

AN EDUCATIONAL RESEARCH STRATEGY FOR SCOTLAND:
Discussion Report

Summary of key points arising from the discussion

- *There is a need to develop a system that recognises the critical inter-relationship of research, policy and practice. Independent research and evaluation should be a pre-requisite for any education innovation, and built-in from the start of reforms. Research is capable of developing a fuller understanding of the impact of education innovations, which also need to learn from past attempts at change.*
- *While it remains to be seen whether the creation of an overarching single 'educational research strategy' is the most appropriate way forward, there is a clear need to ensure that the conditions (including for publicly-produced data, sustainable funding, infrastructure and skills capacity), are in place to facilitate educational research. Any strategy or set of expectations must ensure that it undermines neither the research effort nor the creativity of researchers.*
- *There was considerable discussion of issues related to the availability and use of data. Compared to other areas of social science, the data available for educational research has diminished since Devolution. The quantitative skills capacity within Scottish social science (and the UK) has also been highlighted as an area of concern. In line with the need to enhance the influence of research in policymaking, there must be opportunities for researchers to inform the processes that determine data collection. Given that research on inequalities in education requires multidimensional analysis, education data needs to be linked with other data sources, including health, housing, social care and community, to help understand the interplay among the range of socio-economic factors.*
- *Recognition that an influential factor for the translation of research into classroom practice is direct dialogue between researchers and teachers. While teachers cannot be expected to have the same level of quantitative analysis skills as specialist researchers,*

they do need to have an appreciation of quantitative and qualitative data. Consideration needs to be given to how this can be supported in teachers' initial and continual professional learning, and also in the context of current workload constraints.

Introduction

- 1 The OECD review of Curriculum for Excellence (CfE)¹ recognised the need to draw upon the professional input of independent researchers in informing developments in education policy and practice, with research being the tool by which policy is understood. This reflects the long-standing views of the Royal Society of Edinburgh (RSE) on the importance of independent evaluation, systematic research evidence and the collection of baseline data to inform Scotland's educational reforms. The RSE has welcomed the Scottish Government's commitment to take forward the OECD's recommendations and has expressed a desire to contribute to the Government's plans. In parallel and in support of the OECD findings, the Government is establishing a National Improvement Framework for Scottish Education² which aims to bring together key information to evaluate the performance of the school education system and to inform the action needed to improve attainment and wider outcomes for children in Scotland.
- 2 The current priorities for the National Improvement Framework are:
 - Improvement in attainment, particularly in literacy and numeracy;
 - Closing the attainment gap between the most and least disadvantaged children;
 - Improvement in children and young people's health and wellbeing; and
 - Improvement in employability skills, and sustained, positive school leaver destinations for all young people.

¹ Improving Schools in Scotland: An OECD Perspective; December 2015 <http://www.oecd.org/edu/school/improving-schools-in-scotland.htm>

² National Improvement Framework for Scottish Education; Education; January 2016 <http://www.gov.scot/Topics/Education/Schools/NationalImprovementFramework>

3 The RSE hosted a Chatham House Rule roundtable discussion on 9 June 2016, bringing together 20 educational researchers and Scottish Government representatives. The focus of the meeting was to discuss and contribute to the Government's plans for developing a research strategy to inform education policy and practice in Scotland, in the context of the overarching National Improvement Framework. Participants included those with experience and understanding of how effective educational development, research, evaluation and dissemination should be undertaken. The meeting was chaired by Keir Bloomer FRSE, Convener of the RSE's Education Committee. In preparation for the meeting and to identify key discussion points participants were invited to submit in advance their brief reflections on the following questions posed by Government:

- What should the priorities be for evaluation and research relating to the Scottish education system, in order to deliver the four NIF priorities?
- Where are the gaps in research relating to the current Scottish educational system?
- How can we effectively translate research into practice, so ensuring it has an impact, particularly in terms of the four NIF priorities?
- How can we better capitalise on existing research (both domestic and international)?

4 This report, prepared by the RSE, presents the key discussion points. It has also drawn upon the written submissions. The report has not been endorsed by the meeting participants. Nor does it necessarily reflect the views of the RSE. It has been submitted to the Scottish Government to inform its educational research plans and circulated to all the meeting participants. Participants were open to the prospect of providing further input and to contributing to future discussions in taking forward the Government's thinking.

Scottish Government overview of educational research strategy

5 The Scottish Government currently collects and analyses the following school-related statistical data: the annual pupil and teacher census; Scotland's participation in the Programme for International Student Assessment (PISA); the Scottish Survey of Literacy and Numeracy (SSLN); analysis of SQA qualification results (including linking this data with other pupil data); school leaver destination statistics; evaluation of Teaching Scotland's Future; and the development of an evaluation programme for the Scottish Attainment

Challenge. The Scottish Government will shortly collect data on teacher judgements on learner progress as part of the data collection programme for the National Improvement Framework. The Government is keen to enhance links across pre-school, school and tertiary education datasets to provide more joined-up information on learners' life journeys.

6 Clarification was sought on the scope and resourcing of the research strategy, particularly on whether the strategy will be applicable beyond the National Improvement Framework. It was confirmed that while the ultimate aim is to have a research strategy that encompasses the breadth of education, the immediate focus is on supporting the National Improvement Framework. The aim of the strategy is to develop a coordinated approach to education research across Scotland, thereby ensuring engagement with organisations that commission, fund and undertake educational research. At this stage the Government has not allocated any financial resource to the research strategy as its immediate priority is on developing the strategy.

What a research strategy might look like

7 Research can provide evidence on what is and what is not working and why this is so, and it can support evidence-based proposals for making improvements. A major criticism currently is the lack of a strategic approach for education research in informing education developments in Scotland, resulting in fragmented approaches. Rather than moving straight to considering potential research priorities and research questions, there was support for the need to consider the process and context of developing a research strategy. The need to develop a sustainable approach that supports the research capability, networks and infrastructure required, and avoids the temptation of short-term temporary investments, was recognised. A useful starting point, building from the current position, would be to undertake a mapping exercise of currently available educational research infrastructure, expertise, networks, actors and interests. This would also be a way of helping to ensure better use of existing data. As well as a mapping exercise, research overviews when undertaken systematically can provide valuable evidence allowing critical and informed decision-making and adding rigour to the research process. They can help identify key issues, distil what is known already and identify gaps in research. They can also be a useful means of engaging with a wider audience on research, including teachers and parents.

- 8 There was an emphasis on the requirement to fundamentally review the inter-relationship of research, policy and practice to build a system that recognises the symbiotic relationship between action and evidence. The strength of a strategic role for research is that it can lead to the accumulation and discussion of evidence in order to enhance practice as an essential component of a self-improving system. To-date there has been a tendency for policymakers to make *ad hoc* adjustments to the implementation of educational reforms in response to emerging issues and criticisms which can detract from the original policy aspiration. Consideration should therefore be given to developing a set of national principles to inform current and future educational innovation. These principles could include the following:
- Every proposed innovation should begin from a strong evidence base, including engagement with practitioners (where possible also parents and pupils); an independent, systematic review of literature; and a constructive, critical review of policy evidence.
 - The rationale for any proposed innovation should include clear evidence on why change is necessary and what needs to change.
 - The innovation design should make explicit the research considered: a statement of those research studies used to inform the policy proposal, and why; a statement of those studies whose findings have been rejected, and why.
 - Future innovation should pay attention to past attempts at change – including the rationale for the innovation, the problems encountered and why further change was deemed necessary.
- 9 It was suggested, however, that the establishment of a research strategy could place constraints on researcher creativity and innovation, including ensuring that there are opportunities for dissenting research. Therefore, the purpose of any strategy (or perhaps it might be more appropriate to think of it in terms of a set of agreed expectations for data, infrastructure, capacity, and skills, for example) should be to create the conditions, including the certainty of sustainable funding streams and the provision of publicly-funded data, to facilitate research and experimentation. The strategy should not seek to control the research effort. More broadly, there was an emphasis on the need to support all levels of the education system, both within and across levels, in terms of data collection, analysis, research capacity, communication and engagement.

Data Considerations

- 10 There was considerable discussion of issues related to the provision and use of data for educational research. While there has been a very welcome increase in investment into datasets for social research in Scotland since Devolution, the notable exception is educational research, where the range of available data has diminished. However, there is a need for increasingly large datasets to enable researchers to undertake detailed micro analysis. Data-related considerations are becoming more prominent and it was noted that the Scottish Government and the Applied Quantitative Methods Network (AQMeN) were co-hosting a conference on the future of education data in Scotland.
- 11 Reference was made to PISA data that shows social inequalities in Scotland are larger within schools than between schools. This emphasises the need for mixed forms of research including that which uses large datasets and also smaller, local case studies. There was concern at the risk of one-size-fits-all approaches and the same interventions being applied across all schools. The need for flexible and tailored approaches that take account of local circumstances was reinforced.
- 12 As well as ensuring provision for mixed methods research work, including quantitative, qualitative, longitudinal and case study research, there is a need for exploratory research which not only describes what is happening, but also why it is happening. Research of this kind can help generate an understanding of causal mechanisms. Whatever the research, whether it be descriptive or exploratory, it is reliant on the provision of appropriate baseline data.
- 13 To ensure that there is a coordinated approach to research influencing policymaking, researchers need to be able make an input into the process of national data collection. For example, it was remarked that absenteeism data is collected by the Scottish Government biennially. However, this presents a challenge from a longitudinal research perspective which requires being able to monitor trends over time. Similarly, reference was made to the fact that the SSLN (compared to its predecessor, the Scottish Survey of Achievement, which involved large numbers of pupils from sample schools) involves only a very small number of pupil participants from every school. While there are pragmatic reasons for this in terms of affordability and reducing the reporting burden on schools, the limitations of this data means it is not possible to study reliably variation between schools.

This is a critical limitation from a research perspective given the philosophy of CfE rests on the autonomy of individual schools. In addition, it was recognised that monitoring progress on reducing educational inequalities has been hampered by the absence of robust and reliable national assessment data in primary school and the early years of secondary school (i.e. the broad general education phase of CfE). However, it was acknowledged that the National Improvement Framework aims to address this.

- 14** Research on inequalities in education requires a multidimensional analysis of the root causes of these inequalities. Therefore, when establishing large datasets it is essential that the Scottish Government facilitate the linking of education data with other data sources including health, housing, social care and community, in order to enable the gathering of information on the interplay among these factors. It was noted that data frameworks can be incredibly complex as they are expected to evolve in response to researchers subjecting the data to rigorous scrutiny and challenge. PISA, which has been in existence for around 20 years, exemplifies this process of highly sophisticated framework evolution.
- 15** This reinforces the importance not only of the provision of data, but ensuring researchers in Scotland have the skills capacity to interrogate complex data which require sophisticated statistical analysis, including diagnostic and system-level analysis. The ESRC and the Scottish Funding Council have reported that the necessary knowledge and skills are in short supply in Scottish social science³. There are, however, a number of new degree programmes that combine social policy with quantitative/statistical methods. Reference was made to the Nuffield Foundation's Q-Step programme⁴ (which includes the Universities of Edinburgh and Glasgow) which is designed to promote a step-change in quantitative social science training in the UK in response to the shortage of quantitatively-skilled social science graduates.

Teachers engaging with research

- 16** Active engagement with research by teachers will make it much more likely that the profession will come to see initiatives as acceptable, practical and of significant educational value. In this context, the

value of knowledge exchange among researchers and teachers was emphasised. This can be very useful both for researchers and teachers, particularly given the complexity of the school environment, in gaining an understanding of the richness of their respective experiences in interpreting and acting on the basis of evidence. It was commented that this dialogue also provides teachers with a broader overview of research informed evidence that previously they would have been unaware of. There is considerable scope to improve communication and engagement between researchers and teachers.

- 17** However, a major barrier to teachers engaging more deeply with research is their lack of understanding of quantitative and statistical research methods. It was also remarked that current workload levels prevents teachers from interacting with research. These points have implications for the data generated by the National Improvement Framework in terms of ensuring that teachers are equipped to support learner improvement. However, teachers' primary role is to teach and it would be unrealistic (and quite simply, impossible) to create an expectation that every teacher needs to develop the same level of sophisticated quantitative analysis skills as a specialist researcher. However, teachers do need to have an appreciation of quantitative and qualitative data. Making available to teachers in digestible form syntheses of existing research could be a valuable contribution and enable them to reflect on their own practices. This implies that teachers should be provided with opportunities for training and support in how to use data to inform practice. Consideration also needs to be given to how this can be supported in teachers' initial and continuing professional learning as these have a profound influence on teachers' thinking and practice.
- 18** Consideration could be given to the potential of adopting models that facilitate partnership working among researchers, local authorities and schools in relation to the interpretation of research evidence. This could comprise a dedicated team of experienced and expert educationalists and practitioners with credibility among schools, which can support the provision of research-based practice in schools. As an analogy, reference was made to the work of the Positive Behaviour Team which works intensively with schools at their request.

³ ESRC/SFC Scoping Study into Quantitative Methods Capacity Building in Scotland; Final Report; 2008; <http://www.esrc.ac.uk/files/research/esrc-sfc-scoping-study-into-quantitative-methods-capacity-building-in-scotland/>

⁴ <http://www.nuffieldfoundation.org/q-step>

Translating research into practice

- 19 Research often does not provide unequivocal answers which means that it might not be possible to provide clear advice to schools. Furthermore, the link between research and practice is not linear and there can be a considerable time delay in embedding research into practice. There is a misconception that practitioners will readily absorb and apply disseminated written research findings without any external input. The evidence shows that an influential factor on increasing research impact is the personal contact and dialogue between researchers and users of research. This reinforces the preceding discussion on the need to support active engagement between researchers and practitioners. Reference was made to *The Politics of Evidence Based Policymaking*⁵ which identifies how researchers can work with policymakers to maximise the impact of evidence in the policymaking process.
- 20 It is important to consider the ‘eco-system’ for research use, including the multiplicity of actors and institutions and the interactions among them. Effective practices to increase research use are likely to encompass the following features⁶:
- **Research must be translated** – adaptation of findings to specific policy and practice contexts
 - **Ownership is key** – though there are exceptions where implementation is received or perceived as coercive
 - **Need for enthusiasts** – champions – personal contact is most effective
 - **Contextual analysis** – understanding and targeting specific barriers to, and enablers of, change
 - **Credibility** – strong evidence from trusted sources, including endorsement from opinion leaders
 - **Leadership** – within research impact settings
 - **Support** – ongoing financial, technical & emotional support
 - **Integration** – of new activities with existing systems and activities.

- 21 The value of Scotland learning from practice elsewhere was also reinforced. In relation to increasing the impact of research, reference was made to the work of the Education Endowment Foundation (EEF)⁷. This provides funding to promising educational innovations (which are subject to independent evaluation) with a view to addressing the needs of disadvantaged school learners in England. While the EEF prioritises experimentation studies, this is not to the exclusion of other approaches. In terms of the scaling-up of research-based practice, the EEF provides toolkits with accessible summaries of educational research to guide practitioners on the use of EEF resources.

Education Research Priorities and Gaps

- 22 Based on the preceding discussion, there should be a focus on identifying mechanisms that set priorities from a bottom-up perspective, especially drawing upon the input of teachers. In response, it was acknowledged that the Scottish Government has made significant investment to the GLOW⁸ digital learning environment for teachers and learners. However, it was acknowledged that centralised environments may suffer from trust and credibility issues. There are, however, a number of collaborative communities being operated by practising teachers themselves, including ‘Pedagoo’⁹.
- 23 In relation to bottom-up priorities, there was discussion of the prominent assessment-related workload issues being experienced by teachers and the way in which the current reform programme has been managed by Scotland’s educational leaders. Had there been a more central role for research and evaluation from the outset of the CfE reforms, research would have been able to develop a fuller understanding of what is actually happening, and why. In addition, there were concerns that the Scottish education system has not learned lessons from previous education innovations, including the Scottish Parliament’s substantial inquiry¹⁰ of 2000 into the events surrounding the examination certification crisis and the implementation of Higher Still. This serves to demonstrate that there is a need to bring together lessons from previous curriculum innovations in terms of informing current and future developments. It also makes clear the critical importance of ensuring that research and evaluation is a pre-requisite of any education innovation, and is built-in from the very start.

5 The Politics of Evidence Based Policymaking; Paul Cairney; Palgrave Macmillan UK; 2016 <http://www.palgrave.com/gp/book/9781137517807>

6 Using Evidence: How Research Can Inform Public Services; Sandra M. Nutley, Isabel Walter, and Huw T. O. Davies; Policy Press University of Bristol; 2007.

7 <https://educationendowmentfoundation.org.uk/>

8 <https://connect.glowscotland.org.uk/>

9 <http://www.pedagoo.org/>

10 Exam Results Inquiry; Scottish Parliament Education, Culture and Sport Committee; 2000 <http://archive.scottish.parliament.uk/business/committees/historic/education/reports-00/edr00-11-v1-01.htm>

24 At the conclusion of the discussion a Scottish Government representative highlighted the following aspects as those warranting further exploration:

- Data-related issues
- Processes of change within a complex education system
- Skills capacity across different levels of the system
- Translating knowledge and research into practice
- Infrastructure and networks

Additional Information

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Responses are published on the RSE website (www.royalsoced.org.uk).

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