

Raising Attainment, Improving Life-chances

Supporting Paper

This document supports the ADES paper on Raising Attainment.

Section 1 provides an overview of the evidence on raising attainment. This evidence is detailed in a number of “exhibits”, each of which summarises evidence relating to one key issue.

This section summarises the evidence that informs the ADES’ view on the subject of raising attainment.

Section 2 outlines a performance framework for the task of raising attainment in Scotland.

This section presents an ADES view on the type of performance framework which is required to raise attainment, given the evidence summarised in section 1.

Table of Contents

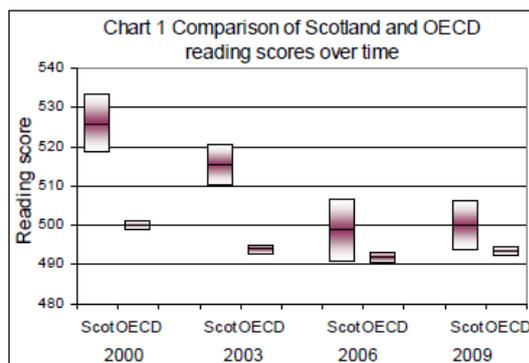
Section 1: the evidence on raising attainment.....	2
Exhibit A – Scotland needs to improve its PISA results	2
Exhibit B – attainment varies significantly across the social spectrum.....	3
Exhibit C – the social variation in educational outcomes persists across all stages of education	4
Exhibit D – school systems that exhibit a less pronounced social variation in educational outcomes generally achieve higher levels of attainment	6
Exhibit E – performance measures need to account for social variations in attainment across the social spectrum to be relevant.....	7
Exhibit F – perverse incentives distract attention from harder to reach service users.....	9
Exhibit G – relative levels of expenditure on Scottish education vary significantly with age	11
Exhibit H – there is a clear consensus on the keys attributes of a successful education system.....	12
Exhibit I – the attributes of success are clearly reflected in the ADES community view of effective strategies, practices and behaviours	16
Section 2: developing an evidence-based performance framework for raising attainment	24
Overview of the evidence on raising attainment	24
Rationale for an effective performance framework: the “four lenses”.....	25
Data requirements for an effective performance framework.....	27
References.....	31

Section 1: the evidence on raising attainment

This section summarises the evidence that informs the ADES view on the subject of raising attainment.

Exhibit A – Scotland needs to improve its PISA results

Summary of the evidence



Plot of PISA reading scores over time. Scotland (left) is compared with the OECD average (right) in each year.

The line in the middle of each bar denotes the sample mean score, the extent of the vertical bar denotes a 95% confidence interval for the mean.

Source: PISA 2009 results (Scottish Government, 2010b).

Reading	2006		2009		Mathematics	2006		2009		Science	2006		2009	
	Above	Similar	Below	Above		Similar	Below	Above	Similar		Below	Above	Similar	Below
Above	6	12	6	13	Above	9	16	11	10	Above	6	10	6	8
Similar	12	13	14	11	Similar	7	16	11	10	Similar	10	16	8	18
Below	13	12	11	13	Below	16	16	10	10	Below	16	16	18	18

Summary table comparing Scotland's performance in PISA with those OECD countries who participated in PISA in both 2006 and 2009. The table shows the number of countries whose average PISA scores were: clearly above Scotland's (top line); similar to Scotland's, allowing for statistical uncertainty (middle line); clearly below Scotland's (bottom line).

Source: PISA 2009 results (Scottish Government, 2010b).

Discussion of the evidence

Scotland's PISA scores for reading were higher in 2000 and 2003 than they were in 2009 (see plot above). Scotland's PISA scores for mathematics were higher in 2003 than they were in 2009 (no comparison can be made with 2000, for technical reasons).

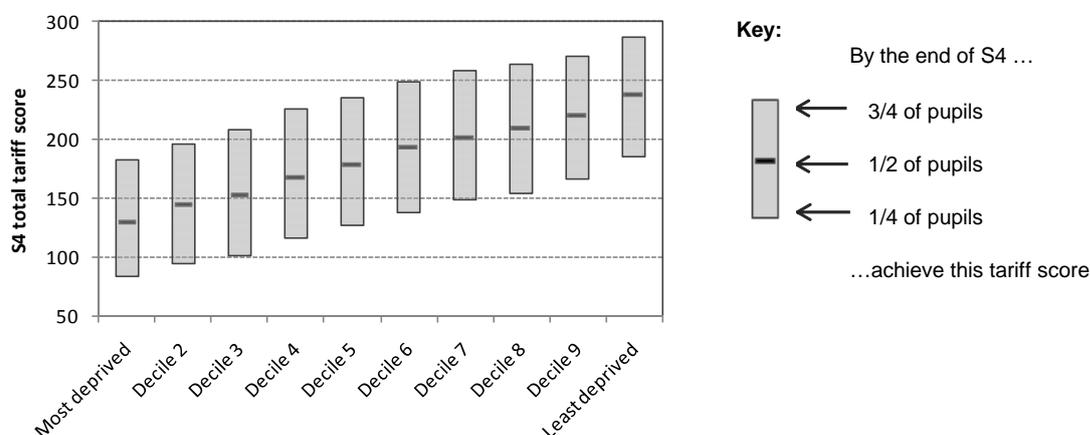
There has been some variation in the countries participating in PISA over the years. A like-for-like comparison of Scotland with those OECD countries who participated in PISA in both 2006 and 2009 (see table above) suggests that some further weakening in reading and mathematics performance may have occurred even in recent years.

Key points

- Scotland's PISA results declined against OECD comparators following the introduction of PISA in 2000, at least until 2006.
- At best, Scotland's performance in PISA has failed to improve against OECD comparators since 2006.
- Scotland's performance in PISA relative to OECD comparators needs to improve if National Outcomes 2 and 3 are to be fully achieved.

Exhibit B – attainment varies significantly across the social spectrum

Summary of the evidence



Plot of attainment across the social spectrum.

Attainment is measured by SQA total tariff points. The grey box represents the level of attainment achieved by the middle 50% of pupils living in each social context, as measured by the Scottish Index of Multiple Deprivation (SIMD). Decile 1 represents the 10% most deprived areas in Scotland. Decile 10 represents the 10% least deprived areas in Scotland.

Source: *SQA attainment statistics (Scottish Government, 2011c)*.

“The [achievement] gap associated with poverty and deprivation in local government areas appears to be very wide. “

Source: *Quality and equity of schooling in Scotland (OECD, 2007)*.

Discussion of the evidence

There is a significant variation in attainment across the social spectrum in Scotland. This may limit the potential for raising attainment (see exhibit D).

Binary measures of attainment that classify individuals as *either* deprived *or* non-deprived (e.g. whether pupils live in the 15% most deprived areas of Scotland) fail to capture adequately the complexity of the relationship between social context and attainment.

This can lead to the design of inappropriate performance measures, including benchmarks that are less relevant to school performance than would be truly desirable (see exhibit E).

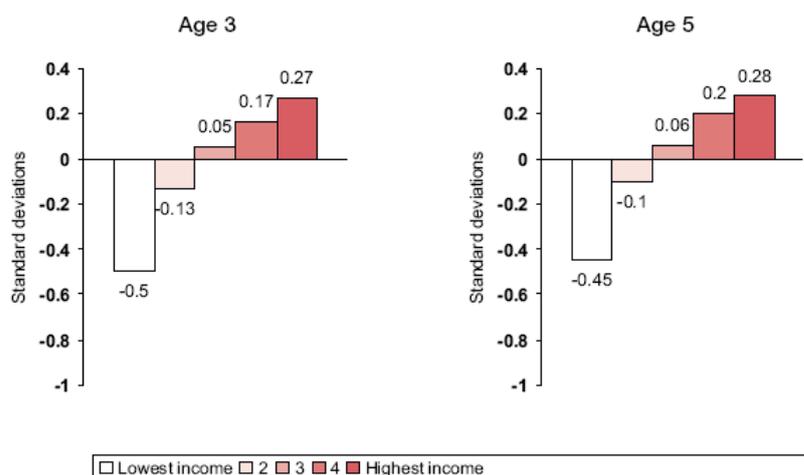
Key points

- Attainment varies significantly across the social spectrum.
- Binary measures of attainment that classify individuals as *either* deprived *or* non-deprived (e.g. SIMD 15%) fail to reflect adequately the extent of the relationship between attainment and social context.
- *Relevant* measures of school performance need to reflect the full extent of this relationship.

Exhibit C – the social variation in educational outcomes persists across all stages of education

Summary of the evidence

Figure 2-A Mean standardised vocabulary ability score by equivalised household income

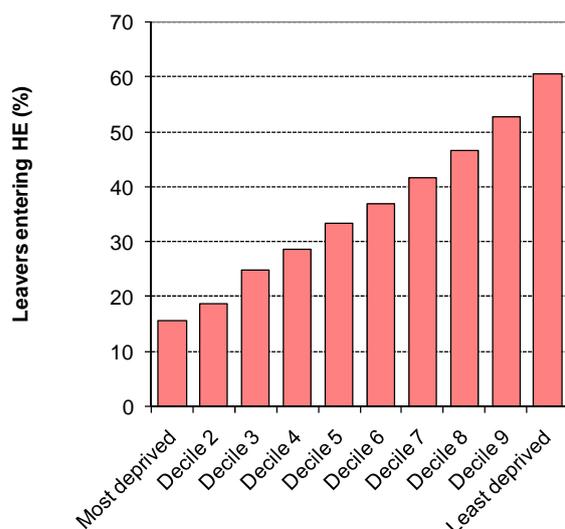


Plot of mean standardised vocabulary ability across the social spectrum, for children aged 3 and 5.

Data is reported by quintiles of household income. Quintile 1 represents the lowest 20% of incomes. Quintile 5 represents the highest 20% of incomes.

Scores are reported as differences from the national average vocabulary ability score. Bars above the line (as seen for higher income quintiles) represent a better than average performance. Bars below the line (as seen for lower income quintiles) represent lower than average performance.

Source: *Growing Up in Scotland Report (Scottish Government, 2011b)*.



Plot of proportion of school leavers entering higher education by social context, as measured by the Scottish Index of Multiple Deprivation (SIMD). Decile 1 represents the 10% most deprived areas in Scotland. Decile 10 represents the 10% least deprived areas in Scotland.

Source: *Leaver destinations data (Scottish Government, 2010a)*.

Discussion of the evidence

As the Scotland Performs web-site acknowledges, achieving National Outcome 4 requires “the gap between those who are the most and least successful to be reduced”. This is vital if Scotland is to ensure that attainment is raised relative to international competitors (see exhibit D). Only then can Scotland ensure that National Outcome 2 (“we realise our full economic potential ...”) and National Outcome 3 (“we are better educated, more skilled and more successful”) are achieved.

However, a significant variation in cognitive ability is evident in the pre-school years. This is evident for both literacy and numeracy skills, as measured by vocabulary ability and problem solving. A variation is seen across the social spectrum, whether measured by household income or by level of parental education.

The variation in pre-school cognitive ability is evident at age 3 and persists through to age 5.

A similar, significant variation in attainment is evident at all stages of schooling (exhibit B) and persists through to school leaver destinations. For example, there is a strong and significant variation in the proportion of school leavers entering higher education across the social spectrum.

The persistence of the social gradient in attainment reflects the significant extent to which prior attainment influences educational outcomes for individuals (Joseph Rowntree Foundation, 2010). Knowledge of prior attainment is, therefore, a key to understanding the progression of individual learners and the success of interventions.

A successful strategy for tackling the social gradient in attainment requires both appropriate interventions in the pre-school years and sustained learning support throughout the school years. Furthermore, the success of such interventions can only be reliably evaluated through measurement of learners’ progression, using reliable and proven tools including baseline assessments – see, for example, Tymms (2000).

Key points

- A significant variation in attainment across the social spectrum is evident before entry to school.
- The effect persists through all stages of schooling and is still apparent in school leaver destinations.
- This issue needs to be addressed, if Scotland is to ensure the levels of attainment that are necessary to deliver improved social and economic outcomes.
- An effective approach to raising attainment will require a research-based approach to the evaluation of interventions. This will require that full value is derived from locally available data on learners’ progression, including baseline and standardised assessments.

Exhibit D – school systems that exhibit a less pronounced social variation in educational outcomes generally achieve higher levels of attainment

Summary of the evidence

There is a significant body of research on the relationship between social context and attainment. Research by McKinsey and Company (2007 and 2010) and the OECD (2008 and 2009) provides a useful summary of the international evidence and key issues. There is clear evidence, from these and other sources, that:

- School systems that exhibit a less pronounced social variation in educational outcomes generally achieve higher levels of attainment.
- The variation in attainment across the social spectrum is particularly pronounced in the school systems of the UK.
- This variation comes with a significant economic cost to society: “a modest goal of having the United Kingdom boost its average PISA scores by 25 points over the next 20 years ... could imply a gain of US\$ 6 trillion for the United Kingdom economy over the lifetime of the generation born in 2010” (OECD, 2010a).
- Although higher levels of attainment compare favourably with OECD comparators, “pupils in the middle and lower half of the distribution continue to perform particularly poorly relative to students in countries with the best performing education systems.” (OECD, 2008).

Although much of this research pre-dates the publication of the latest PISA results for 2009, there is significant evidence in those results that the key challenges facing the UK’s school systems remain. For example, the 2009 OECD report on the UK’s PISA results notes that “77% of the between schools differences in student performance in the United Kingdom is explained by differences in socio-economic background. Among OECD countries, only Luxembourg has a higher figure (OECD average 55%).”

Although analysis of these issues tends to focus on attainment across the UK or on the English school system, the available evidence clearly suggests that the Scottish school system faces similar challenges. Analysis of Scotland’s 2009 PISA results suggests that “in Scotland, the extent to which performance changes between students from different socio-economic backgrounds was greater than the average for OECD countries. (Scottish Government, 2010b)“.

Discussion of the evidence

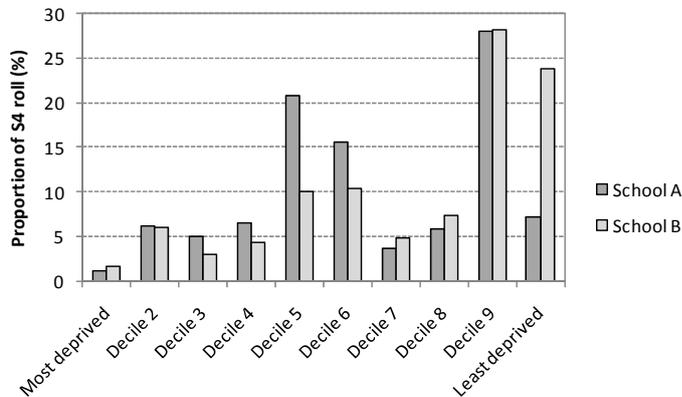
Educational outcomes in Scotland (exhibit B) show a significant variation with social context. This represents a significant economic cost to Scottish society. International evidence suggests that this issue will need to be addressed if Scotland is to achieve significantly higher levels of attainment.

Key points

- School systems that exhibit a less pronounced social variation in educational outcomes generally achieve higher levels of attainment.
- Educational outcomes vary significantly with social context in Scotland.
- This issue needs to be addressed if Scotland is to achieve its key objectives of sustainable economic growth and an improved civic society.

Exhibit E – performance measures need to account for social variations in attainment across the social spectrum to be relevant

Summary of the evidence

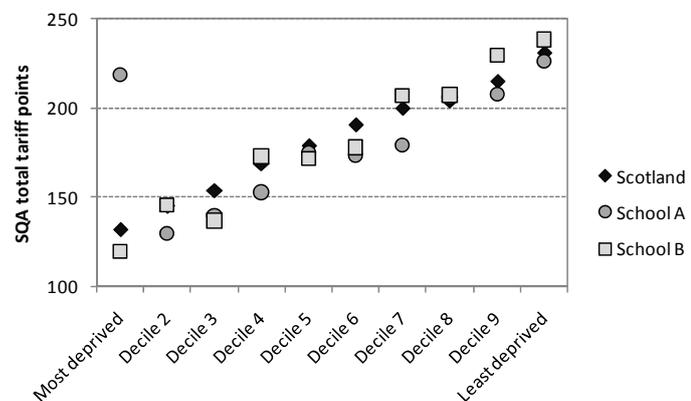


Comparison of the S4 rolls for two schools in 2010-11. School A and school B are each other's closest PCA comparator. These schools are also two of the closest schools in Scotland according to PCA.

For each school, the height of the bar indicates the percentage of S4 pupils living in each SIMD decile.

Comparison of attainment across the social spectrum for the S4 cohort of 2010-11.

Attainment in S4 is measured via SQA total tariff points.



Source: School data and SQA attainment data (Scottish Government, 2011c).

Discussion of the evidence

Apart from pupils in school A living in SIMD decile 1 (a very small number), attainment in each school is very close to attainment at a national level across the social spectrum. The main source of variation in S4 attainment between schools is due to social context.

School B has significantly better results for 5+ at level 5 by the end of S4 than does school A. School B also appears significantly more favourably against its PCA comparators.

Pupils from the more affluent end of the social spectrum are significantly more likely to attain 5+ at level 5 than pupils from more deprived areas (exhibit B). However, the PCA comparators are evaluated using data that focuses on binary measures of deprivation (FMR, whether pupils live in the 15% most deprived areas of Scotland etc). Such measures tend to distinguish between pupils who live in the most deprived areas (in particular, SIMD deciles 1 and 2) and all others. They do not differentiate amongst pupils living in more affluent areas.

The evidence summarised above clearly indicates that differences in social composition for more affluent areas are a significant factor for the differences in attainment observed for higher levels of attainment amongst some comparator schools. This is true, even when the comparators are rated as “very close”, since this rating (based on similarities amongst pupils in the most deprived areas) has little *relevance* to higher levels of attainment (which are largely achieved by pupils from more affluent social areas).

Understanding the extent to which school performance is influenced by social context is fundamental to the task of understanding and addressing the social variation Scotland's attainment (exhibit D). It is also vital for the development of performance information that can support effective self-evaluation, the foundation of successful leadership and pedagogy (exhibit H).

Key points

- Existing performance measures, like PCA comparators, are predominantly based on data relating to the most deprived.
- Higher levels of attainment are predominantly achieved by pupils from more affluent social contexts.
- Even where schools are rated as “very close” comparators, differences in performance for higher levels of attainment may be strongly influenced by differences between the more affluent parts of the school cohort.
- School performance measures that adequately reflect the full extent of the relationship between social context and attainment are essential for effective leadership and pedagogy.

Exhibit F – perverse incentives distract attention from harder to reach service users

Summary of the evidence

Over recent years UK public sector performance has seen a significant increase in the use of performance targets. These are intended to focus the attention of key decision makers (both practitioners and managers) on desirable behaviours and outcomes.

However, target-setting has been the subject of significant criticism (e.g. Seddon, 2008). One of the most cogent criticisms is the tendency of targets to introduce “perverse incentives” (see RSS, 2005). Practitioners and managers increasingly make decisions based on the likely impact on performance targets, rather than professional judgment or concerns for service-users.

Targets have been a frequent source of public debate on the NHS in England, a debate which has been renewed recently (The Guardian, 17 November 2011) with the introduction of a cap on the number of patients waiting for more than 18 weeks to receive treatment.

An 18 week target time had been set previously for the treatment of patients. However, this had been set aside due to concerns over perverse incentives. After patients had waited more than 18 weeks for treatment they were classified as a failure to meet the key target regardless of how quickly they were treated thereafter. A significant number of patients who had waited for more than 18 weeks were still waiting for treatment after a year.

Discussion of the evidence

The example of NHS waiting times highlights some key characteristics of poor performance targets and the risks of perverse incentives.

Targets are introduced in an attempt to help focus attention on desirable outcomes. However, they can give rise to perverse incentives, leading to highly undesirable outcomes for *some* service-users.

However, even where perverse incentives seem to be operating, the removal of targets does not necessarily improve performance. Hence, the pressure to reintroduce a form of performance target for NHS waiting times in England.

Perverse incentives generally arise when the performance information is reductionist in nature, focussing attention entirely on a few, key behaviours or outcomes. The inevitable consequence is that no attention is given to the question of what happens to other service-users. Such simplistic approaches tend to identify the performance of a service as “good” or “bad”.

However, another approach is possible. This is to use a more extensive and rounded set of performance information that provides an assessment of service quality for *all* service users. This allows a focus to be maintained on those who fail to meet a particular target, reducing the risks of perverse incentives. It also enables strong performance to be identified and championed and weak performance to be recognised and challenged. Services are enabled to recognise “what we are good at and can share with others” and “what we are poor at and need to learn from others”. When used as the basis for improving effective leadership and pedagogy, this type of performance information has been recognised as the key to achieving a top-performing school system (exhibit H).

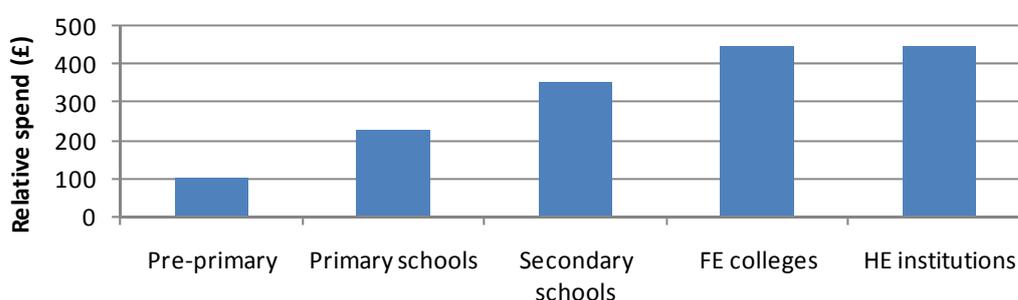
Key points

- Perverse incentives generally arise when a reductionist view of performance, based on a few, key measures, overlooks the outcomes for *some* service users.
- A more complete and rounded set of performance information allows attention to be maintained on the outcomes for *all* service users.
- This type of performance information avoids over-simplistic labelling of services as “good” or “bad” and instead allows both strengths and weaknesses of the same service to be recognised.
- This type of performance information enables the development of more effective leadership and pedagogy within school systems (see exhibit H).

Exhibit G – relative levels of expenditure on Scottish education vary significantly with age

Overview of the evidence.

Each sector of the Scottish education system provides education over a different number of stages (i.e. years of education); an indicative figure is given for this factor in column 2 of the table below. The proportion of each age group participating in education also varies by sector; an estimate is given in column 3, based on relevant Scottish Government statistics. Column 4 gives an indication of the relative spend for each sector (per participating young person per stage of education), allowing for the factors identified above. Spend has been standardised to that in pre-primary and is plotted below.



	Actual expenditure (£m)	Number of stages	Take-up rate (%)	Rel. spend per head (£)
Pre-primary	307	2	97	100
Primary schools	2,502	7	100	226
Secondary schools	2,774	5	100	351
FE colleges	575	3	27	447
HE institutions	1,007	4	36	446
Total	7,165			

Source: column 1 of the table above has been taken from the Public Expenditure Statistical Analyses 2011. A single figure is given within PESA for tertiary education. This has been split between FE and HE using information from the Scottish Budget 2010-11.

Key points

- The relative level of public expenditure on education increases significantly with age.
- Levels of spend on pre-primary education are significantly lower than for other stages of education.

Exhibit H – there is a clear consensus on the keys attributes of a successful education system

Overview of the evidence

There is a clear consensus in the published literature around the attributes of a successful school system, including effective classroom practice. This has been identified in a wide range of research, by a significant number of respected organisations and educationalists, including:

- The OECD, in a number of papers analysing the PISA results and other evidence.
- The consultants McKinsey and Company, who have undertaken a systematic study of the world's top-performing education systems, published in two key reports in 2007 and 2010.
- Independent, research-based organisations, like the Sutton Trust and the Centre for Excellence and Outcomes (C4EO), published in a wide range of research papers and best-practice reviews.
- Educationalists like Michael Fullan, Dylan Wiliam and Paul Black, published in a range of academic papers.

This section summarises the key attributes of a successful school system:

1. A belief that every child matters and can achieve at the highest level – a culture, ethos and vision that are based on this belief

Analysis of international attainment, as measured by PISA results, demonstrates that “a commitment to children matters, as does the belief that all students can attain high levels of achievement” (p.104, OECD, 2010b). Effective strategies for change therefore need to “affect all teachers and students – 100 per cent” (p.3, Fullan, 2011) creating “a culture of success, backed by a belief that all can achieve” (p.6, Black and Wiliam, 2001).

2. Effective, enabled leaders working within a culture of leadership

Successful strategies to raise attainment require “strong and visionary leadership” (p.14, C4EO, 2011).

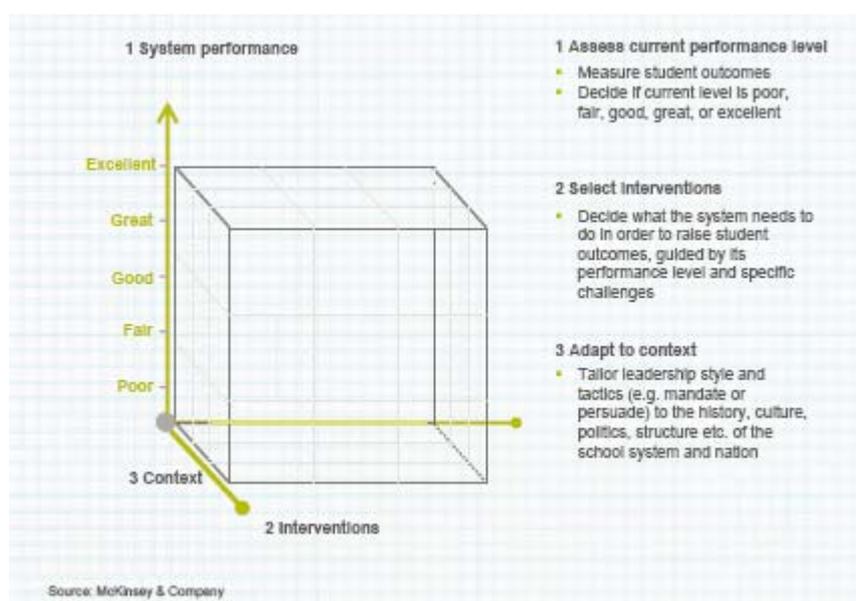


Diagram summarising the role of enabled school leaders in ensuring that interventions are appropriate to the school's current performance and context.

Source: How the world's most improved school systems keep getting (McKinsey and Co, Education, 2010).

For leadership to be effective, however, there needs to be a systemic approach, ensuring that “priorities, drive, mindset and resourcing of change is sustained across leaders” (p.22, McKinsey 2010). This requires the development of a strong leadership culture, fostered by “the development ... of system leadership from within” (ibid). This is vital, since the challenges facing each school are different and success requires leadership that “adapts the interventions cluster to its own context” (p.111, McKinsey, 2010).

3. Professional practitioners who recognise the value of professional development ...

Successful school systems require “technical skill building: strengthening professional development for new and tenured teachers” (p.53, McKinsey 2010).

Local authorities and school leaders have a key role to play in enabling this development. Networks and professional communities are important in providing “a variety of living examples of implementation” (p.10, Black and Wiliam, 2001). Furthermore, “the most powerful improvements in achievement are produced through the use of well-specified, well-supported and well-implemented programmes, incorporating extensive professional development” (p.14, C4EO, 2011).

... based on proven, research-based strategies

“Coaching teachers in new teaching strategies significantly raises outcomes for children living in poverty. Research-proven approaches include cooperative learning (structured groupwork), frequent assessment and meta-cognitive (‘learning to learn’) strategies” (p.14, C4EO, 2011).

4. Excellent learning and teaching ...

The craft of teaching matters. “Education policies and practices can only be as good as how effectively they translate into learning in the classroom” (p.106, OCED, 2010b). Effective strategies for raising attainment therefore need to recognise that “the key to system-wide success is to situate the energy of educators and students as the central driving force” (p.3, Fullan, 2011).

..... who work to clear standards ...

Summative assessment plays a key role in successful school systems (p.53, McKinsey, 2010) and “most ... high-performing countries have developed world-class academic standards for their students” (p.104, OCED, 2010b).

However, standards are only effective if they allow learning to occur. Success also involves “defining what students should know, understand, and be able to do” (p.53, McKinsey, 2010) and ensuring that “feedback to any pupil [is] about the particular qualities of his or her work with advice on what he or she can do to improve ...” (p.6, Black and Wiliam, 2001). Formative assessment, therefore, also has a key role to play.

... using proven, research-based practices

As a recent, best-evidence synthesis of international research has demonstrated, effective classroom strategies work across different subjects and educational phases (C4EO, 2011). For example, closing the attainment gap for deprived children requires “proven classroom management strategies (e.g. rapid pace of instruction, using all-pupil responses, developing a common language around discipline)” (p.14, ibid). Similarly, “structured phonics-based approaches” can be particularly effective for improving reading skills amongst deprived children (p.15, ibid).

5. Successful learners, who are engaged and active participants

For learning to happen, “students have to be actively involved” (Black and Wiliam, 2001).

Effective strategies therefore need to “engage educators and learners in continuous improvement of instruction and learning” (p.3, Fullan, 2011). This means equipping students with learning skills; for example, “pupils should be trained in self-assessment, so that they

can understand the main purposes of their learning and thereby grasp what they need to do to achieve” (p.7, Black and Wiliam, 2010).

It is also important to “foster intrinsic motivation of teachers and learners” (p.3, Fullan, 2011). Successful systems have “ a climate characterised by expectations of high-performance” (p.106, OCED, 2010b) in which a culture of belief is deeply embedded.

5. The involvement of parents, carers and the wider community

The impact of any strategy to raise attainment *within* schools will necessarily be limited by factors outwith the school. Research evidence clearly shows that pronounced social differences in attainment are apparent at very young ages and persist through the school years (see Exhibit C). The most successful strategies to raise attainment therefore acknowledge these limitations, by (for example) “engaging parents (particularly hard-to-reach parents) and raising parental aspirations” (p.14, C4EO,2011). Furthermore, interventions need to start in the early years and be sustained throughout schooling.

6. An appropriate use of evidence and data

The appropriate use of data is a pre-requisite for a successful education system (p.53, McKinsey, 2010). Furthermore, data is required at all levels of an education system.

At a national level “reliable data on student achievement and school performance across Scotland” (p.18, OECD, 2007) is needed to ensure that the school system is working

At a local authority and school community level, appropriate information enables leaders to understand current performance and the context within which any intervention may be required (see figure above from McKinsey, 2010, in section 2 of this exhibit).

Data is also needed at classroom level. “To make the most effective use of numeracy and literacy interventions, it is important to ensure that they are targeted at the children who need them most. [This] requires close monitoring of pupils’ progress” (p.16, C4EO, 2011).

There is a need to balance autonomy and accountability. The more autonomy that school leaders have, the greater is the positive impact made by rigorous systems of accountability (p.105, OECD, 2010b). It is therefore important that, as school leaders are empowered and enabled to develop context-specific strategies for schools, this happens within “a sound framework of autonomy and accountability” (p.106, OCED, 2010b).

Discussion of the evidence

As summarised above, there is a clear consensus on the attributes of successful schools, including effective classroom practice. These are, undoubtedly, the attributes and practices which the Scottish school system needs to exhibit.

The question that remains is how best to ensure that Scotland’s schools can more consistently exhibit these attributes and practices.

There is a growing body of research on the most effective strategies for achieving this goal, undertaken for organisations like C4EO (2011) and the Sutton Trust (2011). These provide a clear framework for raising attainment in Scotland. However, it is important that further work is undertaken to ensure that maximum impact is achieved with the available resources.

A successful strategy for raising attainment will need a strong focus on well-evidenced and researched strategies and an evidence-based, evaluative approach to the adoption of new interventions. Available information on learners’ progression (e.g. from baseline and standardised assessments) will need to be fully utilised and supported with relevant contextual information.

Key points

- There is a clear consensus on the attributes of successful schools, including effective classroom practice.
- The foundation of all successful school systems and classroom practice is a belief that every child matters and can achieve at the highest level.
- Key attributes of successful school systems include:
 - A culture, ethos and vision that reflect the belief that every child matters.
 - Effective, enabled leaders, working within a culture of leadership.
 - Professional practitioners who are willing to learn new, evidence-based methods, recognising the importance of professional development.
 - Excellent learning and teaching, based on clear standards and proven practices.
 - Successful learners who are engaged and active participants.
 - Involvement of parents, carers and the wider community.
- There is a growing body of research on the most effective strategies for achieving this goal, which provide a clear framework for raising attainment in Scotland
- Successful strategies and practices are research-based and their successful implementation is supported by an appropriate use of evidence and data.
- Available information on learners' progression (e.g. from baseline and standardised assessments) will need to be fully utilised and supported with relevant contextual information.

Exhibit I – the attributes of success are clearly reflected in the ADES community view of effective strategies, practices and behaviours

This exhibit summarises a range of strategies, practices and behaviours which ADES has identified as playing a key role in raising attainment; these have been identified at classroom, school community and local authority level. The summary is based on professional opinion derived from a series of discussions.

Classroom level

The following strategies, practices and behaviours are successful in raising attainment at classroom level:

□ **Culture, Ethos and Vision**

- A classroom where there is a culture of respect, care and high expectations for every child. This culture is modelled by the teacher.
- A classroom where praise and encouragement are used effectively, mistakes are used as a learning opportunity, and there is no fear of failure.
- A classroom where good teacher management skills are evident in a business-like atmosphere, conducive to good learning where pupils know that their best is expected.
- A classroom where the teacher and those supporting pupil learning recognise the importance of effective partnership working to secure sustained progression for all children and young people.

□

□ **Effective, enabled leaders**

- A classroom where the teacher takes full responsibility for leading the learning of every child and models the behaviour of being the lead learner, encouraging pupils to support others in their learning.
- A classroom where the teacher is a reflective professional, proactively engaging in performance review and development.
- A classroom where the teacher is an informed professional, proactively engaging with school networks in order to identify and promote good practice.
- A classroom where the teacher is an evidence-led professional, proactively engaging in the development and use of research-based strategies and practices.

□

□ **Professional practitioners**

- A classroom with a culture of self-reflection and an appetite for reflecting and acting upon all available evidence about on each pupil's progress to establish how his or her learning can be enhanced.
- A classroom where there is a culture of openness, where lessons are observed by peers and where collegiate time is used to discuss teachers' practices and potential improvements in approaches.
- A classroom where teachers and learners feel accountable and responsible for their educational performance and their progress.

□

□ **Excellent learning and teaching**

- A classroom where lessons are delivered enthusiastically and every attempt is made to make learning relevant and motivating for pupils.
- A classroom where learning is well planned and differentiated for all children to ensure that individual's needs are met.
- A classroom where learning intentions and success criteria are shared so that pupils understand them and where all pupils know what it is they are expected to be learning and what success will look like.
- A classroom where teachers are skilled in identifying next steps in learning for each learner on a regular basis.
- A classroom where teachers use contextual assessment to manage and turn to the learners' advantage the variables in the learning situation.

□

□ **Successful Learners**

- A classroom where good teacher management skills are evident in a business-like atmosphere conducive to good learning where pupils feel safe and valued and know the boundaries of engagement.
- A classroom where learning intentions and success criteria are shared so that learners understand what it is they are expected to be learning and what success will look like.

□

□ **Parents, carers and the wider community**

- A classroom where the teacher actively seeks to engage the parent/carer in their child's learning, believing that they have a key role in raising attainment.
- A classroom where targets for pupils are agreed and discussed and where strategies to improve further are identified, involving parents, carers and supporters.

School Community Level

The following strategies, practices and behaviours are successful in raising attainment at school community level:

□ **Culture, Ethos and Vision**

- A school community which has as its core the highest aspiration for every child and a belief, permeating every classroom, that there is headroom for improvement in outcomes for every child. This belief is demonstrated personally by the headteacher and all staff.
- A school community where everyone feels valued and learning is seen to be fun.
- A school community where strategies to promote and support good behaviour, respect and pride in the school are clearly in evidence e.g. account is taken of details, presentation, punctuality, mutually respectful communication etc.
- A school community which recognises that investment in early and sustained intervention strategies fostered through effective partnership working is essential to secure sustained progression for all children and young people.

□

□ **Effective, enabled leaders**

- A school community which develops and appoints top quality leaders to the school.
- A school community which appoints, develops, values and retains top quality teachers and other staff.
- A school community which promotes effective performance review and development for all staff.

- A school community which ensures that the development of educational strategy is led by teachers recognised for excellence in practice.
- A school community which develops effective networks in its school and across associated groups of schools which help practitioners identify and promote best practice in raising attainment.
- A school community which develops research-based strategies and programmes which promote leadership and pedagogical development in the school community and across the wider associated schools' groups.
- A school community which proactively supports and challenges teachers who find raising attainment difficult.
- A school community which proactively supports and challenges leaders who find raising attainment difficult.

□

□ **Professional practitioners**

- A school community where tracking, target-setting, mentoring and coaching are systemic features of every pupil's experience, particularly when at qualification interfaces.
- A school community which communicates clearly, where staff are enabled to visit each others' lessons and where collegiate time is used to discuss improvements in pedagogy.
- A school community which holds itself and all staff accountable for the quality of education provided for every child and young person, using rigorous quality improvement approaches which ensure that no child is left behind.

□

□ **Excellent learning and teaching**

- A school community which develops well-researched programmes across the school and associated school group to improve pedagogy amongst teaching staff e.g. through teacher learning communities.
- A school community where the curriculum is designed to meet the needs of all learners, including the more able and those whose prior attainment and earlier experiences are not positive.
- A school where systems are devised which ensure that teachers use summative assessment formatively and where this happens consistently
- A school where pupils are strongly supported to make appropriate course choices based on "cautious optimism" for all pupils.
- A school community which ensures that the system of child-centred planning stretches all pupils to make well-paced progress in their learning.

□

□ **Successful Learners**

- A school community where the views of pupils are listened to, heard and acted upon.

□

□ **Parents, carers and the wider community**

- A school community where the views of parents/carers are listened to, heard and acted upon.
- A school community which develops systems and exploits every opportunity to involve parents, carers and the wider community to raise attainment and promote achievement by bringing the outside world into the classroom and the learner into the wider world.

The following strategies, practices and behaviours are successful in raising attainment at education authority level:

□ **Culture, Ethos and Vision**

- An EA which has the highest ambition for all of its children and which actively seeks to celebrate strong performances in raising attainment. This ambition permeates every school community and is evidenced by a performance framework that values positive outcomes for all schools and learners regardless of social context.
- An EA which is known for its positive support and effective use of praise.
- An EA which proactively creates an environment of integrity and trust expecting and exemplifying the highest standards of behaviour.
- An EA which recognises that investment in early and sustained intervention strategies fostered through effective partnership working is essential to secure sustained progression for all children and young people.

□

□ **Effective, enabled leaders**

- An EA which develops top quality leaders for its schools and has excellent staff selection and appointment processes.
- An EA which develops sophisticated work-force planning strategies, encouraging the best new teachers to join and remain in the profession, with excellent opportunities for professional development.
- An EA which promotes effective performance review and development for headteachers.
- An EA which ensures that the development of educational strategy is led by headteachers recognised for excellence in practice, working with officers exhibiting the same qualities.
- An EA which develops effective networks across schools which help school leaders and practitioners to identify and promote best practice in raising attainment in schools.
- An EA which develops research-based strategies and programmes which promote leadership and pedagogical development across and within schools.
- An EA which supports schools in dealing with weaknesses in teachers' skills.
- An EA which deals proactively with weaknesses are identified in school leadership.

□

□ **Professional practitioners**

- An EA which develops quality improvement systems which allows analysis of customer, staff, external stakeholder and other key performance information to help schools identify where there is headroom to raise attainment further.
- An EA which actively encourages and enables headteachers and other practitioners to visit schools where attainment is being raised significantly, to promote collegiate discussion on effective pedagogy.
- An EA which ensures that the analysis and review of attainment are taken seriously in every school, intervening swiftly with practical support for schools where improvements in attainment are required.

□

□ **Excellent learning and teaching**

- An EA which develops well-researched programmes across the service and promotes improved pedagogy amongst teaching staff e.g. through teacher learning communities.
- An EA which ensures that the principle of raising attainment is at the core of the curriculum offered in schools, aligned with statutory guidance and national priorities.

- An EA which promotes effective partnership approaches at pupil, school and wider school group levels which focus collectively on achieving best life-chance outcomes. All staff know and understand the roles they play.
-
- **Successful Learners**
- An EA which promotes children's and young people's rights and responsibilities and where their views are listened to, heard and acted upon.
-
- **Parents, carers and the wider community**
- An EA where the views of parents/carers are listened to, heard and acted upon.
- An EA which develops sophisticated systems and a mature partnership with other children's services where valued outcomes are shared and efforts are well coordinated and targeted towards greatest need and risks.

Summary

The strategies, practices and behaviours identified by ADES accord fully with the attributes of success summarised in exhibit H. They also show a strong agreement with the effective strategies for raising attainment identified in recent research by C4EO (2011) and the Sutton Trust (2011).

The table on the following three pages shows the relationship between the strategies, practices and behaviours at classroom, school community and EA level.

	Classroom level	School Community level	Education Authority (EA) level	
Culture, Ethos and Vision	A classroom where there is a culture of respect, care and high expectations for every child. This culture is modelled by the teacher.	A school community which has as its core the highest aspiration for every child and a belief, permeating every classroom, that there is headroom for improvement in outcomes for every child. This belief is demonstrated personally by the headteacher and all staff.	An EA which has the highest ambition for all of its children and which actively seeks to celebrate strong performances in raising attainment. This ambition permeates every school community and is evidenced by a performance framework that values positive outcomes for all schools and learners regardless of social context.	A research-based approach to developing new strategies and adopting new practices, an appropriate use of evidence and data to support implementation of strategies and practice.
	A classroom where praise and encouragement are used effectively, mistakes are used as a learning opportunity, and there is no fear of failure.	A school community where everyone feels valued and learning is seen to be fun.	An EA which is known for its positive support and effective use of praise.	
	A classroom where good teacher management skills are evident in a business-like atmosphere, conducive to good learning where pupils know that their best is expected.	A school community where strategies to promote and support good behaviour, respect and pride in the school are clearly in evidence e.g. account is taken of details, presentation, punctuality, mutually respectful communication etc.	An EA which proactively creates an environment of integrity and trust expecting and exemplifying the highest standards of behaviour.	
	A classroom where the teacher and those supporting pupil learning recognise the importance of effective partnership working to secure sustained progression for all children and young people.	A school community which recognises that investment in early and sustained intervention strategies fostered through effective partnership working is essential to secure sustained progression for all children and young people.	An EA which recognises that investment in early and sustained intervention strategies fostered through effective partnership working is essential to secure sustained progression for all children and young people.	
Effective, enabled leaders	A classroom where the teacher takes full responsibility for leading the learning of every child and models the behaviour of being the lead learner, encouraging pupils to support others in their learning.	A school community which develops and appoints top quality leaders to the school.	An EA which develops top quality leaders for its schools and has excellent staff selection and appointment processes.	
		A school community which appoints, develops, values and retains top quality teachers and other staff.	An EA which develops sophisticated work-force planning strategies, encouraging the best new teachers to join and remain in the profession, with excellent opportunities for professional development.	
	A classroom where the teacher is a reflective professional, proactively engaging in performance review and development.	A school community which promotes effective performance review and development for all staff.	An EA which promotes effective performance review and development for headteachers.	
		A school community which ensures that the development of educational strategy is led by teachers recognised for excellence in practice.	An EA which ensures that the development of educational strategy is led by headteachers recognised for excellence in practice, working with officers exhibiting the same qualities.	
	A classroom where the teacher is an informed professional, proactively engaging with school networks in order to identify and promote good practice.	A school community which develops effective networks in its school and across associated groups of schools which help practitioners identify and promote best practice in raising attainment.	An EA which develops effective networks across schools which help school leaders and practitioners to identify and promote best practice in raising attainment in schools.	
	A classroom where the teacher is an evidence-led professional, proactively engaging in the development and use of research-based strategies and practices.	A school community which develops research-based strategies and programmes which promote leadership and pedagogical development in the school community and across the wider associated schools' groups.	An EA which develops research-based strategies and programmes which promote leadership and pedagogical development across and within schools.	
		A school community which proactively supports and challenges teachers who find raising attainment difficult.	An EA which supports schools in dealing with weaknesses in teachers' skills.	
		A school community which proactively supports and challenges leaders who find raising attainment difficult.	An EA which deals proactively with weaknesses are identified in school leadership.	
A belief, modelled by all teachers and leaders, that every child or young person matters and can achieve				

	Classroom level	School Community level	Education Authority (EA) level	
Professional practitioners	A classroom with a culture of self-reflection and an appetite for reflecting and acting upon all available evidence about each pupil's progress to establish how his or her learning can be enhanced.	A school community where tracking, target-setting, mentoring and coaching are systemic features of every pupil's experience, particularly when at qualification interfaces.	An EA which develops quality improvement systems which allows analysis of customer, staff, external stakeholder and other key performance information to help schools identify where there is headroom to raise attainment further.	A research-based approach to developing new strategies and adopting new practices, an appropriate use of evidence and data to support implementation of strategies and practice.
	A classroom where there is a culture of openness, where lessons are observed by peers and where collegiate time is used to discuss teachers' practices and potential improvements in approaches.	A school community which communicates clearly, where staff are enabled to visit each others' lessons and where collegiate time is used to discuss improvements in pedagogy.	An EA which actively encourages and enables headteachers and other practitioners to visit schools where attainment is being raised significantly, to promote collegiate discussion on effective pedagogy.	
	A classroom where teachers and learners feel accountable and responsible for their educational performance and their progress.	A school community which holds itself and all staff accountable for the quality of education provided for every child and young person, using rigorous quality improvement approaches which ensure that no child is left behind.	An EA which ensures that the analysis and review of attainment are taken seriously in every school, intervening swiftly with practical support for schools where improvements in attainment are required.	
Excellent learning and teaching	A classroom where lessons are delivered enthusiastically and every attempt is made to make learning relevant and motivating for pupils.	A school community which develops well-researched programmes across the school and associated school group to improve pedagogy amongst teaching staff e.g. through teacher learning communities.	An EA which develops well-researched programmes across the service and promotes improved pedagogy amongst teaching staff e.g. through teacher learning communities.	
	A classroom where learning is well planned and differentiated for all children to ensure that individual's needs are met.	A school community where the curriculum is designed to meet the needs of all learners, including the more able and those whose prior attainment and earlier experiences are not positive.	An EA which ensures that the principle of raising attainment is at the core of the curriculum offered in schools, aligned with statutory guidance and national priorities.	
	A classroom where learning intentions and success criteria are shared so that pupils understand them and where all pupils know what it is they are expected to be learning and what success will look like.	A school where systems are devised which ensure that teachers use summative assessment formatively and where this happens consistently		
	A classroom where teachers are skilled in identifying next steps in learning for each learner on a regular basis.	A school where pupils are strongly supported to make appropriate course choices based on "cautious optimism" for all pupils.		
	A classroom where teachers use contextual assessment to manage and turn to the learners' advantage the variables in the learning situation	A school community which ensures that the system of child-centred planning stretches all pupils to make well-paced progress in their learning.	An EA which promotes effective partnership approaches at pupil, school and wider school group levels which focus collectively on achieving best life-chance outcomes. All staff know and understand the roles they play.	
A belief, modelled by all teachers and leaders, that every child or young person matters and can achieve				

	Classroom level	School Community level	Education Authority (EA) level	A research-based approach to developing new strategies and adopting new practices, an appropriate use of evidence and data to support implementation of strategies and practice.
Successful Learners	A classroom where pupils views about their learning is listened to, heard and acted upon.	A school community where the views of pupils are listened to, heard and acted upon.	An EA which promotes children's and young people's rights and responsibilities and where their views are listened to, heard and acted upon.	
	A classroom where pupils are strongly encouraged to self-assess their work and peer-assess other pupils work using methodologies that have been evidenced to raise attainment.			
Parents, carers and the wider community	A classroom where the teacher actively seeks to engage the parent/carer in their child's learning, believing that they have a key role in raising attainment.	A school community where the views of parents/carers are listened to, heard and acted upon.	An EA where the views of parents/carers are listened to, heard and acted upon.	
	A classroom where targets for pupils are agreed and discussed and where strategies to improve further are identified, involving parents, carers and supporters.	A school community which develops systems and exploits every opportunity to involve parents, carers and the wider community to raise attainment and promote achievement by bringing the outside world into the classroom and the learner into the wider world.	An EA which develops sophisticated systems and a mature partnership with other children's services where valued outcomes are shared and efforts are well coordinated and targeted towards greatest need and risks.	
A belief, modelled by all teachers and leaders, that every child or young person matters and can achieve				

Section 2: developing an evidence-based performance framework for raising attainment

This section presents an ADES view on the type of performance framework which is required to raise attainment, given the evidence summarised in section 1.

Overview of the evidence on raising attainment

National Outcome 2 (“we realise our full economic potential ...”) and National Outcome 3 (“we are better educated, more skilled and more successful”) require that Scotland improves its performance against international comparators. However, Scotland’s current PISA performance shows that there is still much to be done to achieve this aim (exhibit A).

This task will be difficult to achieve, since there is a significant variation in attainment with social context (exhibit B). This is apparent in pre-school years and persists through all stages of education (exhibit C). This is a particular problem, since international research suggests that significant variations in attainment within countries may limit their overall levels of attainment (exhibit D).

In order to raise attainment, Scotland will need to understand and successfully address the relationship between social context and attainment, since this is a significant factor affecting attainment at school and local authority level. This will require performance measures and benchmarks that accurately reflect the true nature of this relationship. Current performance measures do not adequately meet this requirement (exhibit E).

In order to raise attainment, Scotland will also need to make the fullest possible use of information on prior attainment (exhibit C), since this is the most significant factor affecting individual attainment. This will require that information on learners’ progression (e.g. from baseline and standardised assessments undertaken at EA level) is supported with relevant contextual information.

In addressing this challenge, it is important to be aware of the potential risks of performance measures. In particular, they can (if poorly designed) give rise to “perverse incentives”, which alter the decisions made by practitioners and managers. The key to minimising these risks is to ensure that the performance measures used provide an adequate focus on the results achieved by *all* (exhibit F), by ensuring a balanced and rounded view of attainment across the whole pupil cohort.

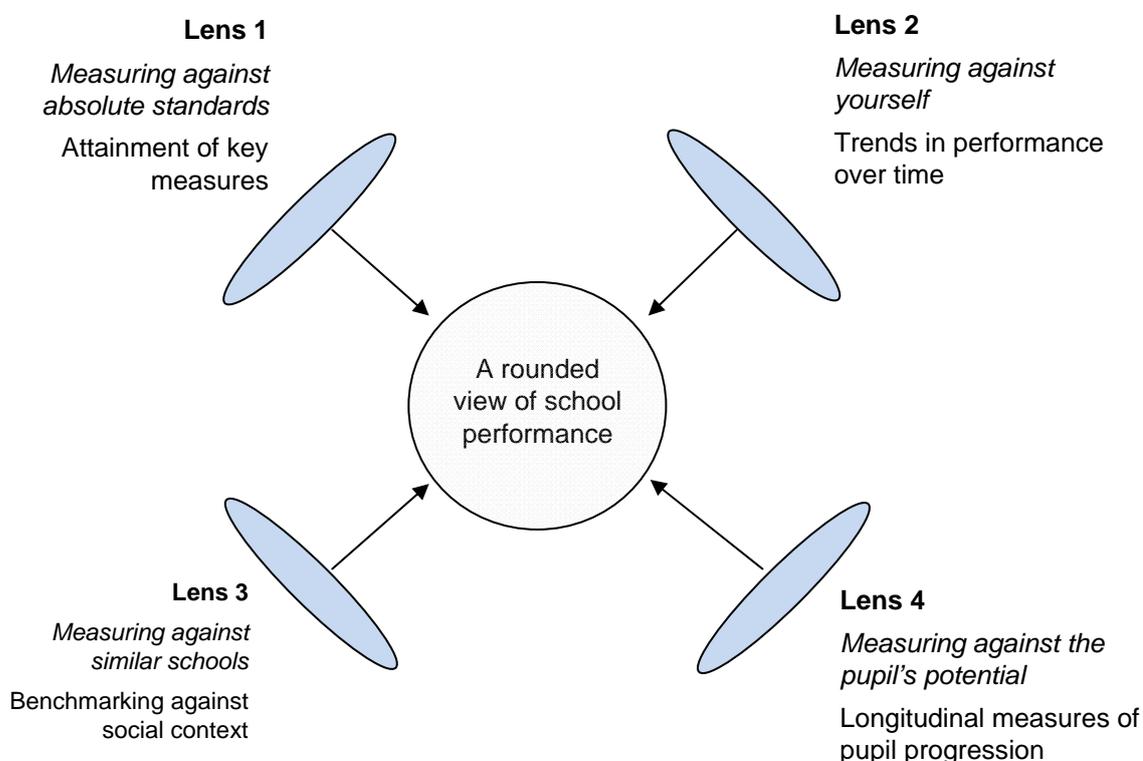
Furthermore, a rounded and balanced set of performance information is precisely what is required to achieve a system based on the belief that every child matters and can achieve (exhibit H). It will enable effective self-evaluation by school leaders and support the development of improved teaching skills by practitioners. This is fundamental to the task of achieving a high-performing school system (exhibit H) through effective practices and strategies for raising attainment (exhibit I).

A successful framework for raising attainment will, therefore, require performance information that is *relevant to the key issues* facing Scotland’s school system. These include the relationship between social context and attainment *across the whole social spectrum* and the need for a *balanced and rounded view* of attainment *across the whole pupil cohort*.

Rationale for an effective performance framework: the “four lenses”

The figure below provides an outline performance framework that is required to meet the challenges summarised above. The model is, in part, inspired by the work of the Canadian educationalist, Michael Fullan. It recognises the need to gain a rounded and balanced view of school performance, by gaining a number of perspectives on current performance. The four lenses are:

- **Lens 1:** *national levels of attainment*. This measure acknowledges that certain life outcomes are related to specific levels of attainment (e.g. 5+ at level 5 by the end of S4 is a gateway to higher levels of attainment and higher education).
- **Lens 2:** *trends over time*. This measure acknowledges that change happens incrementally and that success (and failure) can happen by degrees.
- **Lens 3:** *benchmarking against social context, e.g. relevant comparator schools*. This acknowledges the need to understand the influence of social context on attainment (exhibit B). When the comparators are *relevant* to the educational outcomes in question, it can: provide invaluable information about current achievement by similar schools; help identify schools that have implemented effective strategies to address key challenges.
- **Lens 4:** *longitudinal measures of pupil progress*. Longitudinal information about pupil progression is a vital support to effective classroom practice (exhibit H). It can also provide important information about the “value added” by each stage of the school system, providing an accurate picture of *where* (e.g. at what stage of schooling) strengths and weaknesses in performance lie.



A key attribute of the “four lenses” model of performance measurement is the ability to combine information from different lenses to establish a much richer understanding than could be obtained from any lens in isolation. The whole is greater than the sum of the parts.

By way of example, consider the following scenario.

Attainment of 5+ at level 5 by the end of S4 has risen over the past four years (lens 2). Furthermore, performance against comparators appears strong (lens 3). However, this is partly explained by changes in the prior attainment of the school cohort on entry from P7 (lens 4), suggesting that the “value added” by the secondary school may be less than at first appears. Furthermore, looking at prior attainment across the social spectrum reveals that progression is much better for pupils from the most affluent areas (lens 4 again, but analysed for each social context).

Has a focus on higher levels of attainment been at the expense of lower attaining pupils, typically from more deprived areas? Can the strategy that has raised attainment for pupils from more affluent areas also help to raise attainment for pupils from other social contexts? Are there similar schools which could provide exemplars of successful practice?

The “four lenses” performance framework allows school leaders and practitioners to ask these sorts of questions.

Effective organisational change requires organisational learning. Just like individual learners, organisations will not improve if they are merely told that they are “good” or “bad”. Rather, they need help in understanding *what* they are doing well and *what* they need to do better. An effective performance framework for schools needs to provide a formative assessment of performance as a whole, helping to identify these strengths and weaknesses.

The “four lenses” performance framework achieves this aim.

Key points

- Raising attainment will require performance information that is *relevant* to the key issues facing Scotland’s school system, including the relationship between social context and attainment *across the whole social spectrum*.
- This will require a *balanced* and *rounded* view of attainment across *the whole pupil cohort*.
- Raising attainment will also require the effective use of information *relevant* to understanding the attainment of individuals, including measures of progression like baseline and standardised assessments.
- This will require the provision of suitable contextual information at school and EA level.
- The “four lenses” performance framework provides a framework for understanding this type of information, allowing school leaders and practitioners to recognise their areas of strength and weakness.
- This provides the basis for effective organisational learning and continuous improvement.

Data requirements for an effective performance framework

The previous section outlined the sort of performance framework that would be required to raise attainment across Scotland.

This section gives an indication of the sorts of issues that will need to be fully addressed in order to meet the data requirements of such a performance framework.

Principles underpinning the choice of data

The data used to support the performance framework will need to provide a rounded and balanced (i.e. “four lenses”) view of system performance. However, it is also vital that the data remains the best available to meet these requirements. This is necessary both to ensure continuous improvement and to allow for the dynamic environment created by the introduction of Curriculum for Excellence (CfE) and the new National Qualifications. Data should therefore be subject to continuing review, supported by ongoing research and development.

Purpose of the data

The immediate requirement of data is that it supports a four lenses performance framework. The ultimate requirement of the data is that it ensures delivery of key National Outcomes (in particular, National Outcomes 2, 3 and 4). Meeting these National Outcomes would achieve the objectives of all key stakeholders in the Scottish education system.

Lens 1: data on national outcomes

Data is required on key educational outcomes, including school leaver destinations and any attainment that enables improvement in key national outcomes, whether directly or indirectly. This will include data on:

- PISA results. This measures an ability to improve the knowledge and skills of young people. This is necessary to ensure that Scotland achieves its “full economic potential” (NO 2) through a “better educated, more skilled” workforce (NO 3).
- SSLN results, SQA attainment and other accredited attainment levelled within SCQF. This measures an ability “to raise achievement across the population” (NO4) and to improve the ability of young people to access more advanced education and skilled employment (NO 2 and 3).

Measures should focus on:

- Attainment that directly enables access to specific, positive post-school destinations.
 - E.g. Higher Education (HE). This will include attainment at SCQF levels 6 and 7 for school leavers, but must also include any particular performance that confers a significant advantage in terms of the range of HE institutions or subjects accessed by the learner (e.g. qualifications obtained at one sitting, requirements of particular HE groups such as the Russell Group, 1994 Group etc).
 - E.g. Employment. This will include any attainment levelled within SCQF that confers an advantage in employment outcomes. This should include appropriate measures of particular aspects of attainment, where these are fundamental to employability (e.g. literacy and numeracy). Measures will need to account for a wide variability in local labour markets between different

school catchments across Scotland. A fairly broad range of measures may therefore be necessary. The role of attainment outwith National Qualifications (e.g. Steps to Work programme) should also be considered.

- Attainment that indirectly enables access to positive post-school destinations.
 - E.g. HE. At present, achievement of 5+ at level 5 by the end of S4 is strongly related to progression on to attainment at SCQF levels 6 and 7 and to HE as a leaver destination. This has proven to be a useful measure of further life opportunities for learners. Such measures may be less reliable if pathways to higher levels of attainment change with the introduction of CfE. However, the potential of such measures to evidence further opportunities should be investigated.
- Quality of attainment, in so far as this enables general access to a range of positive post-school destinations.
 - Best achievement measures (e.g. average grade of 5 best awards at key SCQF levels. This is likely to influence the ability of a pupil to access or sustain a positive destination).
 - Efficiency/effectiveness measures (e.g. what proportion of courses have led to success? Hence, for example, schools commonly achieving 6 from 7 at SCQF level 5 could be distinguished from those achieving 5 from 8 – something that a simple threshold measure like 5+ at SCQF level 5 would not identify).

Issues related to lens 1

Evidence on school leaver destinations (Scottish Government, 2010a) shows that there are significant differences in the sustainability of different post-school destinations. Furthermore, the current measure of a “sustained”, positive destination is whether an individual who has left school during the year remains in the same destination at the time of the school leaver follow up survey (in the following March). In consequence, there is limited evidence on: the long-term sustainability of different post-school destinations; the contribution that schools make to long-term, positive, sustained life outcomes for individuals. *This is a key issue to consider further at a national level.*

Lens 2: trends

Trend information will be needed to allow measurement of progress over time. This should be long enough to allow an adequate appraisal of the success of current strategies, interventions etc. In general, trend information over at least 5 years will be needed.

Lens 3: benchmarking against social context

National outcome 4 will require Scotland “to raise achievement across the population and for the gap between those who are the most and least successful to be reduced.” This is necessary since: attainment varies significantly across the whole social spectrum (exhibit B) at all stages of schooling (exhibit C); and, large, systematic differences in attainment related to social context limit the capacity of an education system to produce high levels of attainment (exhibit D). Furthermore, a focus on the achievement of one particular group increases the risk of perverse incentives, whereby the achievement of other young people is ignored.

It is, therefore, vital to ensure that all of the measures identified through lens 1 can also be viewed through lens 3. This will mean that each measure chosen for lens 1 should be capable of segmentation between all key groups for whom differences might be anticipated. This will include:

- Pupils living in each SIMD decile (i.e. in each social context);
- Males and females.

Consideration should also be given to reporting data like (subject to issues of data quality/reliability and whether the information that results provides a relevant and reliable view of performance):

- Pupils who are registered for free meals, as compared with pupils who are not registered;
- Pupils who have Additional Support Needs, as compared with those who do not;
- Pupils who are looked after, as compared with those who are not.

In addition to providing segmented data for the measures defined under lens 1, it will also be important to enable best use of the longitudinal data identified under lens 4 (discussed below). This data may not necessarily be recorded at a national level; e.g. it may be derived from local authority (LA) monitoring systems. However, its reliability, relevance and impact will largely be determined by the extent to which it can:

- Provide a picture of performance that accurately reflects the context of the school/LA;
- Enables benchmarking against relevant and reliable comparators for each school/LA;
- Enables effective context-appropriate strategies and interventions to be identified;
- Helps to foster the sharing of effective practice amongst schools with a similar context in different parts of Scotland.

It will therefore be important to support data regarding the context of each school in Scotland. This data should include:

- The SIMD profile of each school (i.e. the proportion of pupils living in each SIMD decile);
- The proportion of pupils in each school who are FMR, ASN, LAC etc (subject to issues of data quality/reliability/confidentiality).

Lens 4: longitudinal data on progression

Local authorities and schools record data on the progress of individual pupils. This is an integral part of effective classroom practice but also provides information on the relative strengths and weaknesses of schools and local authorities. This data can be used to provide a more rounded and balanced view of school performance. It can also provide a means of maintaining attention on every child in a school system, helping to minimise the risks of perverse incentives arising from a focus on any key outcomes. This data provides a rich and, at present, largely untapped resource for raising attainment. Further consideration should urgently be given to improving its value (e.g. via the sharing of national data on school context – see discussion above, under lens 3).

Progression through the senior phase can also be monitored, using data on attainment. This will have a potentially important role to play in helping to identify effective strategies for the senior phase, particularly within the more varied landscape of CfE. Data has the potential to offer useful insight at a school and local authority level on the relative success of different progression strategies, via measures like:

- Outcome chance measures (e.g. the relative chances of each positive destination for pupils who achieved a certain level of attainment at a particular stage)
- Progression measures (e.g. the range of attainment subsequently achieved by pupils who had achieved a specific level of attainment at a particular stage).

These sorts of measures would enable a much better understanding of the effectiveness of school/LA strategies. Contextual information will also add greatly to the value of these measures.

Data at subject level will also be necessary to enable subject performance to be understood.

Conclusion

The use of appropriate information is central to the development of a successful school system (p.53, McKinsey, 2010). It is, therefore, vital to consider how best to use data to enable effective change. The approach outlined above would provide the range of information needed to enable school leaders to understand performance in the context of their school/LA and the strategies/interventions needed to drive (exhibit H).

The approach outlined in section 2 requires a sophisticated approach to data and performance information. However, a simpler approach would result in the use of information that is irrelevant and misleading (exhibit F).

Scotland has the potential and means to develop a school system that is highly achieving by international standards. However, like any individual learner, it needs to recognise what it must do to achieve that aim, and it needs to be ambitious about its ability to achieve it.

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