engage with academic research. Some participants commented on how universities had a role to play here, not only in making content relatable to teachers' context but also practically facilitating access to literature. As one attainment advisor noted that one teacher had said:

> The thing I miss the most is access to the university library,' and that's a barrier. So, I think she went through the Masters-level programme and had all of those skills and resources, and then she goes into school and all of a sudden all of that access is removed, so there is an access thing.
>
> Attainment advisor, Interview

The availability of, and engagement with, other organisations or services that can support research engagement and develop practitioners' skills and values were, therefore, seen as a key facilitator across the participant groups. University researchers, educational psychologists and third sector organisations were seen as the main sources of support for building practitioners' research capacity.

4.3.2 Time available for practitioners to engage with research

There was consensus across interviewees and focus group participants that time and workload was a crucial factor regarding practitioner research engagement. This was perhaps the strongest theme regarding factors that inhibited increased practitioner engagement with research and noted across the participant groups.

> I find again you are going to get the time [as a factor that hinders research engagement]. Most teachers are going to say to you, 'I don't have time to do that.' The day-to-day sort of teaching takes up so much.
>
> Teacher, secondary school, focus group

The RIC leads also concurred that time and workload could present challenges for practitioners' research engagement. These informants stated that local authorities and head teachers can develop strategies to tackle these factors where there is a commitment to do so, but issues of workload were a real challenge.

> Research engagement is variable…I think there is a very positive and strong will from practitioners to use research, but I do think there are a number of barriers and workload springs to mind at the top of the list. So, I do think that that [engagement] is increasing and the GTCS standards make it a requirement, so it is increasing but I do think there are issues.
>
> RIC lead, interview

Staff turnover and losing staff was a factor that could exacerbate time issues to detrimentally impact on research engagement capacity. As a result, some local authorities had looked to skilling all teachers regarding aspects of using data and evidence.

> It's very dependent on consistent staffing and staff who themselves buy into it…One of the advantages with [this authority's] approach is they've tended to train across all the schools, [to] work with all Primary 4 teachers in understanding the benchmarks and all Primary 7 teachers and all classroom assistants; we're bringing them in for central training.
>
> Attainment advisor

4.3.3 The importance of key personnel and leadership in facilitating the effective use of research evidence

A major theme that arose across the qualitative strand regarding factors that supported meaningful use of data and research engagement was the availability of support from school leadership, the local authority and from

attainment advisors. Leaders who were able to develop a research culture, instil confidence and mobilise people and resources were perceived to contribute to improved research engagement. The availability of specialists and personnel who could advise and support practitioners and head teachers to access and interpret data and research findings at local and regional level was also highlighted.

The role of supportive head teachers

Practitioners highlighted the importance of their head teachers in encouraging them to try new ideas but also to implement evaluative strategies to monitor the effectiveness of innovation. In some cases, the arrival of a new head teacher stimulated greater practitioner engagement with data and research. Head teachers were key to providing time for staff to engage with data and research but also in encouraging staff to work collaboratively to implement and monitor change in their practice informed by this evidence.

Head teachers were important in ensuring that their School Improvement Plans incorporated systems to facilitate practitioners' research engagement, self-evaluation and use of data to inform planning and practice. Head teachers were important in promoting a research-engaged culture in their schools, not only by facilitating time for professional dialogue and accessing research but also in expressing a positive attitude regarding research. In addition, head teachers helped to ensure that leaders within the school had a research aspect to their role. Also, teachers' responsibility for and engagement in, particular school-level research projects contributed to teachers' leadership opportunities.

> Our previous head teacher, because of his background, he would get all of the documents and lectures. The OECD [reports]…I did try and we all got a copy but it was too hard, but what he had done was had summarised it.
> Teacher, secondary school, focus group

RIC Leads particularly highlighted the role of head teachers in promoting a culture of research engagement amongst their staff.

> There's no doubt about it that strong leadership plays an important role because if you have a head teacher who believes in research, reads widely themselves, and draws on research then that culture permeates the school.
> RIC lead, interview

All participants felt that increased leadership at school level had facilitated a greater appreciation of research. While head teachers had a role in fostering leadership opportunities in their schools, the availability of CLPL (including courses and support from Scottish College for Educational Leadership – SCEL - and other courses such as Tapestry) had helped develop leadership skills and mindsets that recognise the value of engaging with research and making effective use of data.

> I'm on the Tapestry Leadership [course] and that has been really interesting in terms of reading the research, because every month, you get [research] papers to read
>
> Teacher secondary school. Focus group

The role of supportive local authority leaders

Participants in this study reported that supportive strategic leadership at local authority level was crucial in supporting practitioners and school leaders to implement and assess innovations. In addition to promoting a positive culture to innovate, the provision of Career-Long Professional Learning (CLPL) opportunities by the local authority helped to improve research engagement. Participants provided examples of CLPL opportunities to improve data skills for all school staff, not just school leaders.

> As Head teachers, we met with the [local authority] strategic team who create all our spreadsheets so we could understand them…and my role was then to come back to school and be able to share that.
>
> Head teacher, primary school interview

> They [local authority] put on support networks monthly and we've had a few speakers now within last year all about data and how to collect it and they've been very useful because most of us didn't have the experience of that.
>
> Teacher, primary school, focus group

RIC leads felt that the RICs had an important role to play in knowledge mobilisation, including the collective consideration and transfer of research evidence in relation to attainment. They indicated that such activity was still largely at an early stage but that programmes of work and work streams to build this capacity were being implemented.

> It is very early stages at the moment. What is happening across most LAs is the research processes is not yet being driven by the RIC. What we do have though is a work stream that is looking at data but that is very much your raw, examination and curriculum for excellence data it is not yet the wider range of qualitative information that you'd also want to draw on. But this is our aim. We have a workstream to empower teachers to gather and use data themselves rather than relying on officers at the centre.
>
> RIC lead, interview

Leaders at both local authority and school level were found to be important in creating the capacity for practitioners to engage with research. They were perceived to play a crucial role in encouraging and enabling practitioners to access research and then reflect this in their practice. This included providing time for teachers to access research, planning how to act upon research findings and sharing with colleagues in order to mobilise the knowledge more widely. Participants highlighted numerous examples of how local authorities were building the appropriate infrastructure, through personnel and systems, to support the gathering of data, to facilitate access to this information and build head teacher and teacher skills in interpreting the data in the context of their practice and learner needs. In one local authority, teachers referred to the emerging RIC as facilitating a conducive infrastructure and culture to promote the sharing of research and knowledge.

> I know the [RIC] is … really taking off over the last session, and you know, our own working groups within that…There is much closer working, and I think when we still do the [RIC] meetings, we had the PEF event so it's [component RIC local authorities], and there was people talking there about what they had done PEF interventions; so you opted into going here, so I deliberately went to [one that wasn't my LA] because I wanted to hear what was happening in other places, so that was really good that you get to hear what's going on in other authorities
>
> Depute head teacher, primary school, focus group

Some teachers noted that support from their local authority regarding professional development and access to knowledge was not guaranteed.

> I also think in the past, we had a lot more input from the local authority on different courses and things, whereas now that the money of course is drying up, there has been less and less of that, so it's up to us as individuals to go out and do our own kind of personal reading and that kind of thing and our own research, whereas before, years ago, there was absolutely a wide variety of courses to go onto for your CPD.
>
> Teacher, primary school, focus group

Despite the reported importance of local authorities as brokers and facilitators of knowledge and resources to build research capacity and engagement in schools, a key theme to emerge was that such support was under pressure. This was noted across all the respondent groups.

The developing role of the Attainment Advisors in supporting research engagement and effective use of data

Attainment Advisors saw their role as increasingly supporting the development of a culture of research engagement across local authorities. This role of the Attainment Advisors was also recognised by RIC leads. Attainment Advisors stressed that to effectively support teachers they themselves had to access research literature in order to provide teachers with information on effective approaches. They also reported encouraging practitioners to adopt evidence-informed approaches, access sources of research as well as providing practitioners with summaries of research findings from their own reading. Attainment Advisors who were also HMI noted this role had also helped stengthen their own evidence-based approach and appreciation for research and evidence.

4.3.4 Funding and resources as facilitators

Resources from the Attainment Scotland Fund were important sources of support for practitioner engagement with research and data. Indeed, this funding was seen as creating new roles and facilitating teachers' ability to engage with research through the provision of additional staff, hence creating more flexibility and time in schools for teachers to access research and innovate. The Scottish Attainment Challenge as a policy was also seen as raising teachers' awareness of the need to collect meaningful data and understand whether their teaching and developments were making a difference to pupil outcomes.

Interviewees provided examples of how the resources and funding provided by the Attainment Scotland Fund had helped build systems and capabilities that have fostered use of data and research to assess context and inform strategies and teaching.

> I think in the challenge schools and others…they're very sophisticated in their use of data; they don't need support in that any more at all, I don't think. I would actually say that they're pretty far ahead… So, they're very skilled at bringing in an intervention that they know will be effective at a point in time, but the other thing that they were really skilled at is stopping interventions when they're not needed and bringing them back again.
>
> Attainment advisor

4.4 Suggested actions to promote a more effective and coherent use of evidence and information across the school system

As reported in previous sections, there was consensus regarding the key factors that participants saw as facilitating or inhibiting practitioners' research engagement and the use of evidence. When asked to suggest what actions would promote greater and sustained practitioner engagement with research and data a number of themes emerged.

The importance of providing time to engage with research

Providing the time and space for practitioners to meaningfully engage in collaborative professional dialogue regarding data, research and their practice was perhaps, the strongest theme across all participants in the interviews and focus groups. Head teachers and teachers across primary and secondary schools, frequently provided comments that illustrated how the nature of their work meant time could be a fundamental constraint.

> [There needs to be] An awareness [from Government] of how to manage the workload from that very practical standpoint of the classroom teacher and how research fits in with that and interventions fits in with that, and how to do it in a logical way that makes sense with what they're already doing as a practitioner rather than something extra on top of this.
>
> Teacher, primary school, focus group

Comments from head teachers, teachers and Attainment Advisors highlighted that while school planning, accessible research summaries and personal motivation can offset the impact of time pressures on research engagement to some extent, the current nature of teachers' workload is acting as a systematic inhibitor to increased research engagement. The RIC leads also acknowledged that time spent teaching and workloads are major factors influencing the extent to which practitioners were able to engage with research.

The value of external partners to support practitioners' research engagement

Participants in this study valued research and evidence and saw data and research as necessary to inform practice and planning. The reported barriers of time, accessible research summaries and varied levels of research skills and data literacy led participants to suggest that support from external partners and 'experts' would be welcome. Participants viewed this type of resource as helpful in making 'academic' knowledge accessible and assisting in its translation to action. One RIC Lead highlighted an effective example of

academics working with practitioners and the education community to build research capacity.

> Doing this [building research capacity] is responsibility of a number of people. I do think that universities and professionals who are steeped in it have a role but also working with folks like myself in the RICS, so what does that mean in terms of classroom practice. A good example of this is the work that Education Scotland did with the Robert Owen Centre with the School Improvement Partnership Programme [SIPP]. That was really about how do you take the messages of research and how do you actually get some action enquiry going on in the classroom. I think that needs to be a collaboration, so it's not just one group of individuals in a local authority or elsewhere.
>
> RIC lead, interview

Enhancing the accessibility of research evidence

A theme across the teacher groups was that current repositories and portals to access research findings could still be difficult to negotiate, mainly in finding evidence-based materials that were relevant and applicable to practice.

> I just think it's sometimes knowing where to find it, because apart from those places that I've said to you about Education Scotland, GTCS, the Facebook group, sometimes I just don't know where to go and there's no central place where there are all these things apart from GTCS – and again, there's not loads on there.
>
> Teacher, primary school, focus group

For some, the compounding factor of limited time meant that having readily available, practitioner-friendly and relevant research evidence was all the more important.

> We don't have the time to read everything, so if you've got a book that condenses something, that's easier. If you can't find the answers, as you do in searches, because I regularly do literature searches about something that I need to find out about, and I think so do quite a lot of people, but if you can't find it online like that and you're not just looking for one quick fix, you are reading around it and you're coming up with different ideas. You don't have the time to read huge scholarly in-depth articles.
>
> Depute head teacher, primary school, focus group

Head teachers and teachers sometimes commented that losing free access to universities' on-line libraries and journals had been a barrier for them accessing research and academic readings.

> You know, they [universities] had paid for all these different journals and things and you could use their search engine and get everything up, but obviously, when you stop being a student, you stop getting access to that,

and that seems a bit strange because your research should not stop once you've become a teacher. So even giving teachers access to a university's bank of resources would be useful.

Such concerns emphasise the importance both of making research evidence accessible to teachers and the education community but also finding some way to make information that is summarised sufficiently detailed to be helpful and inform practice.

4.5 Summary: What factors influence practitioners' ability to make the best use of evidence and effectively engage in research?

Clear themes emerged across the qualitative strand regarding the range of factors that participants reported could facilitate or inhibit practitioners' effective access to, and use of, research evidence. Participants were also in agreement about what support would be required to address barriers. Key findings regarding factors promoting practitioners' access to, and use of, data and evidence were:

- Practitioners who have undertaken further qualifications are more likely to access more academic material and disseminate their learning to their colleagues.

- Practitioners require a level of critical awareness and 'data literacy' to be able to evaluate and understand data and information and use this to inform their teaching practice. Such skills and critical scrutiny are enhanced by professional dialogue and collaboration between teachers and with other partner professionals, for example, local authority data specialists, Attainment Advisors, educational psychologists and academics.

- Leaders (i.e. head teachers, local authority leads and Attainment Advisors) who are able to develop a research culture, instil confidence and mobilise people and resources were perceived to contribute to improved research engagement.

- The resources and funding provided via the Attainment Scotland Fund have helped build systems and capabilities that have fostered use of data and research.

- Local authorities were seen as facilitators of knowledge transfer, support and resources that contribute to building teachers' research capacity and engagement. However, some participants drew attention to the reduction in local CLPL as financial cut backs continue to affect staffing levels.

- Teachers require easily accessible and credible sources of research evidence that is relevant to their teaching and contextual challenges. Online summary information, of educational research with illustrations and exemplars of resources and materials that have been compiled into accessible websites and short articles were popular. For example, the EEF blog and international educationalists' blogs that also included links to related information and resources.

- The greatest barrier to increased practitioner engagement with research is seen as time linked to teachers' current work patterns. While school planning, accessible research sources and personal motivation can offset the impact of time pressures on research engagement to some extent, the current nature of teachers' workload is acting as a systematic inhibitor to increased research engagement.

- Some of the Attainment Advisors and head teachers interviewed noted that the emerging brokering role of the RICs in coordinating and facilitating partnerships and sharing of information should enhance the mobilisation of knowledge across the system.

  Participants saw key areas for support to improve use of data and to promote research engagement as including:

- Providing the time and space for practitioners to meaningfully engage in collaborative professional dialogue regarding data, research and their practice is crucial.

- Participants suggested support from external partners and 'experts' would be welcome to help make 'academic' knowledge more accessible and assist in its translation to action.

- Improving the range, accessibility and usability of research information in repositories accessed via central portals would be welcomed.

5. Strand 3: Validation Survey Findings

This section of the report documents the main findings from the validation survey. It begins with details of who responded to the survey, presents the main survey findings and concludes with a summary. The survey covered the following areas:

- Engagement in research activities

- Sources of evidence used

- Reasons for engaging with research

- Skills required for engaging with research

- Other necessary supports for engaging with research.

5.1 Who responded to the survey?

One thousand and thirty-six survey responses were returned. Responses were received from staff across all local authorities in Scotland although the responses from each authority were not necessarily proportionate to the size of their staff complement. For example, Glasgow city, the largest employer of teachers in Scotland, returned 2% (19 staff) of the survey total while staff in North Lanarkshire, Falkirk, and Dundee city returned 105 (10%), 97 (9%), and 94 (9%) questionnaires respectively[4]. As this was a self-selecting sample, it is possible that those who are actively engaged with research are over represented and therefore, it should not be treated as representative of all educational practitioners.

Almost all responses were from primary and secondary school staff (see Table 5.1) with relatively few returns from early years centres.

Table 5.1: Survey responses by Establishment (N=1,036)

Establishment	Percentage response
Primary school	47
Secondary school	45
Early years centre	3
Other	5
Total	**100**

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[4] The level of responses by local authority is likely to be a feature of the way the survey was distributed

Other included a diverse range of respondents such as: staff in additional support units, psychological services, college staff and other local authority-based staff.

Just over half of responses were from class teachers (53%). Only eight responses were received from early years practitioners. Table 5.2 summarises responses by staff designation.

Table 5.2: Survey responses by designation (N=1,036)

Role	Percentage response
Class teacher	53
Principal teacher	16
Head teacher/OIC*	14
DHT/Deputy OIC	6
Early Learning and Childcare practitioner	1
Other	10
Total	**100**

*- Officer in Charge

Other included: technicians, quality improvement officers, transition teachers, Attainment Advisors and other additional support staff.

The vast majority of staff (87%) worked full-time while the remainder were part-time. Just over half of the respondents (55%) indicated holding a post graduate diploma and 19% had a Masters degree or PhD. Just over half (51%) had worked in education for 16 years or more. Table 5.3 summarises respondents' length of experience in education.

Table 5.3: Survey responses by experience (N=1,036)

Experience	Percentage response
Probationer (1st year of employment)	4
Fully qualified and working in education for up to 5 years	13
Working in education for between 6 and 15 years	33
Working in education for between 16 and 25 years	29
Working in education for between 26 and 35 years	18
Working in education for 36 years or longer	4
Total	**100**

5.2 Engagement in research activities

Over half of respondents (59%) indicated that they were currently involved in one or more of the research activities listed in Table 5.4. These activities were generated from themes arising from the qualitative findings, the literature and insights from the Research Advisory Group. The most common activities reported were '*wider school-based research' (25%)* or *individual research on a classroom intervention (24%)*. Interestingly, one in five respondents reported that they were collaborating with colleagues in a classroom intervention. Just

under one in ten respondents indicated being involved in a postgraduate qualification involving research activity. The majority of 'other' responses were elaborations of categories listed in the question. However, using research findings as part of leadership courses did feature prominently in these responses.

Table 5.4: Staff engagement in research activities (N=1,036)

Research activity	Percentage response
Involved in wider school-based research	25
Individual research on a classroom intervention	24
Collaborative research on a classroom intervention	20
Involved in a professional reading group	19
Postgraduate qualification involving research activity	9
Other research activity (not listed in question)	9
Not currently engaged in any of the above	41

Interestingly, 41% respondents reported not being currently engaged in the listed research activities. A number of reasons for this are possible. The question asked about participants' **current** engagement and it may be that they have been engaged with these activities previously. Equally, they may be involved in research activities that do not fit easily into the listed categories. It is also possible that these respondents have had limited engagement with research.

5.3 Support for informing, planning and developing practice

Participants were asked to indicate which sources of support they used when they were informing, planning and developing practice within their establishment. Table 5.5 lists these sources and the relevant percentages.

Table 5.5: Sources of support

Source/ Activity	Percentage				Number responding
	Extremely or somewhat helpful	Neither helpful or unhelpful	Unhelpful or extremely unhelpful	Never engaged with	
Googling/ web searches	94	4	1	1	**880**
Career Long Professional Learning (CLPL) courses/ opportunities including national, local and independent providers	91	4	2	4	**884**
Taking part in structured collegiate discussions	89	5	2	3	**882**
Working with colleagues in other schools/centres	89	6	1	4	**876**
Accessing academic literature e.g. journal articles	77	12	3	8	**870**
Accessing Education Scotland webpages	76	13	6	5	**882**
Reading professional periodicals/newsletters e.g. TES, University newsletters	75	14	3	8	**882**
Analysing data available within your local authority or school e.g. attainment data; data from evaluations of interventions	75	13	6	6	**880**
Accessing data available at a national level e.g. government statistical reports	61	19	7	13	**866**
Accessing local authority material	59	23	6	10	**878**
Accessing teacher groups on Facebook/social media	57	11	3	29	**856**
Accessing GTCS webpages	54	28	6	12	**876**
Following recognised educationalists on Twitter	52	10	3	35	**867**
Working with colleagues in further and higher education	51	13	3	33	**859**
Accessing library (e.g. university library, reference library, educational resource centre)	50	20	3	27	**857**
Working with local authority officers	46	22	6	26	**864**
Accessing Education Endowment Foundation webpages (Inc. via the Education Scotland site)	40	13	2	45	**861**
Working with Education Scotland officers, including attainment advisers	36	16	6	42	**853**

The following four categories were rated by more than 90% of those who had accessed them (excluding those who had *never engaged with*) as either *somewhat* or *extremely helpful* in informing, planning and developing practice within their establishment.

- Googling/web searches

- Taking part in structured collegiate discussions

- CLPL courses/opportunities including national, local and independent providers

- Working with colleagues in other schools/centres.

Findings from the survey correspond with that from our interviews where Google/web searches and the value of professional dialogue were frequently cited by teachers as common sources of information. There was tendency for those sources that were rated most highly to have also been the ones most frequently accessed. Overall, the helpfulness of the different sources was rated fairly highly by those who accessed them. Accessing academic articles was also rated as helpful by 77% of respondents, which may further suggest that the survey was completed by those who are more likely to be engaged with traditional sources of research.

The Education Endowment Foundation (EEF) webpages and Working with Education Scotland officers were the two sources least likely to have been engaged with. Whilst 45% of respondents indicated they had never engaged with the EEF webpages, 40% felt they were helpful. Similarly, whilst 42% indicated they had never engaged with Education Scotland officers, 36% found this resource to be helpful.

5.4 Use of research evidence

Respondents were asked to indicate how research evidence (including their own and/or existing data) was used. A total of 890 respondents answered this question. Table 5.6 summarises responses.

Table 5.6: Staff use of research evidence (N=890)

Activity	Percentage
To inform teaching and learning	92
To understand the impact of teaching and learning	78
To understand school or pupil characteristics	68
To develop their establishment's improvement plan	59

In addition, 8% reported it being used *in other ways.* The majority of those responding with 'other' used the category to elaborate on the existing response categories, especially 'to understand the impact of teaching and learning'. Others suggested that they had used research findings to promote their own or colleagues' professional development and leadership.

5.5 Skills for engaging more fully with research

The survey sought information on the research skills that staff felt were required for them to engage more fully with research and with research evidence. Table 5.6 summarises findings from this question, indicating which skills staff believed they possessed, those they felt they needed support to develop, and those they felt were not a required skill.

Table 5.6: Skills for engaging more fully with research

Research skill	Percentage		Not a required skill	Number responding
	Required – already have this skill	Required – need support to develop this skill		
Statistical analysis	42	47	11	**864**
Qualitative analysis	42	49	9	**864**
Report writing	65	23	12	**858**
Developing research questions	34	49	17	**865**
Identifying appropriate methodologies	44	47	9	**872**
Research design	24	54	22	**857**
Critically evaluating research findings	50	42	8	**869**
Identifying key literature	57	35	8	**869**

It is evident from Table 5.6 that substantial numbers of staff already feel they possess relevant research skills. This is particularly the case in relation to; *Report writing* (65%), *Identifying key literature* (57%) and *Critically evaluating research findings* (50%). These three skills are probably the most closely aligned areas with the training and development that staff will have experienced during their teacher training. Interestingly, virtually identical numbers of teachers (42%) identified *statistical* and *qualitative analysis* as skills they either already possess or skills they would need support in developing.

Research design was the skill staff were least likely to identify as possessing (24%) and the one most likely to be identified as requiring support to develop (54%). Interestingly, this was also the area staff were most likely to reject as a required skill (22%).

While substantial numbers of staff identify themselves as possessing relevant research skills it is also the case that sizeable numbers felt they required support to develop these skills.

5.6 Engaging more fully with research evidence
Respondents were presented with a list of potential supports for engaging more fully with research. They were asked to indicate whether the support was required for engaging with research evidence and secondly, whether the support already existed or if it needed developing. Results from this exercise are presented in Table 5.7.

Table 5.7: Support for engaging more fully with research evidence

Nature of support	Required – already present	Percentage Required – need developing	Not required	Number responding
A culture in your establishment which recognises the value of engaging in research	38	57	5	**879**
Dedicated time to engage with research evidence	13	84	3	**886**
Opportunities to work with colleagues on research activities	21	74	5	**882**
A culture in the local authority which recognises the value of engaging in research	28	68	4	**876**
National advice and support on engaging with research evidence to inform, plan and develop practice	21	79	-	**784**
Partnerships with research specialists e.g. university researchers, research organisations	13	74	13	**870**

On all specified supports, a clear majority of staff indicated that each was both required and needed developing. This was particularly the case with; *Dedicated time to engage with research evidence* (84%)*, National advice and support on engaging with research evidence* (79%), *Opportunities to work with colleagues on research activities* (74%) and *Partnerships with research specialists (74%)*. More positively, over a third of staff (38%) indicated that their establishment had a culture that recognised the value of engaging in research.

5.7 Respondents' own comments on engaging with data and research

The final survey question was open-ended and allowed respondents to make additional relevant comments. In total, 215 responses were received. Table 5.8 summarises the main themes emerging from these responses. It is clear from the table a *lack of time for engaging with research and data* was the most common response by far.

Table 5.8: Thematic summary of respondents' open ended comments (N=215)

Nature of Comments	Percentage
Lack of time is the most significant barrier to engaging with research and data	57
Research is being used to support professional development and to inform practice	16
Support is needed to ensure the effective use of data and research. e.g. CLPL and improving school culture regarding valuing research	13
Barriers to accessing data and research, e.g.: on-line access to libraries and journals only available when enrolled in University course.	5
Available research is perceived as too broad. In particular, there is a lack of material on effective classroom based practices.	4
Research skills that teachers possess are undervalued in career development terms and teachers' professional profile.	4
Research should have practical implications for practice.	4
Research is important but is a lower priority compared with other issues including; class size, workload, salary and support.	2

5.8 Summary of survey findings

- Over half of respondents (59%) indicated that they were currently involved in one or more research activities.

- The supports rated as most helpful in planning and developing practice were: *taking part in structured collegiate discussions*, *CLPL courses/opportunities* or *working with colleagues in other schools/centres*. These seemed to be those that offered both the dedicated time and opportunity to collaborate with colleagues. Practitioners also regularly used web searches to find relevant evidence.

- Almost four out of five respondents reported using data/research material *to inform teaching and learning* while just over two thirds indicated its use in *understanding the impact of teaching and learning*.

- Substantial numbers of staff already felt in possession of relevant research skills. This was particularly the case in relation to; *report writing* (65%), *identifying key literature* (57%) and *critically evaluating research findings* (50%).

- There was also evidence that respondents felt they needed support to develop their research particularly in relation to, for example, analysis of quantitative and qualitative data.

- A large majority of respondents indicated a need for the following; *dedicated time to engage with research evidence* (84%)*, national advice and support on engaging with research evidence* (79%), *opportunities to*

work with colleagues on research activities (74%) and *partnerships with research specialists (74%).*

- The most frequently cited open comment by staff highlighted a lack of dedicated time to engage with research and data.

6. Conclusions and discussion

This research project set out to understand how practitioners in Scotland engage with data and research and act on research evidence. It also looked at what factors influence practitioners' ability to make the best use of evidence. In defining research evidence, the study included three main types: school level data, extant research findings and practitioner enquiry/action research.

This research comprised three strands: a literature review; a qualitative strand that gathered information from teachers, head teachers, Attainment Advisors and RIC leads across six local authorities; and a survey of practitioners across Scotland to help validate the findings from the second strand. While there are limitations in the extent to which we can generalise the findings from this research, the study highlights important issues for the education system regarding facilitating engagement with data and evidence in schools.

This section reflects on the main themes arising from our research and considers their related implications, some of which could inform future practice and policy.

Time and workload

The most compelling factor seen as influencing practitioner engagement with research is that of time. The findings highlighted the importance of teachers having sufficient time to access, interpret and apply data and evidence. Teachers who engaged with data and research reported that their ability to access research and to engage in enquiry, beyond the basic use of school-level data, was constrained by their workload and time commitments. This may largely explain teachers' reliance on easy to access and summary forms of research and information. While school planning, accessible research sources and personal motivation can offset the impact of time pressures on research engagement to some extent, the current nature of teachers' workload acts as a systematic inhibitor to increased research engagement. These findings strongly indicate a need to consider how well teacher time commitments and workload matches expectations regarding teachers' use of evidence and engagement with research.

Relationships between practitioners, researchers and policymakers

The literature and our findings highlight the importance of researchers working closely with practitioners and other partners to better convey research findings to influence practice and educational thinking but also to enhance research skills. Given this, the education and policy community could consider how academics and other partners, including local authority staff, Educational Psychologists and others can work more collaboratively at a local level with

teachers to enhance their skills to use data and findings and explore implications for practice as well as to develop teachers' critical enquiry capacity. This could include developing local collaborative hubs. The School Improvement Partnership Programme (2013-15) included aspects of this concept in its design, including university researchers, the national education improvement agency, local authority actors and teachers working together in local teams.

The influence of key actors

The findings identified a number of key actors that were important conduits for knowledge transfer and mobilisation. This included Attainment Advisors, Educational Psychologists and other allied professionals, academic researchers and other leads at school and local authority level.

There is evidence of practitioners requiring more support to critically evaluate research evidence. Guidance from Attainment Advisors, educational psychologists and academic researchers is essential for supporting this process, at least initially. Attainment Advisors have an increasingly important role in acquiring research knowledge and mobilising this across the system, particularly in their local authorities.

Head teachers and other school leaders usually see it as their responsibility to keep abreast of knowledge on pedagogy and effective approaches. This makes them important intermediaries in knowledge translation. Moral and practical support from school leadership, the local authority and Attainment Advisors is crucial in building a culture of research engagement and capacity at local level. This highlights the importance of focusing efforts on promoting effective local authority and school leadership for promoting meaningful engagement with research and data.

These findings suggest that the education and policy community could explore how these actors can be further supported in their knowledge mobilisation and leadership roles.

Resourcing research engagement across local systems

In addition to local authority and other personnel supporting practitioner research engagement, there were examples of local authority professional learning programmes aimed at building practitioners' data and research capacity and skills. In some cases, however, there was a reduction in local CLPL as financial cut backs continued to affect this capacity. The value of investing in such central support to deploy specialists, provide CLPL and promote the transfer of knowledge across local authorities appears clear.

The value of collaboration to foster engagement with research and data

There were limited examples of collaborative practitioner research within and across schools. Where these occurred, they were often supported by external partners including; university colleagues, local authority personnel and Attainment Advisors. In some instances, the work was facilitated by the Attainment Scotland Fund. Such arrangements demonstrated that teams of teachers supported by their head teachers and focussed on a particular challenge could enhance the capacity of staff to systematically engage with data and research, develop their pedagogical expertise as well as their leadership skills.

Accessibility of research findings

A strong theme across the literature review and our empirical findings was the issue of how academic findings regarding education-based approaches could be more effectively conveyed to inform teachers' practice. This included making such evidence more easily available but particularly, making the key messages from such literature clear and framed in a way that enables translation into action. Related to this issue was the finding that those involved in our research saw the value of working with academics to help promote practitioners' data literacy and other research skills. This suggests there is scope for academics and policy partners, working with practitioners, to explore how research findings can be better communicated to the teaching profession while retaining appropriate rigour. The research literature states that making research findings accessible is only likely to make a difference to teacher practice and outcomes if a culture of research engagement is supported, with time to access, understand and apply this knowledge (e.g.: Hargreaves, 1999; Nutley & Davies, 2000; Williams and Coles; 2007).

Existing educational infrastructure

Currently, at the policy level, the Scottish Attainment Challenge and the associated Attainment Scotland Fund are working as drivers to focus teachers' attention on the value of evidence-based practice. Professional culture across Scottish education and national educational policy appear to be contributing to fostering teachers' positive disposition to research engagement and using data to inform their practice. The resources and funding provided by the Attainment Scotland Fund has also helped build systems and capabilities that have fostered use of data and research. This has included resourcing staff to focus on data use and enquiry as well as drawing on external sources of expertise. As discussed in this section, there are also aspects of this professional environment which are less than conducive and present tensions for supporting practitioners' engagement with research.

The findings also indicated that the education landscape is changing as the RICs are established. Some of the strategic participants in this study saw this as having implications for knowledge mobilisation and teacher engagement with data and research. Given that our research has highlighted the potential of local hubs or collaboratives that could support teacher engagement with data and research, further consideration could be given to how strategic RIC policies and approaches regarding knowledge mobilisation coherently articulate with, and support, the use of data and research locally.

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