Using assessment data to drive school improvement –
the RAISEonline programme

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Abstract
The widespread use of assessment data now plays a vital role in driving the school improvement agenda in England, whether at a national level where major education policy and investment decisions are being made, or in schools where data is at the heart of the school improvement conversations that take place between head teachers, school inspectors and local school improvement partners. Since its launch in 2006, RAISEonline (www.raiseonline.org), a web-based reporting and analysis tool for schools, has played a key part in this drive to make better use of education data to support school improvement. This paper uses RAISEonline as a case study to examine how assessment data is being used by schools in England and argues that the wider of issue of data literacy in schools is a key factor in schools being able to make the best use of the rich assessment data now available to drive the school improvement agenda.

RM is a provider of assessment and data services to central government and awarding bodies, and has developed RAISEonline for Ofsted and the Department for Children, Schools and Families (DCSF).
Background and Context

Back in 2004, the then Minister of State for Schools, David Miliband, launched two important policy initiatives from the Department for Children, Schools and Families (DCSF, formerly the DfES), which would have an impact on the future use of data by schools to support school improvement. The first was the signing of a Data Protocol (DCSF, 2004) across all the government agencies working in education, which agreed a set of principles for making better use of data in education. At the heart of this was a principle to collect data once, and use it many times, thereby encouraging those involved in education to make much better use of the vast amount of data already collected from schools. The second was the New Relationship with Schools (DCSF, 2004), a programme which provided a new focus for school improvement with their being an increased emphasis on:

- using data to support school improvement;
- school self-evaluation;
- a new, lighter touch inspection regime; and
- ensuring that there is a more co-ordinated approach to school improvement and a ‘single conversation’ with schools.

Following on from these policy announcements, Ofsted, the body responsible for school inspections in England, and the DCSF decided to invest in a new joint project to develop RAISEonline, a web-based tool for analysing school performance data, which would be used by schools, inspectors and school improvement partners to support school improvement.

Before exploring in detail how RAISEonline is now being used to support school improvement, it is worth stepping back to consider the wider education data landscape in England.

Figure 1: Education Data Landscape in England
Figure 1 shows the three main sources of assessment and school performance data for pupils in England:

- national Tests for pupils aged 7, 11 and 14 in the core subjects;
- GCSE, A-level and Vocational qualifications and assessments for pupils aged 16 to 19; and
- the termly pupil census which collects basic contextual information about pupils from schools.

These three principle data sources are collected, matched and processed nationally on an annual basis for all schools in England by the DCSF. Although the main driver for this data processing is to produce the annual school performance tables in England, the main benefit for school improvement is that the fully matched datasets are loaded to the national pupil database and used for reporting and analysis by schools in products such as RAISEonline. This fully-matched data source provides a single matched record for each pupil, which includes their contextual information and full attainment record in assessments at the age of 7, 11, 14, 16 and 18. It also provides a full national data set so that a complex aggregations and indicators can be calculated at a school, local and national level.

The development of RAISEonline by Ofsted and DCSF, signalled a major commitment from these two organisations to provide a more unified and consistent set of reports and analyses to schools to support the inspection of schools and the wider school improvement agenda. The basic building blocks of RAISEonline are a database with pupil-level data and school-level performance indicators, and a flexible web-based reporting tool which is used to deliver over 100 reports and analyses to users. In addition there are reports for analysing question-level data in the National Tests and a tool for schools to look forward and set individual targets for pupils, based on estimates calculated from their prior attainment.

**Demonstration of RAISEonline**

[www.raiseonline.org](http://www.raiseonline.org)

*A short, live demonstration of RAISEonline will be presented to IAEA conference delegates.*

**Evidence for data-driven school improvement**

Since its launch in 2006, there is a body of evidence to suggest that RAISEonline is making a significant contribution to the school improvement agenda in England. RAISEonline is used as the focus for over 7,000 school inspections each year in England, where the data and analyses are used by both the school inspector and headteacher as the starting point for discussions.
about the school. All schools in England also participate in an annual school self-evaluation process, and school performance data from RAISEonline is central to this evaluation, enabling senior managers in schools to make informed decisions about the strengths of the school and identify areas for improvement. Other professionals involved in supporting schools, including Local Authority advisers and school improvement partners, also have access to the reports and analyses in RAISEonline, and this ensures that schools and education professionals are able to have meaningful discussions about how schools can improve, using a shared, common set of reports and analyses. Finally, a quick search of the UK education training market shows that there are many professional development training courses now being provided by national training providers and Local Authorities, aimed at helping schools make the most from the data and information available in RAISEonline to support the school improvement process.

The profile of users using RAISEonline provides further evidence that it is being used extensively by all schools. In the period from January 2007 to June 2008, there have been over 500,000 user logins to RAISEonline with 2.5 millions school performance reports being viewed by schools, inspectors and Local Authorities. In the busiest week last October, over 100,000 reports were viewed by schools following the release of 2007 assessment data. With a school population of 22,000 schools and 50,000 registered users, this usage data provides compelling evidence that RAISEonline is being used on a regular basis as a key source of reports and analyses.

**Data literacy in schools**

The real challenge for schools though, is how to make the best use of the rich data and analyses available in RAISEonline. Whilst most head teachers in England will be familiar with the data, analyses and school improvement indicators provided through RAISEonline, the use of the analyses by middle managers (subject leaders) and teachers is much more limited. This is partly due to pressures on time, but a major factor is the general level of data literacy amongst the wider teaching profession.

Schools are complex places with many elements contributing to the overall school improvement agenda: teachers, pupils, curriculum, lessons, styles of learning, school structures, leadership, pastoral care and parents to name but a few. This complex network of school improvement elements (see figure 2), with causal links between each of the nodes (including positive and negative feedback loops), makes it difficult to clearly identify a simple cause and effect relationship between a specific school improvement action and its subsequent impact and effect on overall school performance.

**Figure 2: the complex network of elements involved in school improvement**
As an example, most teachers would find it hard to prove that a particular change to the teaching of one topic in the curriculum has led to a quantifiable difference in the assessment results at the end of the course – life in a school is more complicated than that. So it follows that, when analysing data and information about a school, we should also expect a similarly complex and wide ranging set of analyses and views to emerge. Earl and Katz (2006) suggest that when analysing school performance data, teachers and managers need to learn to live with ambiguity and they propose a simple analogy that “data provide lenses for analysing working knowledge, conversations and professional judgements” (Earl and Katz, p.64). They go on to encourage teachers to look for patterns and trends in the data, and acknowledge that they should expect multiple interpretations, contradictions, anomalies and different views to emerge through their analysis. This approach certainly holds when analysing the complex set of data and school performance indicators available through RAISEonline. The different analyses of raw attainment, thresholds, progress and value-added measures all provide different lenses which teachers and school managers should consider alongside their other professional knowledge and expertise when drawing conclusions from the data.

**Data analysis value chain**

The collection, processing and use of assessment data by schools is just a means to an end, which is to gain a better understanding of how teaching and learning can be improved, and to then put this understanding into action. Adapted from Ackoff’s (1989) well-known knowledge management theory (data, information, knowledge and wisdom), the framework in figure 3 shows how, over time, it is possible to move through a data analysis value chain to increase understanding and knowledge and how this can then be put into action.

**Figure 3: Data analysis value chain (adapted from Ackoff, 1989)**
The four levels of understanding can be explained as follows:

**Data**
this is simply the raw numbers such as the underlying assessment and contextual data in RAISEonline (e.g. a pupil grade for an examination)

**Information**
calculations or aggregations that provide real information about a school or group of pupils (e.g. % of pupils in school that pass an examination compared to % of pupils nationally)

**Knowledge**
an indicator or analysis which provides a much richer insight or analysis of school performance (e.g. analysis which shows that a particular group of pupils in a school are making poor progress between the ages of 11 and 14 in Mathematics when compared to the national picture)

**Action**
the ability to take this knowledge and understanding and doing something with it (e.g. school improvement activity)

Much of the current analysis of data in RAISEonline by schools focuses at the level of the data and information. The real challenge is to help schools make the most of the rich data available and support them in being able to move up the data analysis value chain to gain a real knowledge and understanding from the data and to then put this understanding into action in the form of school improvement programmes.

**Conclusion**

Using RAISEonline as a case study example of a web-based reporting system for analysing school performance data, this paper has shown that assessment data is being used in the education system in England to drive school improvement. However, whilst data literacy levels are improving within the teaching profession, school managers and teachers still need considerable support and professional development to enable them to gain a much richer insight, knowledge and understanding from the complex data that is now available. From the experience of examining how RAISEonline is being used by schools in England, this paper concludes with four guiding principles which can be used to support the analysis of assessment data and to drive the school improvement agenda:

**Complexity**
School learning environments are complex places and we should expect assessment data to provide equally complex analyses which will include ambiguities, anomalies, contradictions and multiple interpretations

**Lenses**
Data analysis provides lenses for understanding complex school improvement issues; this understanding must be placed in the context of teachers’ professional judgement and knowledge
Triangulation  When there are two or three different interpretations, use triangulation to look for significant hypotheses or threads of knowledge which can be supported by more than one analysis

Action  Use the understanding and knowledge from analysing assessment data to drive school improvement through conversations, thinking, reflection, creating new ideas or introducing change

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