

SCHOOLING IN SCOTLAND AND ITS FITNESS FOR 21ST CENTURY PURPOSE:  
a response to the call for evidence from the Commission on School Reform

Summary

- *There is a need to consider what it is that the Scottish education system as a whole is trying to achieve. A strategic overview is required. In consultation with other partners the Scottish Government should identify the strategic priorities and needs of education in Scotland.*
- *The way in which people make choices about their futures is critical to current and future reforms in Scottish education. Much more consideration will need to be given to the factors that influence the decisions which learners make so that future learners are in a position to consider and take-up more diverse educational pathways. The pathways and destinations will need to be understood and valued by all stakeholders, especially employers.*
- *One of the most pressing issues is the underlying trend of youth unemployment. While youth unemployment is undoubtedly a multi-sector challenge, there is a need to clarify the role that the school sector is to play in helping to address this. The extent to which current school education and the careers advice enables learners to make an informed decision about apprenticeship opportunities and other routes as opposed to the traditional university or college pathway is unclear. This will require careers advisors, guidance teachers and parents to be better informed about the diverse pathways which will be available to learners. While the Scottish Credit and Qualifications Framework (SCQF) could potentially be used to support this, experience to date suggests that, although it is widely praised, it has had little practical impact.*
- *When trying to compare Scotland's educational performance with that of other countries, care needs to be taken when relying on the results of international surveys such as TIMSS and PISA. Different countries will inevitably collect education data in different ways and there will be difficulties in translating standards, initiatives and programmes from one culture and system to another. Furthermore, curricula vary considerably across countries and in the extent to which they 'match' the test material. Even within Scotland expectations of the standard of educational performance can be ambiguous. The matter of how criteria of attainment are set at different stages (or ages) is both complex and important and has to be supported by sound argument and evidence.*
- *In order that Scottish school education is capable of overcoming challenges that are, as yet, unforeseen, there is a need to have mechanisms in place which allow for curriculum review and refreshment. This will need to be accompanied by high quality CPD. There are opportunities to adopt collaborative partnership approaches involving schools, local authorities, universities, learned societies and others that can help make best use of limited resources.*
- *As a part of this it will be important to ensure that there is a regular review and consultation process involving disciplinary experts. This is particularly important for the sciences where what is studied at school can become detached from contemporary scientific issues and real world contexts. One option would be to establish a standing group with which SQA and Education Scotland would be expected to engage. Given the interdisciplinary and cross-disciplinary aspirations of Curriculum for Excellence, it is imperative that consideration be given to how such a group can ensure representation of contemporary science, engineering and technology and the universities.*
- *The teaching profession needs to respond readily and creatively to what will be a **continuing need for change** in: teaching and learning approaches, curricula (review and refresh), the re-engagement of disengaged students, and the preparation of young people for multiple destinations in later life. To achieve that, the practice of teaching must be a fulfilling and fascinating experience. That requires innovation to be managed in a way that makes clear the importance of teachers' own ideas (and their reservations), recognises and responds to those ideas (but not without constructive criticism and provision of necessary resources), and offers opportunities to learn about, and apply critical thought to, the wider field of educational and intellectual matters. Formal credit for performance and adequate time for involvement, in these kinds of effective professional practice can be part of an incentive structure that motivates individuals to play a central role in improving our education system.*
- *While the Scottish Government recognises the importance of research in areas such as science and technology, unfortunately, in the field of education, at least in the very recent past, there has been no priority given to the understanding that can come from independent systematic research. For example, there are assertions of "success" in relation to Curriculum for Excellence, but no proper evidence. Without high quality evaluation, not only do we not know what is going well and what is not, without an evidence-base we have no way of developing a proper understanding or an ability to plan so that things go better. In these circumstances, Scotland will not have the impact internationally that it so desires.*

## Background

1 Through its Education Committee the Royal Society of Edinburgh (RSE), Scotland's National Academy, identifies and promotes priorities for education in Scotland at all levels. The Education Committee comprises individuals with expertise and experience in and across the school, college and university sectors. The RSE welcomes the establishment by Reform Scotland and the Centre for Scottish Public Policy of the Commission on School Reform and the opportunity to respond to the ambitious remit and objectives of the Commission. We have focused our comments on those issues where we believe we can add value. We would be pleased to discuss further any of the comments made in our response with members of the Commission.

## The need for a strategic overview

2 While the Commission is considering whether the school system in Scotland is meeting the present and future needs of young people, arguably there is a prior issue to be considered in terms of what it is that the Scottish education system as a whole is trying to achieve. We appreciate that it is not the role of the Commission to address this question but we believe such a strategic overview is timely and essential. Currently, there is no overall strategy outlining how all the disparate strands of the education and skills sectors will be integrated into an education and skills continuum. There is a need for the Scottish Government in consultation with other partners to identify the strategic priorities and needs of education in Scotland.

## Learner journeys and pathways

3 The way in which people make choices about their futures is critical to current and future reforms in Scottish education. While the Scottish Government has recognised the importance of learner journeys<sup>1</sup>, much more consideration will need to be given to the factors that influence the decisions which learners make so that future learners are in a position to consider more diverse options. Unless learners actively take-up "non-traditional" educational pathways, it is difficult to see how reform can succeed in improving access and opportunity. In this context, it is important that the focus is on giving shape to the learner as an individual.

4 It is also crucially important that, if new learner pathways are created, then consideration must be given to the demand-side. The pathways and

destinations will need to be understood and valued by all stakeholders, especially employers. Otherwise they may not be taken up to enhance progression through educational transitions into employment.

5 The reform of post-16 education in Scotland sets out aims which relate directly to how the senior phase of school will articulate with colleges, universities and work. It is, however, unclear how these ambitions will be pursued with schools having complete autonomy. There is a risk that diversity among schools will lead to the emergence of a two-tier system of quality in comprehensive education, determined by a school's ability to accommodate (or not) all the different pathways that are valued by tertiary education and employers.

## Youth unemployment and the role of the school sector

6 In this context, one of the most pressing issues is the underlying trend of youth unemployment. The most likely to be at risk of unemployment are those young people who are disengaged from school education. While the Scottish Government has developed a Youth Employment Strategy<sup>2</sup> along with other well intentioned initiatives and funding aimed at increasing youth employment or providing a place in learning or training for all 16-19 year olds who need it, these tend to respond to the problems once they have occurred rather than address the root causes. If the Government is to address this in fulfilling its economic development objectives, then it is conceivable that resources should be channelled in a way so that they improve the prospects of those disadvantaged and at most risk of unemployment from their very early years.

7 There is a perceived tension between the relative priorities of narrowing the achievement gap while at the same time extending and challenging the high performers. It is important that these aims are not seen as being mutually exclusive; rather they should be complementary. The research evidence<sup>3,4</sup>, does indicate that the economic, health and social benefits of narrowing the achievement gap are very substantial. However, this requires governments to take a longer-term and systematic view of the linkages between education and other public sectors.

1 <http://www.scotland.gov.uk/Topics/Education/post16reform/learner-journey>

2 <http://www.employabilityinscotland.com/draftyouthemploymentstrategy.aspx>

3 The high cost of low educational performance – the long-run economic impact of improving PISA outcomes. OECD Programme for International Student Assessment (PISA) 2007.

4 The economic cost of the US education system. McKinsey & Co, 2010.

8 While youth unemployment is undoubtedly a multi-sector challenge, there is a need to clarify the role that the school sector is to play in helping to address this. The Scottish Government is committed to 25,000 Modern Apprenticeship opportunities this year, and in every year of the present Parliament. However, the extent to which current school education and the careers advice which is available to learners enables them to make an informed decision about apprenticeship opportunities and other routes as opposed to the traditional university or college pathway is unclear. This will require careers advisors, guidance teachers and parents to be better informed about the diverse pathways which will be available to learners. While the Scottish Credit and Qualifications Framework (SCQF) could potentially be used to support this, experience to date suggests that, although it is widely praised, it has had little practical impact. Development of stronger links between the secondary school and college sectors may contribute to better advice and more robust pathways to work.

### Measuring educational performance

9 When trying to compare Scotland's educational performance with that of other countries, care needs to be taken when relying on the results of international surveys such as the Trends in International Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA). Different countries will inevitably collect education data in different ways and there will be difficulties in translating standards, initiatives and programmes from one culture and system to another. Furthermore, curricula vary considerably across countries and in the extent to which they 'match' the test material.

10 Even within Scotland expectations of the standard of educational performance can be ambiguous. This is illustrated by the recent publication of the numeracy results from the Scottish Survey of Literacy and Numeracy<sup>5</sup>. In these results there are distinctive, but unexplained, differences for P4, P7 and S2 among the definitions of the performance criteria. The matter of how criteria of attainment are set at different stages (or ages) is both complex and important and has to be supported by sound argument and evidence.

11 Nonetheless, the surveys do provide an indicative measure of educational performance in Scotland. In 2008, Fiona Hyslop, then Cabinet Secretary for Education and Lifelong learning, commented that the TIMSS survey (from which Scotland has subsequently withdrawn) conducted in 2007 "painted a picture of Scotland standing still while other nations

pushed by". By any standards there seems to be room for improvement. The recent report<sup>6</sup> from the Science and Engineering Education Advisory Group (SEEAG) recognised that, apart from the introduction of Curriculum for Excellence, the same issues and challenges in STEM education in Scotland that were highlighted by the report<sup>7</sup> from the Scottish Science Advisory Committee in 2003 still remain priority concerns in 2012. This is perhaps another indication that Scotland is standing still.

12 A perception that we believe is widely shared in Higher Education, certainly in the sciences, and by industry and business as employers of graduates, is that subject knowledge and understanding, creativity, cognitive and problem-solving abilities, and the capacity to make links and connections (systems thinking) have all declined. If this is so, there may be many possible contributing factors and it is not clear how this might be capable of being measured.

### The ability to review and update the curriculum

13 As one of its objectives the Commission will consider the challenges that Scottish education is likely to face in the next 50 years, not least in response to new developments in science and technology, and its capacity to meet those challenges. In order that Scottish school education is able to overcome challenges that are, as yet, unforeseen, there is a need to have mechanisms in place which enable the curriculum to be reviewed and refreshed as necessary. Embedding such mechanisms would go some way to ensuring that Scottish school education is well placed to respond to change.

14 However, this will need to be accompanied by making available high quality CPD for teachers which embeds new relevant content and knowledge and with effective pedagogy<sup>8</sup>. There are opportunities to adopt collaborative partnership approaches involving schools, local authorities, universities, learned societies and others that can help make best use of limited resources. In regard to partnership working, consideration should be given to recommendation 5.2 of the SEEAG report which calls for support and resources to be made available to stimulate the development and growth of Professional Learning Communities in STEM learning and teaching.

5 <http://www.scotland.gov.uk/Topics/Statistics/Browse/School-Education/SSLN>

6 Supporting Scotland's STEM Education and Culture - Science and Engineering Education Advisory Group - Second Report; February 2012  
<http://www.scotland.gov.uk/Publications/2012/02/4589/0>

7 Why Science Education Matters, Scottish Science Advisory Committee, 2003.

8 See Recommendation 3.2 of the SEEAG Report 2012

### *The role of disciplinary experts*

- 15 Over the years there has been concern that changes to the school curriculum and qualifications, whether as a steady evolution or relatively radical reform, have not always effectively reflected changes in the disciplines and new knowledge. In this context, to ensure that the teaching of subject matter is appropriate, current, inspiring and relevant to learners, it will be important to ensure that disciplinary experts are able to make an input into the content of the school curriculum and qualifications.
- 16 While the Scottish Government established 17 Excellence Groups which considered what makes for excellence in subjects, and in skills development, across learning, and the SQA has established various groupings to advise on the development of the new qualifications, more consideration should be given to providing more formal processes for consulting with disciplinary experts.
- 17 With particular reference to the sciences where what is studied at school can become detached from contemporary scientific issues and real world contexts, it is important to ensure that there is a regular review and consultation process involving disciplinary experts. One option would be to establish a standing group for this purpose. While it might not be feasible to expect the group to include representation from all of the universities, there could be a significant role for the scientific learned societies which have very good contacts with the universities. The Commission might consider recommending the establishment of a consultation mechanism in which SQA and Education Scotland would be expected to engage with this group regularly (say every 3 to 5 years).
- 18 However, the SEEAG Report [pages 37-41 and recommendation 4.5] has drawn attention to research evidence demonstrating the very narrow science discipline base in Scottish school education relative to OECD norms. This is incompatible with the interdisciplinary and cross-disciplinary aspirations of Curriculum for Excellence. It is therefore imperative that consideration is given to how such a group can ensure representation of the breadth of contemporary science, engineering and technology and the role of the universities in achieving this.

### *Response of the teaching profession*

- 19 We need to ensure that teachers remain fundamentally interested in their job and what they are teaching; are active in its development; are recognised and trusted as professionals; feel what they have to say is properly recognised and acted upon; and can expect that they will have the support they need for their own and their students' development.

- 20 We need the profession to respond readily and creatively to what will be a **continuing need for change** in: teaching and learning approaches, curricula (review and refresh), the re-engagement of disengaged students (those most likely to be feeding youth unemployment figures), the areas for which teachers have responsibility, and the preparation of young people for multiple destinations in later life. To achieve that, we have to make the practice of teaching a fulfilling and fascinating experience. That requires innovation to be managed in a way that makes clear the importance of teachers' own ideas (and their reservations), recognises and responds to those ideas (but not without constructive criticism and provision of necessary resources), and offers opportunities to learn about, and apply critical thought to, the wider field of educational and intellectual matters. Formal credit for performance and adequate time for involvement, in these kinds of effective professional practice can be part of an incentive structure that motivates individuals to play a central role in improving our education system. Currently the approach in the Curriculum for Excellence appears to inhibit open discussion and to react only when the anxiety levels reach breaking point.
- 21 In relation to teacher professionalism, we believe that leadership is an important attribute for all teachers but the degree to which they can exercise it is often determined by the culture within the school, the local authority and that advocated by national policy. We would encourage the Commission to consider whether the distribution of leadership and management responsibilities within schools is appropriate and fit for purpose and whether appropriate CPD is readily provided.

### **Further enquiry and evidence-based policy**

- 22 The Scottish Government is well aware of the importance of research in areas such as science and technology, not just because of any immediate contribution it can make to Scotland's prosperity, but also because it values the way it takes forward human understanding and feeds into the reputation Scotland has for intellectual leadership. Unfortunately, this is not carried forward into the field of education where, at least in the very recent past, there has been *no priority given to the understanding that can come from independent systematic research*, and such understanding has been side-lined to make way for untested beliefs and assertions. The following identify two current examples of this:

- Figures for performance levels of Scottish primary and early secondary pupils on the OECD international assessments of science and mathematics in recent years prompted the former Cabinet Secretary for Education to comment that the reports “painted a picture of Scotland standing still while other nations pushed by”. Some data even showed deterioration in comparison with Scottish performance in earlier years. There could be *several* reasons for such outcomes, but there has been no systematic research in Scotland to develop any deep *understanding and explanation of why things turned out the way they did*. The OECD report on Scotland warned that as a mid-ranking performer “Scotland could slip through the ranks. It could be bypassed economically and become more divided socially”. The Scottish Government has decided to withdraw Scotland from the 4-yearly OECD *Trends in International Maths and Science Survey*.
  - The massive innovation that is the *Curriculum for Excellence* has the potential to “lead the world” because, in principle, it addresses many of the curriculum problems that have been articulated over the years in many countries. Unfortunately, however, the evidence-base (which the government fully accepts is needed for science and technology) for the effectiveness of this educational approach is nowhere to be found. There are assertions of “success”, but no proper evidence. Without high quality evaluation, not only do we not know what is going well and what is not, without an evidence-base we have no way of developing a proper understanding or an ability to plan so that things go better. In these circumstances, Scotland will not have the impact internationally that it so desires.
- 23 Given the consequences of the policy decisions which are made, education policy must be based upon systematic evidence which is transparent and open to scrutiny and debate. Innovations, however promising, require good research if they are to be made to grow into better education policy. Research is the tool by which policy and its impact are understood. In order to establish an evidence base, independent monitoring and evaluation should be explicit from the introduction of any new educational reform. Internal evaluations without open access to data and the analysis undertaken are inadequate. Proper evaluation will have to look ahead to anticipate the needs in time to come and this will be difficult under any circumstances.
- 24 A further problem arises because, as has happened in recent years, there will be a diminution in the numbers of experienced researchers who carry out high quality empirical research. People will leave Scotland and others will not be attracted to work here if there is no encouragement (financial or otherwise). Not only should resources be put directly into research and evaluation, we need to build up high quality training for educational researchers and challenge assumptions that this work is something any teacher, lecturer or school inspector can readily do in their ‘spare time’.
- 25 It could be argued that the reason that the recent report<sup>9</sup> on Curriculum for Excellence from the University of Stirling has generated such a high level of media attention is because there has been a lack of independent monitoring and evaluation of the reform to-date. Had a programme of independent evaluation been planned for and publicised at the outset, then it is likely that the media would not have felt the need to seize upon the results of the University of Stirling study in the way that it did. Its findings would have been part of a properly extended initiative to promote greater understanding rather than unfruitful exchanges of differing views.

<sup>9</sup> <http://www.stir.ac.uk/2012/university-of-stirling-announces-new-research-into-curriculum-for-excellence/name-23768-en.html>

*Additional Information and References*

This Advice Paper has been prepared by the RSE Education Committee and signed off by the General Secretary.

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