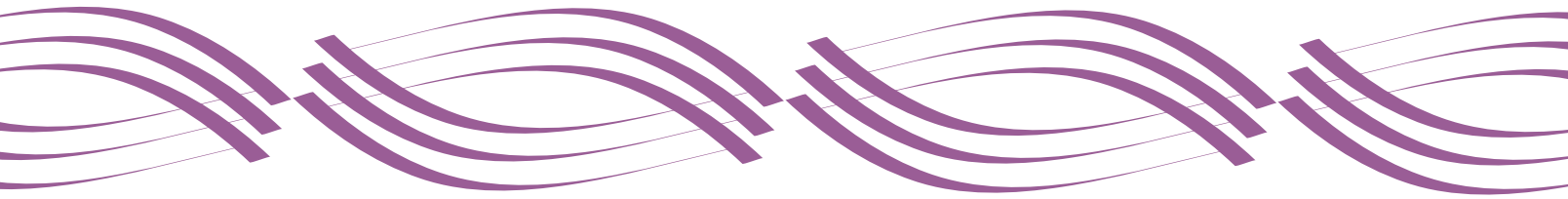
Statistics Commission



Report No. 26

School Education Statistics: User Perspectives

Statistics Commission

Report No. 26

School Education Statistics: User Perspectives

Report by the Statistics Commission

Incorporating: Review of Schools Education Statistics by National Foundation for Educational Research

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Contents

Preface

By the chairman of the Statistics Commission

This is the second in a series of reports from the Statistics Commission, each taking a broad look at a major field of official statistics. These reports stand back from the high profile issues of the day and ask whether the statistical service available in a particular field, viewed in the round, is meeting the needs of a sufficiently broad spectrum of users of statistics; and whether we can point to steps to further improve it.

The subject of this report is school education statistics – a body of information that has wide influence at all levels of society, from questions of broad government policy to decision-making for individual families. Statistics in this field are already amongst the most highly developed of any social policy area. Schools and other relevant authorities now maintain detailed records relating to each child and these provide the raw material to create a fairly comprehensive statistical infrastructure. Given the richness of the data, it is perhaps inevitable that the concerns of users focus less on issues of their coverage and more on questions of access to the relevant figures and advice on their interpretation. This may be indicative of a broader shift in the needs of statistics users. As the UK statistical base has developed over recent years, the needs of users have, in many instances, evolved from a requirement for more and better data to a requirement for more help in navigating and understanding the available statistics. We believe this message is one that the government-wide statistical service now needs to engage with in a concerted way.

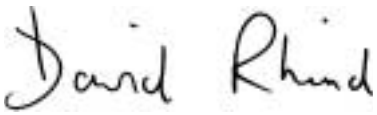
As we emphasise in all our reports, the Statistics Commission approaches its role from the perspective of those who use, or who may one day use, messages from the figures in decision-making. This of course includes the voting public, who largely rely on statistical messages to provide an insight into the work and performance of government and public services. Given the scale of public spending on school education and the significance of this education to every child and parent in the country, the central importance of this statistical topic cannot be overstated.

Some readers might expect us to focus on issues that have attracted media headlines, such as the interpretation of trends in Key Stage test results. But we believe that very specific issues of that kind are best dealt with separately and should not be allowed to obscure the broader messages addressed here.

Our conclusions and recommendations are based on those of the report we commissioned from the National Foundation for Educational Research, which appears in full in Part 2 of this document. We have however placed our own emphasis on various points, taking account of the Commission's particular

perspective. I would encourage readers to consider the two reports together as they present similar but not identical views.

I would like to thank all of those who contributed to this report, particularly Commission member Janet Trewsdale who chaired the project board and the National Foundation for Education Research who undertook the bulk of the work and guided us through the intricacies of the subject.



Chairman, Statistics Commission
June 2005

SCHOOL EDUCATION STATISTICS: USER PERSPECTIVES

PART 1

REPORT BY THE STATISTICS COMMISSION

Summary and conclusions

i. In August 2004 the Statistics Commission invited the National Foundation for Educational Research (NFER) to carry out a review of UK primary and secondary school education statistics, focusing on the extent to which the needs of users of statistics, both within the education sector and more generally, were being met. This is the second in an ongoing series of reviews of statistics relating to major areas of social and economic policy.

ii. The Commission has considered NFER's Review report (reproduced in full in Part 2 of this volume) and has reached the following conclusions:

- **The range and detail of official education statistics has been extended substantially in recent years** and there is now a wealth of valuable data available for people who need such information to guide their decisions. There have been improvements in the range of data available – for example, the introduction of a measure of 'value-added' to complement more basic indicators of performance in school examinations and tests. Public access to these data has been improved through the use of the Internet and the development of databases containing pupil level data alongside the continuation of established statistical outputs. Whilst all of these improvements are welcomed by users of statistics, we believe that a more systematic approach to identifying and evaluating users' needs would now be beneficial. Those needs may increasingly centre on advice about the use of the statistics rather than on the provision of ever-more detail.

- **Education statistics are actively used to support decision-making** by many organisations and individuals, for example: by Parliament and government in considering spending priorities; by individual schools seeking to manage their own performance; by parents seeking to choose where to have their children educated; and by voters making judgements about the performance of their elected representatives at national and local level. There are positive signs that the available data are being extensively used in decision-making at the policy level.

- **There are however also signs that some potential users of the statistics need more support and guidance**. Some people, including some school staff, parents and governors, are struggling to make full use of the statistics available due to difficulties in interpreting the figures. And some experts are concerned about possible misinterpretation of figures by those who are less expert, arguing that more and better guidance in their proper use is required. Taking these points together, the Review findings suggest that the statistical outputs, in their current format and with the current levels of support, are not

yet reaching some sections of the potential audience as effectively as they might.

- **There are a few significant gaps and inconsistencies in the otherwise impressive coverage of the statistics** – notably in relation to attainment/performance data in Wales and Northern Ireland (see recommendation E below). From a statistical perspective the existing administrative systems across the four countries of the UK – which of course reflect differences in the educational systems – have the further weakness that they often cannot provide consistent data for comparison. International comparative exercises that span many countries, such as those managed by the OECD, may offer a good way to address the need for comparable data without incurring major costs.

iii. This report makes recommendations which inevitably focus on possible areas for improvement. This should not deflect from the fact that there is much to commend in the recent development of education statistics across all four UK administrations.

Recommendations

A) **The four UK administrations should each aim to improve the transparency of their planning processes for education statistics**, such that the needs of different users of the statistics are researched, recognised, and evaluated in terms of the public interest in meeting them, and that the relative priority given to meeting each user requirement is demonstrated.

B) **Bearing in mind the point above, the producers of the statistics should re-assess whether the scope and nature of existing statistical databases, reports and other outputs** (and the measures taken to support users in accessing and understanding this material) are likely to meet the needs of the full range of potential users, and make their analyses public.

C) **The four UK administrations should each make a commitment to continuing participation in international comparative studies of education performance**, both to maximise the UK's influence on the technicalities of these studies and to ensure they are as useful as possible for making comparisons across the UK and internationally.

D) **Full and informative statistical commentary should be provided alongside the figures to guide users**. Bearing in mind the letter and spirit of the National Statistics Code of Practice, which has the endorsement of all the relevant government bodies, the producer organisations should ensure that the government statisticians are enabled and encouraged to comment fully and publicly on any quality issues associated with their outputs, including on the limits of appropriate use of the statistics.

E) **In the interests of users of statistics, including parents, a consistent approach should be taken across the UK to the publication of performance data for individual schools**. The Statistics Commission believes that there should be a strong presumption in favour of making all such information readily available in an appropriate format. At present, practice differs considerably, with England and Scotland making information more readily available than Northern Ireland or Wales. We would suggest that the view of the National Statistician should be sought on this question – this would serve to acknowledge that this is an issue of UK-wide *statistical* policy rather than devolved *education* policy.

1 Introduction

1. This report is the second in a series of broad reviews of statistics relating to major areas of social policy undertaken by the Statistics Commission. The results of the first, a review of health statistics, were published in *Enhancing the Value of Health Statistics: User Perspectives* (Statistics Commission Report No. 21, October 2004).

2. This Review focuses on statistics relating to school education, rather than on other aspects of education, for two main reasons. Firstly the National Statistics quality reviews conducted within the education and training field had, until mid-2004, related exclusively to higher education statistics. Two quality reviews relating to specific aspects of school education statistics have been completed since then but we concluded that a broader look would also be appropriate. Secondly, statistics on school education, particularly school performance in terms of examination results, have been the subject of various approaches to the Statistics Commission.

3. The Commission hosted a seminar on school statistics in June 2004 to identify key issues for consideration in the Review. The seminar was attended by representatives of prominent education bodies across the UK, including government officials, academics and representatives from local authorities and teachers groups. Following the seminar, a contract was awarded to the National Foundation for Educational Research (NFER) to undertake the Review on behalf of the Commission. NFER submitted their report to the Commission in April 2005. That report is reproduced in full in Part 2.

4. The Commission has built on NFER's Review in reaching its conclusions and recommendations – which form Part 1 of this volume.

II Context of the Commission recommendations

Uses of statistics on school education

5. School education statistics in the UK have a wide range of potential uses and users. NFER's Review identifies many such users and explores their perceptions of the data and the statistical service provided by government departments. Users of education statistics have diverse data requirements and also need different levels of support and advice. The challenge of identifying the best balance between meeting as many of these needs as possible and controlling the scale and cost of statistical activities is not a simple one.

6. Some examples of uses:

- In recent years there has been an increase in the systematic use of statistics, in education as elsewhere, to define and monitor policy targets. Education statistics are also increasingly used more generally in the development and monitoring of policy.
- Statistics, either in raw form or digested into statistical analyses, are widely used to help identify and analyse policy options in diverse fields. For example, education statistics are used as one component of deprivation indices, which in turn can influence resource allocation for geographically targeted schemes in fields not directly related to education, such as neighbourhood renewal, pre-school provision and social services.
- Many of the more technical issues highlighted in NFER's report are ones that have been voiced by researchers. Education statistics are used, along with other data, to examine changing social patterns and trends, and researchers often have distinct requirements. They typically need access to detailed data, together with extensive technical metadata[1].
- Local authorities use official statistics to monitor the performance of schools. With their roles in planning, service improvement and budgeting, they often need to make comparisons between the schools within their region and with similar schools in different areas. Such authorities have the potential to use the available data to help schools identify areas for improvement as well as use them in their own decision-making processes.

[1] Information about a statistical series that enables the user to gauge quality, context, comparability, limitation, etc.

- Schools and their governors use statistics to inform management decisions and often have a first-hand understanding of the quality and limitations of the data. The extent of this use varies, but the potential is there for all schools to exploit the availability of statistics to demonstrate their effectiveness to parents and other parties, assist their self-evaluation and planning processes and make the case for resources.

- Parents are faced with important choices about the schools their children will attend. Statistics – or at least messages derived from the statistics – help many to make those choices. Ofsted reports, newspaper articles and performance tables all contain statistical information aimed at parents; estate agents draw attention to the figures when selling houses. The potential for such statistics to mislead rather than inform is recognised by many people but the Statistics Commission believes that the right response to this hazard is to provide helpful advice alongside the statistics rather than seek to constrain access to the data.

7. This report addresses the perceptions of users of statistics and examines some of the factors that are facilitating or inhibiting the use of statistics. It makes recommendations to the producers of statistics in the Department for Education and Skills (DfES) and in the devolved administrations, with the aim of helping to increase the value of the statistical services they provide.

The NFER Review's recommendations

8. The NFER Review's recommendations can be found in full in Part 2. The Review's main recommendations are summarised below:

1. Move towards a coherent, 'uses-driven' system for educational data

"The uses to which educational statistics are or could be put should become paramount." A strategy should be developed to ensure the movement towards a coherent uses-driven system for educational data "is pursued effectively and delivers potential benefits to users". The capacity and opportunity for further research and analysis of the data should be increased. Moves towards "a comprehensive data warehouse system linked to careful and detailed analysis, rather than through the collection of regular tabulated statistics" should be encouraged and welcomed.

2. Monitoring national performance

There should be "a commitment to early and dedicated participation in international studies" to influence their form and ensure they are as useful as possible for making comparisons across the UK.

A government study should "be set up, in order to determine the best and most cost-effective way forward in the area of national performance monitoring".

3. School performance data

"School performance data should be publicly available, but presented in a form that attempts to measure (as far as possible) the impact of the school on a range of outcomes, taking into account factors outside the school's control, together with indications of the uncertainty in these measures." There should be extensive consultation with all interested parties on the methodology used and on presentation of the information.

"A cross-country body or team to study developments" in the use of performance data for school improvement should be set up. It should "advise on best practice and co-ordinate developments". "Measures other than attainment (such as attendance and pupil attitudes) should be considered, in order to give a more detailed picture to schools of their strengths and weaknesses."

4. Interpretation of statistics

"There is a need for a more coherent approach towards helping school staff to understand statistics and use them effectively, and that this should be co-ordinated more centrally." Addressing the issue through "the development of some kind of national qualification or INSET programme" is one possibility.

The Review recognises a need for greater dialogue to bridge the gap between policy and statistical staff within government: " …there is an onus on statisticians and researchers to present their findings in ways which are valid and accessible, but at the same time there should be certain levels of statistical understanding for those developing policy".

III Issues and recommendations

9. The review process sought to identify the views of producers and users, or potential users, of education statistics, through questionnaires, interviews and focus groups. The Statistics Commission report builds on the Review report, and on its conclusions and recommendations. We believe that the Review has identified scope for action in a number of areas, which could benefit all users of statistics.

10. The Commission's recommendations derive from, or are consistent with, NFER's conclusions and recommendations. They are directed at the producers of official education statistics within government departments and administrations – DfES and the statistics and education departments of the devolved administrations in particular but also some other bodies with a role in data collection. This report does not make recommendations to the users of statistics, but we would encourage all those who make decisions using statistics or statistical research to voice their needs, whether these are for particular data or for support with using the data.

11. The Commission's recommendations fall into three broad areas:

- recognising uses of statistics and user needs
- international comparability of statistics
- public presentation of statistics by producers.

The background to the Commission's recommendations is described in the following section of this report.

Recognising uses and users

12. The NFER Review's first recommendation is to: "Move towards a coherent, 'uses-driven' system for educational data".

13. This recommendation emphasises the need to ensure that the eventual use of the statistics is placed firmly at the centre of the planning system. The Commission believes that systematic planning of this sort, which starts with an open analysis of the expected use of the statistics, is much the best way to tailor the statistical service to meet the real needs of users and so maximise the public benefit.

14. The Review report makes clear the wide variety of uses to which the data are put and the varying requirements of different types of user. The Commission strongly agrees with the Review's conclusion that statistical systems should be driven by the end requirements of those making decisions on the basis of statistical evidence –

whether they are parents deciding which school their child should attend or Ministers deciding education policy. The Review's findings suggest that, despite real efforts on the part of statisticians currently, there remains scope for further improvement. The planning processes in place are not yet fully transparent and there is a lack of explicit recognition of the choices that have to be made to balance the various user requirements against the resources the administrations are prepared to commit.

15. Ideally, the planning processes should actively identify and take into account – though not necessarily meet – all users' needs, regardless of their direct engagement with the statistical community. At present the effectiveness of engagement with particular groups of users rests too much on the ability of those groups to put forward their own needs.

Recommendation A

The four UK administrations should each aim to improve the transparency of their planning processes for education statistics, such that the needs of different users of the statistics are researched, recognised, and evaluated in terms of the public interest in meeting them, and that the relative priority given to meeting each user requirement is demonstrated.

16. The Review's recommendation for a user-driven system highlights the need for the capacity for statistical analysis, within government or externally, to be increased. This is carried forward in the recommendation on the interpretation of statistics. The Review reports on the "wealth of educational data available" and shortfalls in "the system's overall ability to interpret it".

17. Education statistics in the UK have seen tremendous leaps forward in recent years. In England, for example, DfES has introduced tools such as the National Pupil Database and new performance measures for 'value added'. The Internet has opened up a new means of dissemination that has increased the accessibility of education statistics across the board. These and other improvements to the system have benefited many users. However there remains scope to extend the community of users who experience these benefits. The Review report makes it clear that, despite the many improvements, there are still sections of the target audience of potential users that for a number of reasons are struggling to use the resource that is available.

18. NFER's researchers received a clear message from the teachers, schools and the parents they spoke to during the course of work for the Review: they did not understand much of the material that was presented to them. The Review report includes a number of suggestions that might help to address this issue, including:

- more statisticians, trained and experienced in analysing complex datasets to extract meaning

- greater access to data for researchers – encouraging data warehouse systems and tackling current obstacles to data sharing
- training for teachers and school governors to help them understand statistics and use them effectively
- research into the best format for presenting data to school staff for use in self-evaluation and improvement.

19. While there are some steps that potential users could take to familiarise themselves with statistics, there is clearly a role here for the data producers to ensure that their outputs are suitable and accessible for the potential audience. The Commission agrees with the Review that "there is an onus on statisticians and researchers to present their findings in ways which are valid and accessible". Both the data and the messages emerging from the data should be presented in a way that is readily accessible and understandable.

20. Producers of statistics could explore the possibility of providing additional explanation or creative and customised presentation of existing data, if it will help reach a key audience such as teachers or parents. In some cases, this is a role that the media currently take on, but with mixed results. Were producers to take on this role themselves, this might help to ensure consistency and consideration of quality issues.

Recommendation B

Bearing in mind the point above, the producers of the statistics should re-assess whether the scope and nature of existing statistical databases, reports and other outputs (and the measures taken to support users in accessing and understanding this material) are likely to meet the needs of the full range of potential users, and make their analyses public.

International comparability of statistics

21. Education systems in the UK are far from homogeneous. There are many topics on which harmonised data are neither necessary nor practical but there are others where comparisons are important. The differences between the education systems across the UK make such comparisons difficult. NFER's report suggests: "there is an increasing demand for international comparisons, including cross-UK comparisons. However, the quite different systems in place may lead to spurious comparisons."

22. One respondent to the Review felt, "it is better to use special international studies as a basis for comparison rather than try to standardise across the UK". In principle using international statistical systems for inter-country comparisons within the UK maximises the benefits of taking part in international surveys and other data

collection exercises, and minimises the burden on suppliers of data, as they are required for international comparisons. In practice, engagement in international exercises has been patchy for various reasons, from low school response rates to difficulty agreeing the interpretation of key definitions.

23. Some of the difficulties in contributing to international data collection exercises stem from the lack of control over details of the exercises. There are a number of other countries involved in the development process, each with their own education systems and their own concerns about timing, definitions etc. The Review suggests that one way to address this difficulty is to take a policy decision to participate actively in the process – including making "a commitment to early and dedicated participation in international studies in order to have the maximum influence on their form".

24. As they are not an integral part of the national system, international studies will inevitably come as an add-on to any systematic monitoring process. This characteristic adds to their ability to independently verify the findings of the core system of education statistics.

25. The Review suggests that the use of international studies could go some way to address the difficulties of monitoring national performance over time. NFER recommends further study of the issues of national performance monitoring "in order to determine the best and most cost-effective way forward". The Commission endorses this recommendation, and would also welcome any steps to increase the variety of sources available to support such an assessment.

Recommendation C

The four UK administrations should each make a commitment to continuing participation in international comparative studies of education performance, both to maximise the UK's influence on the technicalities of these studies and to ensure they are as useful as possible for making comparisons across the UK and internationally.

Presentation of statistics by producers

26. NFER's Review mentions "the tendency for those engaged in research to want to ensure that the statistics are properly hedged about with the caveats and uncertainties which are an inevitable consequence of how they are produced and the assumptions upon which they are based." The Review goes on to give some weight to the demands from this 'tendency' for additional information, in the Review's recommendations on both school performance data and on interpretation of statistics. These include suggestions for publishing indicators of uncertainty and for increasing the dialogue with policy-makers to ensure that policy is based on sound

statistical information. The Review also highlights the need for additional guidance and instruction for parents and school staff in how to read the data available.

27. The Commission takes the view that caveats, either in the form of quantified measurements of possible error or accompanying textual explanation, help to ensure that users understand the limitations of the data and would help to bridge these gaps. The Review suggests that the demand for such caveats is greater among the research community than, for example, policy-makers who want clear unambiguous statistics. However clear unambiguous statistics are not always possible, and statistics do not become more definite just because they are presented without caveats.

28. Free and frank commentary accompanying the data can support even the occasional user if it is readily accessible and understandable. With various users requiring more support, one way to assist them might be through greater use of examples of good and bad practise in the interpretation of the data.

29. There is already considerable material available on quality issues related to education data. 'Value added data' methodologies, for example, have been discussed in some detail by technical experts across government and the academic community. It is encouraging that discussion of this type goes on. Unfortunately much of this valuable discussion and the conclusions reached have not yet been successfully transmitted to a wider audience.

Recommendation D

Full and informative statistical commentary should be provided alongside the figures to guide users. Bearing in mind the letter and spirit of the National Statistics Code of Practice, which has the endorsement of all the relevant government bodies, the producer organisations should ensure that the government statisticians are enabled and encouraged to comment fully and publicly on any quality issues associated with their outputs, including on the limits of appropriate use of the statistics.

30. The four countries of the UK take very different lines on the issue of whether or not to publish attainment/performance data at school level and if so how. Wales and Northern Ireland do not publish attainment data at school level at all, while Scotland does so in a way that provides easy access to performance data for individual schools, but makes the generation of cross-school comparisons a complicated process. In England attainment tables are still published in a table format, and accompanying press releases often provide tables with selected rankings for the press to reproduce. In Scotland as well, newspapers continue to convert the school level data into league tables, and to publish the results, despite the adoption by the Scottish Executive of a format for release of these data that makes compilation of these tables a far from trivial task. The various groups involved are all taking different decisions about what statistics and style of presentation are in the public interest.

31. There do not appear to be any technical reasons at this moment that would explain why the four countries of the UK take such different approaches to the release of school level attainment data. Rather the reasons look to be matters of local policy. In Wales, school level performance data used to be released regularly, but these releases were withdrawn in the face of concerns about possible mis-interpretation. The Statistics Commission believes that considerations of this kind should not be allowed to impede the release of otherwise good quality data, assuming of course that there is a demand from users for it. So we support the recommendation of the Review that:

> "school performance data should be publicly available, but presented in a form that attempts to measure (as far as possible) the impact of the school on a range of outcomes, taking into account factors outside the school's control, together with indications of the uncertainty in these measures. This requires careful analysis and open debates about methodology, and the presentation of statistics in a way which is valid and accessible to all stakeholders. Decisions on these matters should be taken after the widest possible consultation with experts and other interested parties."

32. The Review also highlights the difficult balancing act faced by DfES and the devolved administrations between those who want data presented in an easy-to-use way that does not require significant statistical knowledge on the part of the user, and those whose main concerns are about simplistic interpretation by non-experts of statistics presented in an over-simplified way.

> "One of the tensions is between those who feel that the statistics computed from the data should be kept as simple and as unsophisticated as possible, in order to keep the information transparent to end-users, including the general public, who are unlikely to understand or appreciate complex measures. On the other side are those (including most academics, but also others in the field of education) who maintain that such simplified statistics can be misleading and invalid."

33. It is highly desirable to arrive at a consensus, from a statistical perspective, as to what constitutes best practice for release of school level attainment/performance data. In order to do this, the Commission proposes a consultation process across the four countries of the UK. The consultation should also seek to clarify whether there are any reasons why release practices for attainment/performance data should not be the same across the four countries of the UK.

Recommendation E

In the interests of users of statistics, including parents, a consistent approach should be taken across the UK to the publication of performance data for individual schools. The Statistics Commission believes that there should be a strong presumption in favour of making all such information readily available in an appropriate format. At present, practice differs considerably, with England and Scotland making information more readily available than Northern Ireland or Wales. We would suggest that the view of the National Statistician should be sought on this question – this would serve to acknowledge that this is an issue of UK-wide *statistical* policy rather than devolved *education* policy.

SCHOOL EDUCATION STATISTICS: USER PERSPECTIVES

PART 2

REVIEW OF SCHOOLS EDUCATION STATISTICS: REPORT TO THE STATISTICS COMMISSION BY NATIONAL FOUNDATION FOR EDUCATIONAL RESEARCH

Review of Schools Education Statistics

Final Report

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Contents

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In addition, the NFER Review team would like to thank Melissa Rice of the Statistics Commission and all other members of the review project board, for the invaluable advice and support they provided throughout the project.

Executive Summary

Introduction

The four countries of the UK publish a wide range of educational statistics in a variety of formats and for a number of different audiences. Despite an undoubted increase in the types and quantities of educational statistics collected and used in recent years, there have been few opportunities to look at how educational statistics are collected, presented and used in the four countries, and to examine what gaps there might be and how the use of data might be made more efficient. It was in this context that, in the summer of 2004, the Statistics Commission asked a team from the National Foundation for Educational Research (NFER) to carry out a review of the ways in which schools educational statistics (for those aged five to 18) are collected, presented and used across the four UK countries and the adequacy of the data for these purposes.

Overview

The way in which educational statistics are collected, presented and used is in the middle of a dramatic change in all four countries of the UK. This change involves a shift from manual collection of uncollated aggregate data which is presented in annual printed tables and interpreted relatively superficially, to electronic collection of matched individual-level data combined into 'data warehouses'. The data warehouses can be interrogated and modelled using sophisticated techniques and used for a range of purposes by different stakeholders to address current educational issues at a variety of levels. Tables will still be produced for users but these are based on more sophisticated underlying data than was previously the case. This change is at different stages in different countries for different types of data, but is being actively promoted by those responsible, especially within national education departments. It is within this context that this review should be read – many of the recommendations are in practice encouragements for progress to continue in this same direction, as it is clear that there is a commitment to this way of working with educational statistics. It should be noted that the quality of education statistics has improved dramatically in recent years, with data being increasingly available on the internet and a greater emphasis being placed on quality control and presentation.

In order to determine the uses to which educational statistics are put, it has been essential to consider the views of a wide range of different users, including policy makers, academics, media commentators, LEA staff, school managers, teachers, governors and parents. It has become clear that views vary across and between these groups and different users regard quite different issues as critical. However,

some key findings have emerged, which will be outlined below, and these are followed by a number of recommendations related to the present situation in educational statistics and how this should move forward.

Key findings

The key findings from this review are arranged over a number of thematic headings.

- **Uses and purposes.** The major uses that schools made of statistics included guiding self-evaluation, informing the school development plan and curriculum development, and informing a range of stakeholders (such as staff, governors and parents). The most commonly used statistics were attainment data, followed by value-added data, benchmarking information, information about similar schools and target-setting data. Statistics were mainly used by schools in relation to 'improving and recognising achievement'. Governors and parents reported only limited need for statistical information about their school, while local authority staff appeared to put a greater emphasis on the use of statistics for strategic planning and self-evaluation by schools. LEA staff felt that it was important to place the emphasis on the use of data for school improvement rather than to criticise. Key contacts stressed the need for the statistics produced to be more closely tailored to the uses to which they are put, and there were comments that the use of statistics by policy makers has improved over time although there were still instances where only those statistics which gave palatable messages were attended to.

- **Format and fitness for purpose.** It is clear that, broadly speaking, there is a great deal of professionalism in the collection, distribution and use of educational statistics across the UK. There are gaps in both topics and countries covered, but the overall picture is one of continuing improvement, especially in the assemblage of comprehensive datasets and the feedback of data to schools for self-evaluation and improvement. New initiatives (for example in England the 'New Relationship with Schools', Miliband, 2004) emphasise the use of data to drive school improvement – but only robust data, carefully interpreted and presented, is likely to do this. Over the course of the review, some respondents mentioned phrases such as 'manipulation of data' – if this becomes common parlance it is likely to undermine the basis on which statistics can be used to improve education. There is an onus on all those producing educational statistics to sign up to the highest possible standards in presenting statistics to avoid this danger.

- **Interpretation.** School performance information was one area where concerns were expressed by almost all categories of respondents about mis-interpretation of statistics, especially the interpretation of 'raw' results in terms of the quality of schooling. In some countries, new indicators to try to overcome this problem are being developed; in other countries the publication of school performance data has been reduced due to such issues. Software

for tracking individual pupil progress is being made available – issues about the interpretation of 'predictions' produced in this way were also raised. Several key contacts believed that data was not used sufficiently in policy development, and that expertise in interpreting statistics was not as strong as it could be. Data does not speak for itself – interpretation is the crucial element without which the best statistics are undermined and may even become counter-productive.

- **Training.** It was apparent through the interviews within case-study schools and from the school questionnaire that most school staff who dealt with data had received some form of statistical training, although this was primarily in the form of one-off courses in the use of computer packages. In the main, interviewees within case-study schools suggested that further training and support in the use of data would be of benefit. Just under 90 per cent of local authority officers surveyed reported that they offered training to support schools' use of statistical data. Improved training in the use of statistics was the most popular suggested improvement in the local authority involvement in statistics, as reported by school survey respondents. Key contacts also suggested that other education personnel, including school inspectors, local authority staff, individuals providing data within Education Departments, policy makers and media personnel responsible for interpreting and presenting data, required further training in the use of datasets.

- **Accessibility.** Headteachers and those responsible for data generally reported that they had access to the data that they needed, and in some cases more data than they needed. However, both the case-study and survey work found that access to data tended to be mainly confined to headteachers, SMT members and heads of department, while only a limited amount of educational statistics found their way to class teachers. There appears to be a 'hierarchy of use' within schools, with senior staff having most access to and use of statistics, followed by teaching staff, governors, support staff and parents. In terms of their own access to data, local authority officers reported that data is becoming increasingly easy to access. Among key contacts, there was a general feeling that more data than ever before was available, especially for England, but that access was sometimes 'patchy'. It seems to depend on the country, the dataset, the level of detail required, for whom you were doing the work, and your own personal contacts. There was a strong feeling from academic respondents that access could be simplified for bona fide researchers, and that there were sometimes problems getting access to pre-existing data.

- **Timing and timeliness.** The timing of requests for data from schools was reported to be satisfactory by the local authority officers interviewed. However, some school interviewees did not share this view. Schools found the timing of requests for data challenging, in that they have a lot of requests at the end of the school year, which may require very quick returns and consequently require

a lot of work for the school staff. School staff were very concerned about the lack of time available for them to interpret and use educational statistics. The joint most common suggestion for how use of statistics could be improved in schools was for sufficient time to analyse and use them. Timeliness was raised as a particular problem in terms of assessment data, which many felt schools require as soon as possible to inform teaching and learning in the new academic year. However, this data was often reported not to be available in a finalised format until a substantial way into the academic year.

- **School/local authority relations.** Relationships between schools and local authorities when working with data were reported to be positive by a large majority of local authority officers and school staff. In a number of cases these relationships were felt to have improved in recent years with the expansion of local authority teams to work with schools on the use of data. There were, however variations between countries and local authorities which reflected the individual circumstances in which each local authority was operating. An example of best practice in terms of the relations between schools and the local authority came from Scotland. There was a dedicated unit within the authority who are responsible for collecting and providing data to schools. A computer system operates across the whole authority to provide a linked database of school data; this enabled the authority staff to access data themselves without having to go via the school staff. School staff described data collection as 'painless'.

- **Coherence.** Interviewees said it was necessary that data be collected, distributed and interpreted in 'efficient and coherent ways'. Some key contacts appreciated that progress has been made in this direction, but other interviewees commented that there was still much to do and made reference to the need for 'joined-up-ness' in relation to the collection and presentation of educational statistics and their production and use. For example, a concern was raised about data for young people in education after the age of 16 – even where different datasets for schools and colleges were being combined there remained issues about compatibility. A 'one-stop-shop' or centrally stored school data facility was frequently suggested as a means to obtain coherent data for different purposes, with consistent definitions of key fields and avoiding unnecessary duplication in requests for data.

- **Comparability across countries and over time.** Several key contacts referred to the lack of comparability of data across countries. A number of aspects were mentioned, including: different definitions of data fields; a lack of easy access to or documentation about cross-country comparisons; and invalid conclusions drawn by those who do not understand the differences between the systems in different countries. One solution which was advocated to this perceived problem of cross-UK comparability was the use of international studies (PIRLS, TIMSS, PISA etc) to monitor performance across the UK, and also of course relative to other countries. Comparability of educational statistics

over time is a big issue for many academics and those trying to get the broad picture of how educational outcomes have changed over the years. It was suggested that when improved measures are produced, 'old' measures should continue to be reported in parallel with the new to allow comparability to be maintained.

Background

This review was part of the Statistics Commission's continuing programme of reviews covering all the main fields of statistics within the UK over a period of years. The focus in this review was on schools educational statistics; specifically those related to young people aged five to 18. Within this remit, the project had the following main aims:

1. To produce a comprehensive summary of all the officially-produced statistics which are currently available, or planned to be available shortly, with details of how they are compiled, their intended audience and the ways in which they are used or meant to be used.

2. To evaluate from a practical and methodological standpoint these statistics, assessing on the basis of experience and statistical expertise their fitness for purpose and any clear gaps or problems, including any inconsistencies between the four countries of the UK.

3. To survey and summarise the opinions of the users of educational statistics across the four countries, including key players in schools and LEAs, as well as academics and members of the general public, especially parents.

A further aim was to develop a set of recommendations for the future development of educational statistics in the UK, based on the evidence gathered and the widest possible consultation with interested parties (see below).

Methods

The methodology adopted for this review had five main elements:

- Statistical review and critique. At an early stage of the review, steps were taken to assemble a comprehensive list of relevant educational statistics available across the four countries (those that were readily accessible). This list was then put into the form of a database. Following the compilation of this overview, the NFER team produced a critique covering the main technical, methodological and wider educational issues which the team believed should be taken into account as part of the overall review.

- Collecting the views of experts/specialists. A number of key contacts across the UK were consulted about their views on the current state of educational statistics and possible recommendations for the future. Initially a long list of

109 suitable specialist contacts was drawn up. These individuals were contacted by email and, in total, 35 individuals responded. Using this set of respondents a shorter list was compiled, and a series of structured interviews was carried out (either face-to-face, or by telephone, as appropriate) with these contacts.

- Survey of LEAs. Although local authorities (LEAs in England and Wales, Education and Library Boards in Northern Ireland, and local authorities in Scotland), are not the only producers and users of school statistics, they clearly have a key role. For this reason, a questionnaire survey was mailed to a key contact in each local authority in each of the four countries. A total of 213 questionnaires were sent to: 154 LEAs in England; 22 Local Authorities in Wales; 32 Local Authorities in Scotland; five Education and Library Boards (ELBs) in Northern Ireland. 107 local authority questionnaires were returned (an overall response rate of 50 per cent): 69 from England; 11 from Wales; 26 from Scotland; and 1 from Northern Ireland.

- Survey of school staff. A questionnaire survey of a representative sample of school staff was also conducted. A total of 1,000 questionnaires were sent out, with the following distribution:

England	200 secondary schools	200 primary schools
Wales	100 secondary schools	100 primary schools
Scotland	100 secondary schools	100 primary schools
Northern Ireland	100 secondary schools	100 primary schools

A total of 405 school questionnaires were returned, with an even distribution between primary and secondary school respondents (51 per cent and 49 per cent, respectively). The response rates for each of the four countries were as follows: England (39 per cent); Wales (44 per cent); Scotland (41 per cent); Northern Ireland (39 per cent).

- Case-study visits to LEAs and schools. In order to obtain supplementary qualitative data, including examples of perceptions and needs in the area of educational statistics, five detailed area-based case studies were carried out. Each case study included the local authority and two schools (one primary, one secondary) within that authority:

England	2 LEAs	2 secondary schools	2 primary schools
Wales	1 LEA	1 secondary school	1 primary school
Scotland	1 Authority	1 secondary school	1 primary school
N. Ireland	1 ELB	1 secondary school	1 primary school

In total, across the five case-study areas, 44 individuals were interviewed. Each case study included an interview with a local authority officer (with a remit for data

collection and use) and, wherever possible, the following staff at each of the schools visited:

- one school senior manager (headteacher or deputy headteacher)
- the person in the school with primary responsibility for data
- one member of school staff with little statistical experience
- a school governor/school board member
- a small group of parents.

This case-study approach had the advantage of enabling the research team to build up a detailed, up-to-date picture of how school statistics are perceived and used 'on the ground' at school level.

Main recommendations

Once the review was completed, the authors put together a number of recommendations for consideration by statistics collectors and users in all four UK countries. These were divided into four main recommendations, which were mainly to do with broader, systemic aspects of the uses of educational statistics, and a number of additional recommendations, which tended to be more specific and concerned particular aspects of using such statistics.

Move towards a coherent, 'uses-driven' system for educational data

The uses to which educational statistics are or could be put should become paramount. Main users include schools and local authorities (to inform self-evaluation and improve teaching and learning); policy-makers (to evaluate the effects of policy initiatives and give input to policy development); and academics (to gain longer-term understanding of the educational system, which can also feed into policy). Other users could include parents, who have an interest in the progress of their children and whether this is as good as could be expected.

In most cases these uses are better met by a comprehensive 'data warehouse' system linked to careful and detailed analysis, rather than through the collection of regular tabulated statistics which are not necessarily focused on uses. It should be noted, however, that this move cannot be successful without high-quality analysis applied to the data – data does not speak for itself, and has to be carefully interpreted so that it can be used for this variety of purposes. More statisticians should be in place at key points in the system and greater access to data for researchers who would add value to it through detailed analysis or matching to other datasets should be encouraged.

Monitoring national performance

There seems to be some evidence to suggest that using 'high-stakes' national tests, is not ideal but may be the best means of measuring educational improvement that we have available at present. It should be noted that national tests are in place to fulfil a number of purposes, of which national performance monitoring is just one. The use of international studies goes some way to addressing the need for further monitoring of this sort, and can give comparisons across the UK as well as internationally. The disadvantages are that the timing, age groups and subjects tested are not within the UK's sole control, and that the issue of persuading schools to take part remains. The NFER review team recommends that government studies of these issues be set up, in order to determine the best and most cost-effective way forward in the area of national performance monitoring.

School performance data

The production of school-level statistics has two main functions, which can be labelled as accountability and school improvement. It is clear that schools have sometimes experienced tensions between these two functions: should data be used primarily for the purpose of *external* accountability, such as preparing for an inspection, or should it be used for *internal* purposes of school development. These two functions overlap, but are not always the same. We recommend that school performance data should be publicly available, but presented in a form that attempts to measure (as far as possible) the impact of the school on a range of outcomes, taking into account factors outside the school's control, together with indications of the uncertainty in these measures. The use of performance data for school improvement is also important, although more research is needed (see below) into whether and how it leads to such improvement. Governments should set up a cross-country body or team to study these developments, advise on best practice in this area, and coordinate developments. Measures other than attainment (such as attendance and pupil attitudes) should be considered, in order to give a more detailed picture to schools of their strengths and weaknesses.

Interpretation of statistics

It seems clear that the wealth of educational data available has increased faster than the system's overall ability to interpret it. On the other hand, many in schools are increasingly coming to grips with data and finding that their skills in interpreting it are growing. Skill development, however, is patchy and seems to depend on local initiatives, mainly organised through the local authority. It seems that there is a need for a more coherent approach to helping school staff to understand statistics and use them effectively, and that this should be coordinated more centrally. This approach should consider the needs of all school staff, not just those of school managers. One possibility would be for the development of some kind of national qualification or training programme to develop such skills. More training for governors would also be useful. With regard to interpretation of statistics (and educational

research in general), we believe there is an onus on statisticians and researchers to present their findings in ways which are valid and accessible, but at the same time there should be high levels of statistical and research understanding for those developing policy. It would be beneficial to establish regular forums where the two sides could come together and share ideas.

Additional recommendations

1. Educational performance indicators should not be based on 'threshold' measures (ie whether or not a particular level of attainment is reached) unless they represent a real 'step-change' or binary divide (eg absence from school).

2. Consideration should be given to producing school performance indicators based on several years' data, to reduce their sensitivity to one 'anomalous' cohort.

3. Financial data related to schools should be improved in terms of coherence, consistency, accessibility and documentation.

4. Standards should be set up for the interpretation and use of pupil-level data, to avoid the danger of 'labelling' young people and ignoring the uncertainty in projections of individuals' future attainment.

5. Data related to post-16 education needs to be integrated, with inconsistencies between data collected for those at schools and at colleges removed.

6. The timing of the release of national data to LEAs and schools should be reconsidered. Although quality assurance takes time, it may be that effective use can be made of data which is of less than final quality if it is provided earlier.

7. Government should encourage LEAs and schools to move towards electronic systems of data capture and sharing, but support should be provided to school staff to overcome problems which may arise with the ICT.

8. The collection of attendance data should be improved, with data provided at the pupil level and collected termly. The distinction between 'authorised' and 'unauthorised' absence should be clarified and made consistent between schools.

9. Wales and Northern Ireland should reconsider the publication of school performance data, in the form of 'contextualised value-added' rather than 'raw league tables', in order to foster public accountability.

10. Legal and other difficulties in the way of bona fide researchers receiving access to national data should be resolved. The principle that data is collected once and used many times should take precedence, subject to suitable safeguards to protect confidentiality.

11. The 'assessment for learning' movement should be supported, and the formative use of assessment data should be encouraged through, for example, the development of tools such as PAT for tests other than those directly related to the national curriculum.

12. When the basis on which statistics are computed changes, consideration should be given to publishing both old and new versions in parallel for a period, to assist with maintaining information on changes over time.

13. More research is needed into whether providing detailed statistical information to schools does actually help to raise attainment. If this is the case, research should identify the mechanisms by which this happens.

14. More research should be carried out into the best formats for presenting data to school staff for use in self-evaluation and improvement. Clear guidelines could be issued based on such research.

15. In England, with the advent of the 'New Relationship with Schools', the School Improvement Partners need to be given the necessary training in understanding and interpreting statistics to fulfil their role effectively.

Conclusions

This review of educational statistics relating to the five to 18 age group across England, Northern Ireland, Scotland and Wales, has shown that this is a large and complex field. The use of such statistics, in many respects, has increased dramatically and greater numbers of individuals and organisations now use these statistics for one purpose or another. This is all the more reason for careful examination of how the collection and use of educational statistics could be rationalised and improved. This review has been based closely on the views of key contacts, local authority officers, school managers, teachers, governors and parents, as well as on the experience of the NFER research team in using and interpreting statistics of this sort. It is to be hoped that at least some of the recommendations set out above will provide helpful starting points for further discussion on the best ways to take the uses of educational statistics forward.

1 Introduction

1.1 Background

The four countries of the UK publish a wide range of educational statistics in a variety of formats and for a number of different audiences. Despite an undoubted increase in the types and quantities of educational statistics collected and used in recent years, there have been few opportunities to look at the whole picture across the UK: to take stock of how educational statistics are collected, presented and used in the four countries and to examine what gaps there might be and how the use of school statistics might be made more efficient. It was in this context that, in the summer of 2004, the Statistics Commission asked a team from the National Foundation for Educational Research (NFER) to carry out a review of the ways in which educational statistics are collected, presented and used across the four UK countries.

This report presents the findings from this review. The NFER team obtained a wide range of perspectives on the uses of educational statistics through the use of a documentary database, an email survey and interviews with key contacts, a detailed questionnaire survey issued to schools and local authorities and fieldwork interviews in schools and local authorities in each of the four countries. (Chapter 2 provides further details of the methodologies used for the review.)

Before looking at the detailed findings from the review, it is useful to have an overview of the main characteristics, forms and uses of educational statistics in each of England, Wales, Northern Ireland and Scotland. Broadly speaking, it is probably true that England has the most diverse range of school-related educational statistics available, including the following:

- school performance data, published by DfES, for aggregated outcome measures at key stages 2–4, with a 'value added' indicators recently added for all key stages. School and college achievement and attainment post-16.
- other school-level data, including a range of indicators of background factors and information about school types
- school-level information on exclusions and absence rates, both authorised and unauthorised
- National Pupil Database (NPD) with records of attainment in national curriculum testing and GCSE/GNVQ (or equivalent) for virtually every pupil, linked back to prior attainment at earlier key stages and pupil background data derived from the Pupil-Level Annual Schools Census (PLASC)

- school inspection reports and numerical rating scales published by the Office for Standards in Education (Ofsted)
- statistical information published by Ofsted, derived from some of the above sources, summarising school performance in comparison with benchmarks (under various titles such as PANDAs)
- information on national performance in tests, including optional tests taken in intermediate years between national curriculum testing
- various statistical tools to enable schools to assess their pupils' performance against expected standards, such as the Autumn Package[1] and the Pupil Attainment Tracker (PAT)
- reports published by DfES on England's performance on a range of international studies, such as TIMSS (Trends in Mathematics and Science Study), PIRLS (Progress in International Reading Literacy Study) and PISA (Programme for International Student Assessment).

In England there has been recent evidence of the government's determination to make the use of data one of the central planks of its '*New Relationship with Schools*' (see Miliband, 2004 and DfES, 2005). There is thus a rapidly changing and dynamic environment in England for the discussion of educational data and how it is used effectively to meet government policy targets. School profiles are about to be introduced, the aim of these is to give a rounded picture of each school based partly on data and partly on the schools narrative account.

In Wales, the National Assembly for Wales uses a similar pattern to that used in England and publishes two series of annual statistics. The first presents statistics based on returns by all schools in Wales, including numbers of pupils, teachers, primary and secondary schools, teacher placements, records of achievement and work experience, special educational needs, meal provision, attendance and exclusions. The second series includes figures relating to examination results and National Curriculum assessment results at key stages 1, 2 and 3, together with GCSE and vocational equivalent results, A-level and vocational equivalent results and a 'Comparison with England' section. However, national testing at key stages 1–3 is being phased out in Wales. The National Assembly publish regular Statistical Releases and Bulletins, which are produced by the Statistical Directorate. The Welsh Assembly recently distributed analyses produced by the Fischer Family Trust to all secondary schools. Many of the examples listed above for England have equivalents in Wales, for example, the introduction of PLASC and work is currently underway to develop a contextual value added package for schools. The 'Information Management Strategy for Schools, LEAs and Post 16 Providers' that applies in Wales is broadly similar in its aims to the New Relationship with Schools in England,

[1] Now subsumed into the Pupil Achievement Tracker.

for example it aims to raise standards, reduce bureaucracy and use resources efficiently and effectively.

In Northern Ireland, there is considerably less information about education statistics and it is more difficult to find. National Statistics are reviewed every five years and the most recent review has thrown up issues around gaps in coverage and difficulties in accessing metadata. Each year the Northern Ireland Statistics and Research Agency releases for the Department of Education a range of education statistics, concerned with education structures and the school sector, such as:

- Enrolments at Grant-Aided Primary and Post-Primary Schools
- Participation in full-time Education by 16 and 17 year-olds in Northern Ireland
- Teacher Ratios in Grant-Aided Schools in Northern Ireland
- Qualifications and Destinations of Northern Ireland School Leavers
- Enrolments at schools and in funded pre-school education in Northern Ireland
- Children in funded pre-school education and enrolments at special, hospital and independent schools: Basic Statistics.

The data available in Scotland is similar to that in England, but there are, as is inevitable in a distinct system, differences in definitions, emphasis and aims. Thus, the pupil-level census takes place in September in Scotland, rather than in January as in England. Performance data is available for each secondary school in terms of examination performance, attendance and post-school destination. School-level data includes information on free school meals, ethnic diversity and other background information.

A recent innovation is the ScotXed individualised pupil dataset, which enables the exchange of pupil level data between the key stakeholders (schools, Local Authorities and the Scottish Executive) in Scottish Education. ScotXed holds pupil level data (such as background characteristics, attendance and absence) and these are used (together with attainment data from the SQA) to produce a range of analyses at various levels, such as course, school, Local Authority and national level[2]. There are plans to develop a Unique Pupil ID that will allow data on individual pupils to be monitored throughout their school career, including movement between schools etc. Inspection reports for each school are available on line and results from international studies such as TIMSS and PISA are available for Scotland.

In addition to country specific documents, there are also publications that include statistics for the whole of the UK; in particular the document 'Education and Training Statistics for the United Kingdom' that is published annually.

[2] Details on ScotXed can be found at: www.scotxed.net

It is clear from the above brief overview of the educational statistics produced within each of the four countries of the UK that there is a great deal of common ground, but also a substantial amount of diversity. It can be argued that the diversity is appropriate and reflects the different political and social environments of the four countries and their varying histories; on the other hand, those whose task it is to compare statistics across the UK or compile UK-wide returns for international bodies would probably argue that more commonality would be beneficial.

1.2 Aims of the evaluation

This review is part of the Statistics Commission's continuing programme of reviews covering all the main fields of statistics within the UK over a period of years. The focus is on educational statistics; specifically those related to young people aged five to 18, with the main emphasis being on school statistics. Within this remit, the project had the following main aims:

1. to produce a comprehensive summary of all the officially-produced statistics which are currently available, or planned to be available shortly, with details of how they are compiled, their intended audience and the ways in which they are used or meant to be used

2. to evaluate from a practical and methodological standpoint these statistics, assessing on the basis of experience and statistical expertise their fitness for purpose and any clear gaps or problems, including any inconsistencies between the four countries of the UK

3. to survey and summarise the opinions of the users of educational statistics across the four countries, including key players in schools and LEAs, as well as academics and members of the general public, especially parents.

A further aim has been to develop a set of recommendations for the future development of educational statistics in the UK, based on the evidence gathered and the widest possible consultation with interested parties and these are presented in the final chapter of this report.

1.3 Key issues

The main chapters of this report are organised around the key issues which emerged from the review (see Section 1.4). The research team were aware that, in investigating a subject of this complexity, there are a number of challenges and difficulties that need to be borne in mind. Four of the main sets of issues which had to be considered from the outset of the review were as follows:

1. **technical issues**, such as the existence of differing views among experts concerning the production and presentation of educational statistics

2. the existence of a large **variety of different 'users' of educational statistics** with diverse skill levels, desired outcomes and 'needs'

3. the existence of a **variety of educational contexts** for the use of educational statistics – not just the four national educational systems, but also the different sectors of education: primary schools, secondary schools and so on

4. the existence of **different perceptions of educational statistics**.

Technical issues. Some of the technical debates about educational statistics can be briefly summarised as follows:

- **unit of analysis:** is the main unit of interest the pupil, the school, the LEA or something else (for example, the subject department)?
- **ownership:** is the main owner of the data centralised government, or should ownership be distributed amongst the schools and other providers who should have a veto on how their data is used?
- **accountability or self-evaluation:** is the main purpose of the collection and presentation of data to hold schools and others to account for their performance, or to inform them for purposes of self-evaluation and self-improvement?
- **complexity or simplicity:** How complex or simple should the methods of analysis be?

Different users. With respect to the different users of educational statistics and their various skill levels and needs, it may be helpful to map out possible different levels of users of school statistics:

- national government, policy makers, programme leaders, inspection bodies
- the research and academic community
- local government (and official bodies): local authorities, library boards
- schools: senior managers, teachers, administrative staff
- schools: governors, parents, students
- general public, the media, employers and training providers.

Each group is going to have different needs and requirements regarding school statistics. For instance, parents will use education statistics to make judgments about the quality of schools, while policy makers will use education statistics largely as evidence in making predictions, supporting political decisions, promoting and evaluating initiatives and allocating resources. For researchers, detailed methodological issues (societal effect versus school effect, school-level or pupil-level information, aggregated or individually matched data, which type of value added?)

may be paramount; while for many teachers and parents the format and presentation of statistics (tables, bar charts, predicted grades, actual grades) and their implications for individual children, may be of primary importance.

Various educational contexts. The third main research issue concerns the importance and influence of various educational contexts for the use of educational statistics, including the distinctive national educational systems of the four countries and the different sectors of education, within each country. Whilst there are some common factors across the four countries, there are also some important differences, reflecting the different names of the qualifications offered in the country's schools, different curriculum emphases, different testing and examination regimes and historically different approaches to using and presenting school statistics. There is also the issue of additional national languages, in particular consideration of the medium of Welsh. Such considerations apply to a lesser extent in Northern Ireland (which has around 20 schools where the sole medium of instruction is Irish) and Scotland. Furthermore, the nature of the user groups and their requirements may vary according to involvement in a sector of education: primary school teachers may use statistics in different ways to secondary school teachers, for example. The review focused on school statistics and as a result, issues relating to colleges' work-based learning are not covered in depth.

Perceptions of educational statistics. The fourth issue centres on the different perceptions of educational statistics of a number of different user groups. Some users might be very experienced at using such statistics, with well-developed, clear views on this topic, but others, notably parents and 'non-statistical' teachers, may not have had much chance to reflect on their uses and requirements of educational statistics. As far as possible, the research instruments and the language and wording used within them, were designed so as to be appropriate to each of the respondent groups involved.

1.4 Definitions

Some important semantic and philosophical points need to be made, related to the words 'data' and 'statistics'. Strictly speaking, **data** is elemental raw information prior to any analysis or statistical modelling; **statistics** are numerical constructs created according to specific algorithms from the data and intended to give insights into underlying features of the data or of reality itself. However, within education there is a widespread tendency to use the word 'data' to refer to any numerical information, whether raw data or processed statistics. Educationalists have spoken of 'using **data** to raise attainment' when they mean 'using **statistics** to raise attainment'. Although this review has as its remit educational statistics, throughout this report we have colluded in the interchangeable use of the two terms.

It is not strictly within the remit of this review to comment on the creation of raw data, except insofar as this impacts on the availability or quality of statistics derived from it. However, when what appears to be raw data is used or interpreted to give

insights into underlying processes or for predicting future events, then we believe it falls within our remit as being used statistically. For example, a pupil's raw test score is a piece of data; but if it is used, based on models derived from national datasets, to produce predictions of that pupil's future attainment, then this a statistical process and should be judged accordingly. Another example is the publication of schools' examination results (eg percentage of pupils achieving five or more 'good' GCSEs). If this is treated purely as a matter of record, to be noted but with no implications about the quality of the school or its pupils then this would count as data. But as soon as this data is interpreted as giving insights into the underlying performance of the school (as is generally the case with published performance data), then this falls into the realm of statistics and should be treated as such, with elements such as confidence intervals for making such judgements included.

The review covers all four countries in the UK. The educational process and terminology used varies between the countries. For example, the role of governors in England, Wales and Northern Ireland is different to those of school board members in Scotland. Alternatively, Ofsted in England carries out a similar role to HM Inspectorate of Education (HMIE) in Scotland but they use different titles. For ease of understanding we have attempted to use generic terms to cover similar features of the educational systems in the different countries, so we use the term Local Authority to describe all of the following: Local Authorities (in Scotland), Local Educational Authorities (in Wales and England) and Education Library Boards (in Northern Ireland). Because of this, we must apologise in advance for not using the correct terminology in all cases.

1.5 Structure of the report

The authors of this report, drawn from a range of NFER departments, including the Statistics Research and Analysis Group and two of the main research departments, have attempted, as far as possible, to present a succinct and clear picture of the main issues relating to the uses of educational statistics in the UK. Following this introductory chapter there is an account of the methodologies used to obtain the views of the various compilers and users of school statistics. Each of the subsequent chapters takes a key issue that emerged from the review and explores this in some detail, drawing from the appropriate sources of data. A final chapter summarises the main findings of the review and presents some preliminary recommendations based upon these findings.

We have attempted to discuss general points of interests rather than focusing wholly on country specific findings. In examining the perceptions of users there will inevitably be situations where their perceptions and experiences do not match those of others. Equally, the perceptions of users may not always reflect actual practice. However we feel that it is important for users, producers and governments to be aware of how educational statistics are perceived by others, particularly if misconceptions are held.

2 Methodology

The methodology adopted for this review had five main elements:

- statistical review and critique
- collecting the views of experts/specialists
- survey of LEAs
- survey of school staff
- case-study visits to LEAs and schools.

Using this combination of five elements enabled the research team to examine issues related to educational statistics from a range of perspectives. Subsequent sections of this chapter provide more information on these five methodological approaches.

2.1 Statistical review and critique

At an early stage of the review, steps were taken to assemble a comprehensive list of the relevant educational statistics available across the four countries (those that were readily accessible). This list was put into the form of a database, setting out for each item the following information:

- country
- organisation producing the statistics
- frequency of production
- level of aggregation
- main area addressed (eg performance, background data, staff, attendance)
- main purpose
- intended users
- details of production, format.

Discussion of the database and the availability of various forms of statistics across the four UK countries can be found in the first section of Appendix 1. The databases are presented in Appendices 7-10 (available from the NFER website www.nfer.ac.uk).

Following the compilation of this overview of the various forms of statistics available across the four countries, the NFER team produced a critique covering the main

technical, methodological and wider educational issues which the team believed should be taken into account as part of the overall review. In addition to rating existing statistical sources, this critique also looked at consistency and coverage across the four countries and identified gaps in the available statistics. The comments offered in this critique are based largely on the extensive experience of the Statistics Research and Analysis Group (SRAG) in analysing and interpreting educational statistics at the NFER.

2.2 Collecting the views of experts/specialists

A number of key contacts across the UK were consulted about their views on the current state of educational statistics and possible recommendations for the future. A list of specialists was drawn up using the NFER team's contacts (for example, through membership of the DfES Value Added Methodology Advisory Group and the GTC National Forum on School Accountability) or from knowledge of work in the area. In addition to academics, the team made efforts to consult specialists within each of the country's education departments who had responsibility for generating the relevant statistics.

Initially a long list of 109 suitable contacts was drawn up. These individuals were contacted by email, with a small set of general questions being asked to which they were invited to respond. In total 35 individuals responded (Appendix 2 summarises these responses). Using this set of respondents a shorter list was compiled and a series of structured interviews was carried out (either face-to-face, or by telephone, as appropriate) with these contacts (findings from these interviews are summarised in Appendix 3).

2.3 Survey of LEAs

Although local authorities (LEAs in England and Wales, Education and Library Boards in Northern Ireland and local authorities in Scotland), are not the only producers and users of school statistics, they clearly have a key role. In particular, they have responsibilities for school standards and school improvement and will often assist school managers, governors, teachers and parents with the use and interpretation of education statistics. For these reasons, a questionnaire survey was mailed to a key contact in each local authority in each of the four countries. A total of 213 questionnaires were sent to:

- 154 LEAs in England
- 22 Local Authorities in Wales
- 32 Local Authorities in Scotland
- 5 Education and Library Boards (ELBs) in Northern Ireland.

A total of 107 local authority questionnaires were returned (an overall response rate of 50 per cent): 69 from England, 11 from Wales, 26 from Scotland and 1 from Northern Ireland. (See Appendix 4 for details).

One questionnaire format was used for all four countries, though there was also a 'customised' question, designed to address issues linked with the individual country's use of school statistics. A bilingual questionnaire was provided for Wales, giving respondents the opportunity of completing it in Welsh or English.

Most questions were closed in nature, for ease of analysis, but there was also room for some open responses, to enable local authority respondents to make more extended comments about school statistics.

2.4 Survey of school staff

The ways in which school staff collect, present and use statistics are also key to a review of this sort. Therefore a questionnaire survey of a representative sample of school staff was conducted. Primary and secondary schools received equal coverage and a request was made for 'the most relevant person' in the school to complete the questionnaire. A total of 1,000 questionnaires were sent out, with the following distribution:

England	200 secondary schools	200 primary schools
Wales	100 secondary schools	100 primary schools
Scotland	100 secondary schools	100 primary schools
Northern Ireland	100 secondary schools	100 primary schools

Within each country, stratified samples of schools were drawn based on information held on NFER's Schools Database. Stratification included factors such as size, type of school, school context (for example, percentage eligible for free school meals) and school performance measures.

A total of 405 school questionnaires were returned, with an even distribution between primary and secondary school respondents (51 per cent and 49 per cent, respectively) and male and female respondents (53 per cent and 47 per cent of returns, respectively). The numbers of questionnaires returned from each of the four countries were as follows (see Appendix 5 for details):

England	157 returns	(response rate: 39 per cent)
Wales	89 returns	(response rate: 44 per cent)
Scotland	82 returns	(response rate: 41 per cent)
Northern Ireland	77 returns	(response rate: 39 per cent)

For economy and efficiency, the questionnaires were the same for each of the four countries. Having the same questions for all school staff enabled more direct comparisons to be made between the countries. An open-ended question allowed

school respondents to elaborate on any country-specific issues. A bilingual questionnaire was provided for Wales.

2.5 Case-study visits

The use of the various methodological elements described above produced much useful quantitative data about the uses and perceptions of school statistics. However, especially since the review was required to cover user perceptions and needs in this area, it was also important to include qualitative techniques which enabled the research team to obtain much more detailed comments about school statistics. On this basis, five detailed area-based case studies were carried out. Each case study included the local authority and two schools (one primary, one secondary) within that authority:

England	2 LEAs	2 secondary schools	2 primary schools
Wales	1 LEA	1 secondary school	1 primary school
Scotland	1 Authority	1 secondary school	1 primary school
N. Ireland	1 ELB	1 secondary school	1 primary school

It is important to note that the case-study local authorities were not necessarily typical of the entire country and that opinions expressed in the schools visited were not necessarily representative of the whole authority. Each case study included an interview with a local authority officer (with a remit for data collection and use) and, wherever possible, the following staff at each of the schools visited:

- one school senior manager (headteacher or deputy headteacher)
- the person in the school with primary responsibility for data
- one member of school staff with little statistical experience
- a school governor/school board member
- where possible, a small group of parents.

In total, across the five case-study areas, 44 individuals were interviewed. Five of these were local authority officers, 25 were school staff (of whom 11 were headteachers or deputy heads), eight were parents and six were governors. (Appendix 6 contains copies of the interview schedules used).

This case-study approach had the advantage of enabling the research team to build up a detailed, up-to-date picture of how school statistics are perceived and used 'on the ground' at school level. The qualitative interview data, as several of the subsequent chapters show, was complementary to the quantitative data collected from the local authority and school surveys. Triangulation[3] of both data sources and

[3] The use of multiple sources or methods.

data techniques ensured that the research approach was robust and that the findings would have greater validity.

The review's findings, therefore, were obtained from a variety of data sources. Subsequent chapters draw upon all of these sources in order to examine the key issues that emerged, commencing with consideration of the variety of uses for educational statistics.

3 Uses and purposes

This chapter examines the uses and purposes that different user groups have for educational statistics. The data highlights the strong emphasis on attainment measures and the wide variety of uses and purposes that educational statistics have for different users, which raises the question of which users' needs should take priority in cases where data cannot address all the needs.

3.1 Schools

What educational statistics are used?

Assessment data was the main type of data that both case-study school staff and those completing the questionnaire mentioned using (this was followed by attendance data). Many schools noted that they administered their own tests such as CATS or MIDYIS in addition to national assessment measures.

The questionnaire asked schools to list the three main statistical documents that their school uses. The range of data sources that schools reported using suggest that many of the officially-produced documents (as listed in the database) are not seen as key statistical documents by schools. The five most commonly used data sources for primary schools were: key stage results/5–14 assessment results, autumn package/PANDA (England only), attendance, budgetary data and benchmarking data (see Table A6.5 in Appendix 5). The five most commonly used data sources for secondary schools were: GCSE/A-level outcome (or equivalent); CATs, attendance, autumn package/PANDA (England only) and key stage results/5–14 assessment results (see Table A6.6).

Why are statistics used?

Assessment data was generally said to be used in relation to 'improving and recognising achievement'. This was done through tracking pupils, benchmarking performance, target setting, predicting future performance, monitoring progress and identifying support needs.

The school questionnaire respondents were asked three questions with regard to each type of data/information they received from their local authority: these related to (1) accessibility; (2) level of understanding and (3) usefulness [Q.9]. Responses regarding the usefulness of data give a helpful indication of what information schools really need. The table below summarises the percentage of cases/schools which said that this type of data was either 'useful' or 'very useful'. (A full breakdown by country and school phase can be found in the appendices, see Tables A6.8 and A6.9.)

Table 3.1 Usefulness of local authority data

	%
Prior attainment data	90
Value-added data	88
Benchmarking information	86
Examination data: boys/girls	83
Similar schools/families of schools	83
Target setting data	81
Predicted examination grades	81
Budgetary data	77
Examination data by ethnic group	76
N=405	

Source: *NFER Survey of Schools, 2004. A single response question*.

Sometimes assessment data was used at the **pupil level** to assess individual progress, for example by identifying underachievement. Schools often used a variety of data sources to build up a picture of each child's achievement and potential, as the following example illustrates:

> *At the end of Y7, when the children are settled, we look back at their progress and then put them into sets. We test them 4 times a year, so we use that data and we also refer to their key stage 2 SATs results when setting them.*
>
> (England, Secondary, teacher with little experience)

Some interviewees stressed that the statistics allowed them to view pupils' performance and progress in a more 'objective' way. However, there were those who disagreed: 'statistics don't always reflect the truth in that they are based on SATS results so are not as accurate as someone's opinion. It is just an exam, just a number, especially key stage 1' (England, Primary, teacher with little experience).

Data was also used at a **cohort level** to provide overviews for SMT or Heads of Department, for example by comparing the performance of different departments or making comparisons with other schools or year groups. This was said to allow schools to identify 'areas for development in their departments'. The person responsible for statistics in the NI secondary school thought that data was more useful at this level, than at the pupil level.

In another question within the school questionnaire, respondents were asked how they used the data they received from their local authority. It was evident that the vast majority of schools use local authority data for a range of different purposes. (A full breakdown by country and school phase can be found in the appendices, see Tables A6.10 and A6.11.)

Table 3.2 How the school uses local authority data

	%
To guide school self-evaluation	90
To inform the school development plan	89
To guide curriculum development	79
To provide information for governors	76
To produce reports for staff	68
To provide information for parents	66
To provide information for investors	5
Other	8
None ticked	4
N=405	

Source: *NFER Survey of Schools, 2004. A multiple-response question*.

In the case-study schools, there were some mentions of data being used to benefit **teachers,** primarily in relation to developing teaching and learning, targeting staff development and monitoring teachers. 'I see the data from the CATs tests in year 4 and I use that information to inform my differentiation… It helps to inform my day to day work' (Wales, Primary, teacher with little experience).

One of these purposes of using additional performance tests is to know pupils' strengths and weaknesses so that teaching can be better focused – this can be related to the 'assessment for learning' movement (see Assessment Reform Group, 2002; Black *et al,.* 2004). But data did not appear to be used by class teachers in an extensive or systematic way and there was sometimes uncertainty from senior management about the extent to which data was being used to inform teaching and learning. (This issue is also considered in Chapter 7 on accessibility).

In addition, data was also used to support requests for funding and in writing the **school development plan**. For example, 'we also use the tests results to inform the school development plan if there was an area in which pupils were underperforming and so it may then go into the plan' [Northern Ireland, Primary, person responsible for school statistics]. However, one primary headteacher in England explained that they did not use statistics to determine priorities within the school, instead *'*resources are usually targeted on the basis of people asking for them. We don't have enough to start planning how to use them strategically'.

In terms of why data was **collected from the school**, there was some uncertainty on this, particularly from the English local authorities. Some interviewees were unsure that all of the data that was collected was actually used, in particular the administrators who did much of the data entry were often not aware why all the data was collected; it may be that they need to feel more involved in the process. Those responsible for dealing with data were generally aware of why it was being collected and mentioned the following reasons: for target setting and tracking by the local

authority/Department for Education, it is a statutory requirement, to give to feeder schools, to monitor places, to monitor budgets. Only one interviewee referred to the purpose of data collection in a negative way and she recognised that ultimately the aim was to raise standards and attainment: 'They collect it to use it as a kind of whip, as I believe they do in England. Unfortunately it sets schools against each other, but it is a valid thing to want to do, to keep schools on their toes' (Scotland, Primary, SMT).

3.2 Parents

Data was also used by the case-study schools to provide information for prospective and future parents. Generally, **existing parents** only received school level data in the annual report and some data on their child termly or annually. There was a strong feeling from school staff that once a child was at the school, parents were only really interested in how their own child was progressing and even then statistics were not always the best way to provide this information. 'Parents are not interested in statistics, all parents want is for their children to be happy and it may be 1 out of 10 who may work in education who may be interested in the statistics' (Wales, Primary, headteacher).

Parents tended to agree with the perception of staff in saying that it was good to know how their child was progressing and out of interest they wanted to see how the school was doing, but in general they put limited value on educational statistics.

A primary governor in England was unhappy with the manner in which governors were legally required to present information to parents in the governors' annual report, in that this did not fulfil any useful purpose as it was not understandable or user friendly. 'Without instructions on how to read [the data] I don't think the average parent would be able to make sense of them.'

In one school a great deal of information was given to current parents:

> *I was asked to produce interim reports to fill the gap between annual reports… We have target grades and actual levels the pupils are working at as well as attitude rated on 1, 2 and 3. These are communicated to the pupils and parents. This is done 3 times a year … It is useful when discussing with the parents.*
>
> (Northern Ireland, Secondary, person responsible for school statistics).

The parents at this school did appreciate this information and noted that it was useful to see 'what grade they are working at and what grade the school thinks that they are capable of. It also shows the effort and attitude'. Another said that 'they are good indicators to us as parents as to how our children are doing'.

Many school staff referred to **prospective parents** using educational statistics to choose a school; however most parents said that statistics were of limited value for this and that instead they used word-of-mouth or visits to the schools.

> *I'm not a big fan of statistics, I will read them but I don't think they provide a true picture. There is a need for them but they are not the be all and end all. In choosing a school I might look at the statistics but I would rather go and look round the school. Statistics give an average perception, so doesn't show them in the best light.*
>
> ([England, primary, parent).

Also, a small number of parents felt that in reality they had only limited choice of schools and so statistics were not that helpful.

3.3 Governors

The case-study work found that the main purpose of providing statistics for governors was seen as to give them an overview of the school's performance, for example, as a guideline for how the school compared with others, or to help predict how a cohort will do. There were very few references to educational statistics influencing decisions and some governors said that they tended not to use the data they were given. One primary teacher in Northern Ireland thought that there were 'no real apparent benefits' for governors of receiving data. The headteacher at this school explained that the governors relied on him to guide them through the statistics.

The main exception to the perception that data was of little benefit to governors was the Northern Ireland secondary school that provided detailed interim reports for parents – they also provided very detailed information to governors as well, based on key stage 2 teacher assessments, year 7 standardised tests, attendance and illness and updates from heads of departments. The governor we interviewed at this school found using such information very beneficial and felt that they were able to 'identify improvements that may be needed' as a result.

3.4 Local authorities

What educational statistics are used?

Almost all respondents put the Department of Education (or its equivalent) as the main or second provider, followed by local schools. Whilst schools rarely referred to using the many official statistical documents that appeared in our database, it may be that local authorities are more likely to be using this data than schools. Almost all of the local authorities that responded to the questionnaires reported that they

received national curriculum test results, most received school attendance figures and/or school performance tables[4] (see Table A5.2 for details).

Why are statistics used?

Four of the local authority officers interviewed mentioned that link advisors are seen as key users of data in order to inform their work in school. The primary purposes, for the local authority, of using statistics were said to be to evaluate and monitor schools, to set benchmarks, to compare performance outside of the local authority, to set budgets and for forward planning.

Local authority officers also discussed how schools could use data. According to the questionnaire respondents, the main perceived benefit of using statistics provided by the local authority was to allow comparisons with other schools.

Local authorities appear to put a greater emphasis on the use of data by schools for strategic planning, whereas the schools saw this as secondary to monitoring progress. In particular, the local authority officers interviewed noted the need for schools to become increasingly self evaluating. In one Authority, schools were said to use the statistics provided by the Authority in preparing for their annual review with their link advisor from the local authority. The questionnaire found that most commonly, local authority officers expected schools to use the data provided to inform the school development plan, to guide self-evaluation and to set targets (see Table A5.3 in the appendices).

Local authority officers recognised that it was sometimes challenging to get schools to use data and that it was important to place the emphasis on school improvement rather than using it to criticise or condemn. Data was felt to be only:

> *…a tool and unless you have a culture to deal with that issue, there need to be full and frank discussions between headteachers and other staff. There is a need not to kick people with the data but to help schools with self evaluation in the continuous improvement culture.*

Local authority officers also reported that data had to be disseminated within schools in order for it to be most effective and that the analysis of the data 'is not the domain of one person but they should become the supporter for all staff.' This issue is explored in greater detail in Chapter 7.

3.5 Key contacts

The key contacts used data in a range of overlapping ways: the largest group (29 out of 35) used statistics for research, followed by users for policy (19), producers of statistics (13) and those interested in international comparisons (11). A small number (4) used them for journalistic comment.

[4] In England these were renamed 'Achievement and Attainment Tables' in 2004.

Many of the interviewees' comments on the use and/or misuse of data were also related to problems surrounding the interpretation of statistics (see Chapter 5 for a further discussion of these issues).

Many interviewees referred to data being used for school accountability, monitoring and self-evaluation purposes. In order to achieve these aims more successfully, there was a strong call for more and different school-level indices to be available, including measures such as pupil attitudes and behaviour in addition to attainment.

Although the argument for 'value-added' analysis has received increasing support, for example in England the prior attainment of pupils is now being allowed for in some of the DfES accountability measures, it was stated that more background factors (outside the school's control but affecting performance) should be taken into account[5]. Clearly, the statistics produced should reflect the uses to which they are put – measures for accountability may be different from those used by the school's management to probe deeply into their own strengths and weaknesses. From Northern Ireland came a comment that the lack of published school-level information is a serious weaknesses for users interested in the functioning of the system and from Wales a statement that the use of data is thinly spread and depends on individuals.

There were some comments on the use of data by policy makers. It was stated that there had been some improvements in this over the last 20 years, with acknowledgements towards the need for 'evidence-based' policy – however, major initiatives (the Specialist Schools initiative was mentioned) are still launched without clear research evidence. Another interviewee concurred that there were problems with the use of data by policy makers, with politicians in particular taking only the messages they want to hear.

From Scotland came a comment that there is an increasing demand for international comparisons, including cross-UK comparisons. However, the quite different systems in place may lead to spurious comparisons. A respondent from Scotland felt that it is better to use special international studies as a basis for comparison rather than try to standardise across the UK.

[5] Contextual value-added indicators will be added to PAT in 2005, secondary tables in 2006 and primary tables in 2007.

4 Format and fitness for purpose

This chapter addresses the following issues, based on the evidence collected in the course of this review.

- Is the process of collecting education data of high enough quality? This includes the issue of whether the right data is being collected in the right way.
- Is the data transmission process effective?
- What is the technical quality of the statistics that are being derived from the raw data?
- Are educational statistics being presented in a format that is suitable for their audience?
- Overall, are educational statistics fit for the purposes for which they are being used?

4.1 Data collection

It is generally true that the origin of much educational statistics is the school or other educational institution, who will fill in returns on their students which either go via the local authority or directly to the Department of Education in their country. In England, the Annual Schools Census changed a few years ago from being a school-level data collection to one at the pupil-level (PLASC); this changeover seems to have enhanced the quality and usefulness of the data collected. PLASC data collection is also carried out in all maintained schools in Wales and the Welsh Assembly believes that this has enhanced the quality, usefulness and timeliness of data. A National Pupil Database is currently being developed in Wales and is due to go live later in 2005[6].

The types of data collected from schools mainly include information about attendance, special educational needs (SEN), admissions, exclusions and minority ethnic groups. Some authorities collect attainment data from schools (for example, outcomes from commercially-available tests such as NFER-Nelson's Cognitive Aptitude Tests (CAT)), but the bulk of national attainment data tends to come from examination boards and similar bodies, although schools may be involved in validating the results attributed to their students. England's National Pupil Database (NPD) is a 'data warehouse' which combines such attainment data with PLASC in a

[6] It is hoped that this will allow schools and local authorities to compare themselves with others using a range of variables such as FSM and pupil–teacher ratios.

powerful combination which currently places England at the forefront, internationally, in terms of the availability of matched educational data.

The process of collecting data from schools seems to cause few direct problems, though there were some comments about missing data or inadequate data cleaning. In addition, the question of whether the right data was being collected caused some concern. For example, some respondents in Northern Ireland stated that primary school data in Northern Ireland largely seems to be non-existent[7]. Another area where data is felt to be inadequate across the UK is attendance; although the DfES collect data from English schools, this is on an annual basis and not broken down by year groups. The distinction between 'authorised' and 'unauthorised' absence is variable due to school custom and practice and overall the quality of the national data could be improved (see Schagen, Benton and Rutt, 2004). Attendance data would be more useful if it was collected by term and disaggregated by year groups at least and ideally collected for individual pupils; the distinctions between different forms of absence also need to be made clearer.

4.2 Data transmission

The transmission of data between schools and local authority or Departments of Education can occur either in a paper-based form or electronically – there is a growing trend to use electronic methods, including downloading schools' databases automatically. Two of the five case-study local authorities had moved to the electronic capture of data. This was felt to speed up the process of data collection, but requires technology and trained, confident staff. The other local authorities recognised that this was something they wanted to develop in the future.

Most schools reported that they receive and collect some data electronically. While this was generally seen as a positive approach, ICT was sometimes said to be a barrier – for example due to failures with the ICT or changes to the software programmes. There is a need for adequate helpline and user support for ICT. At a conference of local authority staff ('Using data to narrow the achievement gap', 3 February 2005) mention was made of the support schools' needs in transferring data between different systems. As mentioned earlier, in Scotland an electronic system (ScotXed) has been developed to transfer data between education partners and is linked to a tool (STACs) for secondary schools to use in analysing pupil and subject department results.

[7] Although the accuracy of this statement is disputed – for example 'Education and Training Statistics for the United Kingdom' covers primary schools in Northern Ireland, it is a worrying that users hold such a perception.

4.3 Statistics from data

School-level data

The area related to the conversion of raw data to usable educational statistics is one in which there are a number of controversies and tensions. One of the tensions is between, on one side, those who feel that the statistics computed from the data should be kept as simple and as unsophisticated as possible, in order to keep the information transparent to end-users, including the general public, who are unlikely to understand or appreciate complex measures. On the other side are those (including most academics, but also others in the field of education) who maintain that such simplified statistics can be misleading and invalid.

This issue is perhaps best exemplified by the ongoing debate about school performance tables ('league tables' as they are often referred to). There is insufficient space to rehearse the whole of this debate here; suffice to say that while England continues to publish school performance tables, Wales and Northern Ireland have ceased to do so (in fact, one key contact asserted that it is 'illegal' to publish school performance data in Northern Ireland[8]). In Scotland, performance data is not primarily published in tables, but is made available on individual school websites. This enables users to access the data alongside important contextual data about the school. Parents in the case-study schools reported that such data was published in the local papers.

The publication of school examination outcomes in England, especially based on 'threshold' measures (such as the percentage achieving five or more GCSEs at grade C or better) has been widely criticised as showing little about a school's effectiveness and much about the quality of its intake; the DfES has started to take these strictures on board and have recently produced 'value-added' measures of school performance. These are based on 'median lines' linking prior attainment to pupils' outcomes nationally – pupil-level residuals from this simple model are averaged for each school and then added to 100 to give a non-negative number. There was some criticism of this measure from academics: one said that the mean of 100 allowed it to be confused with age-standardised scores, with which schools are more familiar[9]. Another interviewee said that regression methods should be used for these statistics and a call was made for a fuller description of the methodology to be included. In a positive move, the DfES is now working on 'contextualised value-added' measures which will take account of a range of background factors, in addition to prior attainment, though the full details of how this will be done have not yet been published. Wales is also developing value-added indicators and recently provided schools with summary value-added measures, feedback on which will be used to inform future developments.

[8] In practice, schools must publish their own data and these could be collated by a third party. Additionally, the Freedom of Information Act means that DENI will release information in response to specific requests.

[9] In response, DfES report that the use of non-negative numbers is a request from school consultations.

One key contact mentioned the Royal Statistical Society (RSS) guidelines on reporting statistics, in particular the need for confidence intervals and sample sizes (RSS, 1993). Several interviewees concurred with the need for confidence intervals for school performance tables, to prevent the over-interpretation of insignificant differences between schools (see also Goldstein and Spiegelhalter, 1996).

National data

Moving from the quality of the statistics related to individual schools to that of national educational statistics used to make or defend policy, an important debate has been raised about the use of data from 'high-stakes'[10] national testing to track overall national attainment (see Tymms, 2004). Related to this is the criticism that standards have not been necessarily been maintained from one year to the next, with the consequence that some of the rises in pupil attainment at key stage 2 may not be accurate. This claim has been investigated by the Statistics Commission (Statistics Commission, 2005) and their report has given support to some of the claims made.

In this context, a call has been made for a separate, independent body to monitor national standards over time, based on nationally-representative samples being tested on a consistent 'low stakes' test. Such a system was in operation across the UK in the 1970s and 1980s, run by the Assessment of Performance Unit (APU) of the then Department for Education and Science and proved to be a useful method of collecting national information in certain subjects (see Foxman *et al.,* 1991). However, whether the benefits of re-grafting such a system on to the existing national testing structure would outweigh the additional complications, burden and expense involved is not clear. It should be noted that Scotland continues to run an annual survey of performance along these lines.

Another point to note is that participation in international surveys (PIRLS, TIMSS, PISA) does provide such a national picture of performance, albeit at irregular intervals and not designed specifically for the UK's needs.

A final point should be made about statistics based on 'threshold' indicators. Frequently statistics are quoted in terms of the percentage achieving some fixed threshold and then changes in these percentages are regarded as valid and reliable measures of overall improvement for different groups. However, simple models show that these measures can be very misleading and it is better to base statistics on averages of performance over a whole cohort (eg average point scores), which are much less sensitive to changes by small groups at some arbitrary boundary.

[10] 'Low stakes' tests are those which have no appreciable impact on a student's life chances or a school's performance indicators. 'High stakes' tests (e.g. national curriculum tests, GCSEs, selection tests) do have such an impact.

4.4 Format

School case-study interviewees reported that they received data in a variety of formats, particularly tables and graphs; there was no clear preference for a particular format. Interviewees would, however, like more explanatory notes and verbal descriptions. Despite an overall preference for access to electronic data sources, a number of interviewees stated the advantages of having the option of paper copies for particular reasons.

School staff, in both the questionnaire and interviews, noted that data is sometimes in a format that is convenient for others, namely the local authority or Department for Education, rather than the format that would be most useful for them. This raises the question of who the data is being presented for, as different groups will have different agendas, purposes and requirements. Respondents to the school questionnaire noted that they would like the data that they receive to be more targeted towards their specific needs and interests and 54 per cent said they would like more support interpreting the data provided. (A full breakdown of how schools thought local authorities' provision of statistics could be improved can be found in Tables A6.12 and A6.13.)

4.5 Fitness for purpose

This section summarises the chapter and looks back to Chapter 3, which goes into some of the issues in more detail. It is clear that, broadly speaking, there is a great deal of professionalism in the collection, distribution and use of educational statistics across the UK. There are gaps in both topics and countries covered, but the overall picture is one of continuing improvement, especially in the assemblage of comprehensive datasets and the feedback of data to schools for self-evaluation and improvement. There are a number of general concerns which have been expressed, however, which are critical to the continuing use of statistics to improve the education of young people.

One is the need for constant vigilance to maintain the quality of the data collected and the statistics derived from it. The '*New Relationship with Schools*' (see Miliband, 2004) has as one of its themes the use of data to drive school improvement – but only good data, carefully interpreted and presented, is likely to do this. Over the course of the review, some respondents mentioned phrases such as 'bogus statistics' and 'manipulation of data' – if this becomes common parlance it is likely to undermine the whole basis on which statistics can be used to improve education. There is an onus on all those producing educational statistics to sign up to the highest possible standards in presenting statistics to avoid this danger.

Another is related to the mantra which is often applied to data: ‘collect once, use often’, which is an excellent principle. If schools are continually pestered for the same information, they are likely to become overwhelmed and refuse to cooperate and the quality of data will suffer. This can happen either because data which has been collected is not shared with others who have a legitimate need for it (see Chapter 7 on accessibility), or because of a lack of consistent thinking about data collection issues across different agencies (see Chapter 10 on coherence). The collection of data needs to be a minimal burden on schools consistent with quality information for all valid purposes being available.

5 Interpretation

It is clear that the production of high quality statistics can be undermined if they are misinterpreted, or not interpreted at all and the wrong messages are received by those who need to use them. This chapter relates to the chapters on 'fitness for purpose' (Chapter 4) and 'uses and purposes' (Chapter 3) and is also related to Chapter 6 (on training).

Most of the responses to our surveys related to school performance information, which was clearly an area which caused a great deal of concern, but there were also comments about the interpretation of statistics relating to individual pupils, as well as to the wider national picture and the interpretation of statistics by policy makers, the media and the public. We will consider each of these in turn.

5.1 School performance information

Within schools the responsibility for interpreting statistics falls on a few individuals (see Chapter 7). Senior managers described how they would interpret the local and national statistics and produce short reports for all staff members, governors and parents and one explained the need for more specific reports for individual departments within the school. The use of detailed school statistics for self-evaluation and hence school improvement is a key element of the government's strategy in England (see Miliband, 2004); however, the way in which data is interpreted within schools is critical to that process and seems to depend on key individuals who happen to have the required skills.

School staff and governors noted the need for more contextual information to be available when educational statistics were to be used by others to judge schools. There was a very strong sense that people judged the school on partial data and interviewees were very concerned about the effects of this on the school and pupils. Another headteacher noted that in her school, which had pupils from deprived areas, it was unhelpful to compare the school to the national average and that this damaged the confidence of students. Many interviewees described the advantages of comparing 'like schools with like' to help the interpretation of local and national statistics. However, few knew how to obtain such data. In Northern Ireland some interviewees (a headteacher, a person responsible for data and a teacher with little experience of educational statistics) reported that the only country-level data they received was based on national averages[11]; as one of them explained, this was

[11] DENI assert that two average figures are calculated: one based only on grammar schools and another based only on non-grammar schools and the two types of school are each supplied with the relevant average. It may be that those within the schools are not aware that the average they receive does not include schools of the other type.

unhelpful for schools that received pupils who did not pass the 11-plus and so could not be expected to perform at the national average level. There is a perceived need for information which allows schools to compare themselves in detail with schools in similar circumstances, or with what might be expected given their contextual factors. Several key contacts stressed the need to distinguish statistics used for accountability from those used for self-evaluation.

One of the serious causes for concern about misinterpretation of statistical information was that many interviewees (in England, Wales and Scotland) focused on the number of pupils with SEN that were 'dragging-down' their school's results. In one small primary school in England, every interviewee mentioned a particular year 6 pupil with SEN whose performance had affected the school's results. In another school in England, a parent mentioned that her son was one of the pupils with SEN who had resulted in the schools position in the league table dropping and another parent suggested that published figures should include the number of pupils with SEN so that their performance could be taken into account[12].

However, this rather worrying tendency leads into a major issue, which is to do with the presentation of school performance data based on particular cohorts of pupils, with no indication of the uncertainty inherent in such measures or the extent to which they are useful as indicators of the school's actual performance. From the above, it is clear that this lack of understanding can have a negative impact not only on schools but on individual pupils (ie by being blamed for an entire school's performance). In England, DfES is attempting to address arguments about the performance tables based purely on outcomes, by constructing 'value-added' indicators (see Chapter 4) and is currently exploring the possibility of generating 'contextualised value-added' measures which take account of other factors in addition to prior attainment. But whatever the technical quality issues about the generation of such indicators, at present there is no easy way of showing their uncertainty or sensitivity to the exact properties of the cohort on which they are based.

Several of the academic key contacts made a strong case that confidence intervals should be quoted on all school performance indicators, so that their underlying uncertainty is clearly visible to all users and schools are not ranked into 'league tables' in ways which are quite inappropriate[13]. However, it was also stated that this would confuse many users of this information and make it more difficult for them to interpret what is presented. There seems to be the making of a dilemma here – on the one hand, misinterpretation of statistics and on the other, failure to interpret them at all.

There is also an underlying philosophical quandary which is of direct practical relevance here. It is often argued since the performance data is not estimated or based on a sample, it is exact information about the actual performance of those

[12] DfES-produced figures do include such information.

[13] DfES would like to assert that it does not produce rankings in England, these are generated by the media when publishing the data.

pupils in that school and there is thus no uncertainty involved. This is true and if the statistic is only ever interpreted in this way, with no attempt to go beyond it to make inferences about the quality of the school's teaching or any other related concept, then it is correct and proper to present it unadorned with confidence intervals. However, it is frequently the case that such a statistic is taken (either explicitly or implicitly) as an estimate of some underlying property of the school and in this case the uncertainty of such an estimate, based on the contingent and finite group of pupils recorded, should be presented. In this case, as so often, the use of the statistics is crucial.

5.2 Pupil performance data

One of the ironies of educational assessment currently is that many commentators, including some in schools, complain that there is too much testing in schools; yet sales of commercially-produced tests remain buoyant and schools continue to test their pupils. For this to be effective, it is important that teachers can interpret assessment data about their pupils in terms of a suitable framework – without this, the data is just a bunch of numbers with no real meaning in terms of teaching and learning. One of the ways in which this kind of work is being supported in England is through the Pupil Achievement Tracker (PAT) provided to all schools by the DfES[14] (see DfES, 2005). This is a powerful piece of software, with national results downloaded into it, which enables schools to interrogate their pupils' results interactively and can be used for target-setting and analysis of pupils' responses to national tests at the individual question level. In order for schools to be able to use this software, their pupils' data has to be downloaded into it – some local authorities are helping schools with this task, including entering individual question data. The diagnostic and formative use of assessment information is one of the ways in which value can be added to national testing data. One of the local authority interviewees described the use of pupil residuals, whereby pupil performance in one subject is compared to their performance in all other subjects; this was said to provide useful comparative and contextual information.

The use of test data for target-setting of individual pupils is a growing trend, although some respondents showed concern about the danger of predictive targets becoming a 'self-fulfilling prophecy'. It is clear that when predictions are made about individuals' future attainment the very large degree of uncertainty surrounding such predictions must be borne in mind. If such information is made available to pupils or their parents, then the wide envelope of possible attainment should be emphasised, with a stress on the upper part of that envelope. The use of 'chances tables'[15], which show the percentages of pupils starting at a particular level who attained each final level allows positive messages such as: "X per cent of people starting from where you are got level Y, so there's no reason why you can't".

[14] The PAT is about to be merged with Ofsted's PANDA to be an interactive tool with a common web-accessed database.

[15] As used in the PAT.

In the same way as for schools, data for individuals needs to be handled carefully and interpreted sensitively; the need for properly presented measures of uncertainty is even more crucial.

5.3 Statistics for policy-makers, the media and the public

There is a clear disjunction between the needs of policy makers for clear unambiguous statistics which can be interpreted in such as way as to give straightforward messages and the tendency for those engaged in research to want to ensure that the statistics are properly hedged about with the caveats and uncertainties which are an inevitable consequence of how they are produced and the assumptions upon which they are based. The debate about how policy makers engage with educational research in general is currently being carried on in one of the educational journals (see Saunders, 2005) and is likely to continue.

One key contact stated that although there have been some changes over the last 20 years in the use of data by policy-makers and a greater desire to see policy grounded in evidence, major initiatives (eg specialist schools) are still launched without clear research evidence. Another key contact in Wales said some policy-makers understand data well, but some need further mediation. Politicians may take the messages they want to hear and sometimes data is presented to the public without suitable caveats, which may lead to misleading judgements. Another key contact agreed that the public does not understand changes to the education system which can make simple comparisons with the past invalid. Mostly the media form the channel by which statistics reach the public – in some cases the desire for a 'good story' can overcome the need to interpret statistics carefully.

Several key contacts believed that data was not used sufficiently in policy development and that expertise in interpreting statistics was not widely spread among policy-makers and took time to develop. If this is the case, it is a complex issue that would not be simple to resolve. It is important that politicians and others deciding policy do not just get statistics which have been chosen to deliver the message they want to hear, or which have been simplified down to the extent that they are totally misleading. On the other hand, they do not have the time or incentive to burrow through a great deal of academic output, full of caveats and reservations, in order to reach the information they need.

The communication of clear and valid statistical information to policy-makers and their ability to interpret these are two aspects of a necessary part of the whole system that currently seems not to be in place. As a small part of a movement towards bridging this perceived gap, NFER and the University of London Institute of Education held a seminar in 2003 with both academics and policy-makers; the outcome was a publication looking at the use of effect sizes as a way of improving communication between the two worlds (Schagen and Elliot, 2004).

There seem to be three possible elements of a strategy for improving this situation. One is to provide training for policy-makers and media personnel in understanding statistics; another is to provide training for the providers of statistics (including academic researchers) into the needs of policy-makers and the media and how to present data effectively for this audience and the third would be to provide regular forums in which the different groups could share understanding. However, these kinds of developments are unlikely to happen without commitment to the concept from government and the provision of resources, including time commitment from busy individuals.

Data does not speak for itself – interpretation is the crucial element without which the best statistics are undermined and may even become counter-productive.

6 Training

This chapter explores the views and responses of school staff, local authority personnel and the key contacts and the extent to which they feel that they have received adequate training and support in the use of educational statistics, as well as identifying their additional training requirements.

6.1 Statistical training for school staff

It was apparent through the interviews within case-study schools and from the school questionnaire that most school staff who dealt with data had received some form of statistical training, although this was primarily in the form of one-off courses in the use of computer packages. Most interviewees explained that the ICT systems that support the data collection process were not complicated and administrators found them easy to use. This was illustrated in the comment by one interviewee who said, 'it's just pressing buttons. I don't really need any support for that and it's not terribly difficult to analyse' (England, Primary, person responsible).

The majority of headteachers and senior managers interviewed who had responsibility for collecting and analysing data within the school had experience in the use of statistics. For example, headteachers who had completed the Professional Qualification for Headship (PQH) explained that they had received training on the analysis and interpretation of data on the PQH course, while other interviewees responsible for collecting statistical data for the school already had on the job knowledge about statistics or had experience from previous jobs. However, not everyone felt that they had received enough support in the use of statistics and a few suggested the benefits of having follow-up sessions after a training course to share good practice on how best to use the data.

In total, 62 per cent of school questionnaire respondents indicated that they had received training from their local authority in the use of statistics and 77 per cent of respondents who had received training said that it had been helpful. It should be noted that the majority of questionnaire respondents were headteachers or deputy headteachers and therefore this is not evidence of widespread training for all types of school staff.

Furthermore, there was less evidence from the case-study interviews to suggest that statistical training was taking place or even offered to other staff members not directly involved in data collection or in the analysis of statistics. While ICT training in the use of software for data collection was apparent within the case-study schools, interviewees suggested that further training on the appropriate use and interpretation of data was more of a necessity. Clearly, a view was taken that staff were not making

full use of their school's statistics and welcomed further opportunity for training in the use of statistics. This was illustrated in the comment by one senior manager who said, 'You can get through software and collection points looking through the manual but you really need someone to take you through it' [Wales, Secondary, person responsible] while another manager (from the same school) without prior statistical experience explained that, 'it is a sharp learning curve to get to grips with data'. This may be evidence that there is a need to involve more school staff in statistical process and a need to provide the requisite training in the use of statistics.

Overall, interviewees commented that further training was required to help staff make better use of educational statistics and increase staff confidence in using statistical data. These training requirements are discussed in more detail below.

In the main, interviewees within case-study schools suggested that further training and support in the use of data would be of benefit. As discussed in Chapter 8, senior managers commented that, other than pupil performance data, they failed to use much of the data available due to time constraints: there was little time to spend interpreting data other than that relating directly to their own school or local area. For example, a headteacher from a school in Scotland explained that she received support from the Education Board in the interpretation of data and that she found this data easy to understand. However, she explained that she rarely analysed national datasets as, 'it is slightly different and therefore, I'm sure I could be doing more with it'. She felt that she did not have the time to spend interpreting the data. This was also illustrated in a comment by another headteacher who suggested that 'training would be useful to reassure me that I was using them properly. I doubt that I am making full use of them at present' (Northern Ireland). One other interviewee from a school in England commented that they receive data other than performance data (for example, school health statistics); however, he commented that 'this doesn't mean much to me' and that he did not have the time to interpret or use the data efficiently. He suggested that a simpler format for such data would require less interpretation and therefore, may encourage more use of the data.

As discussed previously, pupil performance data is the most commonly used statistical dataset used by school staff. Other datasets were rarely used. Most school staff interviewees felt assured that if they wanted to access certain types of data that there was support available, mainly from the local authority. However, whether such a finding suggests that school staff are fully aware of the educational data available to them or not is unclear. This evaluation included an analysis of educational statistics across the UK. The database shows that 132 educational datasets are publicly available. However, to what extent are school and local authority personnel knowledgeable about such data sets? Is further training required to spread knowledge about such resources or is it sufficient for school staff to use the already available data on pupil performance to address the school improvement agenda? A 'one-stop-shop' (as discussed in more detail in Chapter 10 on coherence) whereby data could be collected and stored in a central location to ensure that data was presented in a similar format and easily accessible to schools, alongside appropriate

training in effective use of varying datasets, might encourage wider use of the available data.

As discussed in Chapter 7 on accessibility, it was mainly senior school staff that were responsible for data collection and analysis. However, in many of the case-study schools, senior staff identified a professional development need for all teaching staff in the interpretation and use of educational statistics. Many commented that it was important for everyone, not just senior managers, to have an understanding of statistical data and training was suggested for less experienced staff who would like to be able to make better use of data. Senior staff commented that statistics can be quite 'daunting' for some as 'many of the staff have done things in certain ways for many years without using data' (Wales). As one headteacher stated, 'we need to use data to help inform their teaching and learning and not to put them off' (Wales). Several key contacts interviewed also expressed the view that further training for all staff in schools, especially in primary schools, was a necessity to ensure they make better use of statistics and use datasets to help improve teaching and learning.

While such a professional development need was identified by many headteachers, senior managers, key contacts and a few staff with little experience of using data, conversely a number of interviewees, including the majority of parents interviewed, commented that further training in the use of statistics was not necessary and felt that they had sufficient knowledge of using and interpreting data. Governors' attitudes towards their own personal development in the use of educational statistics also varied. Few governors stated that they had received any training from the school in the use of statistics and it was often the case that governors had prior experience in using statistics in their jobs. A few governors commented on the benefits of further training on the interpretation of data. However, the majority felt that they had the confidence and statistical knowledge to allow them to carry through their role as a governor or that it was sufficient for another member of the governing body or school board with experience in the use of statistics to analyse and question the data on their behalf.

Finally, some interviewees also suggested that further training to explain why data is collected and how it is used by the school and the local authority would help clarify why data collection processes are in place and would keep staff informed.

6.2 Statistical training and the local education authority

On the whole, local authority officers did not report any particular training needs for themselves. Some level of training was reported through the introduction of new software packages, national briefing days and seminars throughout the year. However, local authority officers did not detail any additional training requirements.

The perceived need for training for school staff, both teaching and non-teaching, was more evident. Just under 90 per cent of local authority officers surveyed and all five

case-study local authority officers interviewed, reported that they offered training to support schools' use of statistical data. The type of training differed from one area to another. For example, in one local authority there was, amongst other courses, a three-day course for new assessment coordinators on the use of statistics. In other areas, there were training days for specific software packages, while others offered training in the use of data through headteachers' seminars. In a few local authorities, one-to-one support was more prevalent whereby school improvement officers worked directly with headteachers on the data specific to their school. However, as evident from the interviews with school staff and the responses from the questionnaire, further support and more targeted training for all staff was an additional requirement from the local authority. School questionnaire respondents were asked how the local authority could improve their involvement in the process of providing data. The most popular suggested improvement (selected from a list of options) was 'improved training in the use of statistics', identified by 57 percent of school respondents, followed by 'more support in interpreting data' stated by 52 per cent of respondents.

6.3 Key contact perspective on training requirements

Consistent with the views of senior staff within schools and local authority officers, key contact interviewees commented on the benefits of further training in the use of educational statistics for all staff in schools. Key contacts also suggested that other education personnel, including school inspectors, local authority staff, individuals providing data at the Department for Education, policy makers and media personnel responsible for interpreting and presenting data, required further training in the use of datasets. On the whole, they perceived that a low proportion of these individuals have received statistical research training and commented that further guidance was necessary to increase such individuals understanding of educational statistics and overall 'statistical literacy'. Despite this perception by the majority of those interviewed, there was little suggestion as to how such training might be provided or who would be responsible for developing or delivering it.

7 Accessibility

This chapter examines issues surrounding accessibility to data; in particular it raises problems about the distribution of data within schools and difficulties for researchers and academics in accessing data.

7.1 Schools

Headteachers and those responsible for data generally reported that they had access to the data that they needed and in some cases more data than they needed, although a few staff pointed out that 'if you don't know it exists you don't know you need it'. Most of the schools used additional tests and so had access to this data as well as official examination or test performance data.

As mentioned in Chapter 5, schools would like more information about local and similar schools to allow them to make more inter-school comparisons. Many interviewees felt that comparisons with the national average or local authority average did not allow them to compare themselves with 'like' schools. This was a particularly problem to the school interviewees in Northern Ireland, who reported difficulties comparing results of grammar and non-grammar schools (see Section 5.1 for further details).

Some schools noted that there are sometimes difficulties related to transferring data between primary and secondary schools, due to lack of compatible computer systems and inconsistencies in the data collected.

The main challenges in relation to access to data were in relation to processes within the school. The case-study work found that access to data tended to be mainly confined to headteachers, SMT members and heads of department, while only a limited amount of educational statistics found their way to class teachers. The fact that 72 per cent of the school questionnaire respondents were headteachers (or principals) suggests that it is people at this level who have the primary responsibility for the collection and use of data within a school. Only one respondent out of 405 described him/herself as a 'class teacher'! It was also noticeable that the majority of school questionnaire respondents (51 per cent) had been responsible for statistical data in their school for five years or more and were therefore quite experienced.

One question on the school survey asked about the groups of people who 'have access to' data and whether these groups 'actually use' the data. Responses to this question are summarised in Table 7.1, which shows that there is clearly a 'hierarchy of use' in place within schools.

Table 7.1 Access and use of data

Group	Have access to data (percentage of cases)	Actually use data (percentage of cases)
Senior staff	86	86
Teaching staff	76	61
Governors/Board	67	29
Support staff	33	12
Parents	37	3
N=	**405**	**405**

Source: *NFER Survey of Schools, 2004. A series of single response questions.*

It generally appeared that the lack of data reaching less senior staff was not due to resistance on the part of senior staff to distribute statistics (and some ensured that statistics were user friendly for teaching staff), but due to class teachers only requiring or having interest in a small amount of the statistics that schools receive, as the following quote illustrates: 'All staff have access to the database and the [MidYIS] reports … However, very few have any interest in it as the departmental reports they receive are often enough for them' (England, Secondary, SMT). This may help to explain why educational statistics do not appear to be used extensively in relation to developing teaching and learning (see Chapter 3 on uses and purposes).

There were some exceptions to this; in particular, in one primary school the headteacher noted that:

> *Teachers are familiar* [with the data]*, we share all the information with each other, we are a close unit and there is lots of sharing. At the end of the year we discuss pupils prior to transfer. All staff have access to statistics as far as it relates to their job. It is not a closed shop all have access to it and support staff part of the team*
>
> (England, Primary, headteacher)

A governor at this school reiterated this perception and noted that 'any teacher who wishes to see results has access to that information. They aren't expected to do it but they do it anyway, because they want to know' (England, Primary, governor).

Despite the relatively limited access to and/or use of educational statistics, school staff (including those who don't normally have access to many statistics) were quite confident that if they had a particular query relating to educational statistics on the school or the local authority then they would be able to find out the answer. They tended to report that they would either ask a senior member of staff or look it up on the internet.

Governors

Table 7.1 shows that there is quite a large discrepancy between governor access and governor use of data: suggesting a possible need for training or awareness raising amongst governing bodies. (See Chapter 6 on training for further discussion of this issue.)

Governors in the case-study schools reported that they tended only to receive statistics on examination or test performance and that this generally came via the school and/or the local authority. School staff noted that if a governor wanted more information this would not be resisted. As with teaching staff, if appeared that governors had a limited interest in using educational statistics. One headteacher noted that governors 'go glazed' when she mentions statistics. Another said that 'I'm getting better at keeping my governors up to speed. But my governors don't really ask for this' (England, Primary, headteacher).

As with issues surrounding training, many governors said that they did not want any more statistics, particularly as the role was a voluntary one. 'Speaking as a governor, we spend a lot of time on it and we are unpaid so even more statistics probably wouldn't be appreciated' (England, Primary, governor). In the few cases where a governor had wanted further information than they had been provided with, there were no challenges reported in accessing this. One governor noted that the internet meant that information was 'far more accessible now' (Wales, Primary, Governor).

Parents/local community/pupils

As Table 7.1 showed, parents were the least likely group within schools to use data and this may be an obstacle to current policy drives to involve parents more in their children's education.

In relation to the data made available to current parents, all schools provided some educational statistics. Most commonly, statistics were made available via an annual report and also through termly newsletters or letters home. Often data was made available on the internet and parents could access this.

Some schools did not go beyond what they were legally required to send parents, whilst others were trying to put greater effort into making data accessible for parents, for example: '…we have brought the annual report earlier to Christmas, as we felt it would be more useful to give them an update part way through the year rather than at the end of it' (England, Secondary, person responsible for school statistics) and 'some governors said the parents don't actually know what [the data] means, so I am trying to add more explanation' (England, Primary, headteacher).

Parents were largely content with the accessibility of statistics and reported that if they wanted a particular piece of data they would be happy to approach the school or look on the internet, although one parent noted that she could not imagine the situation would ever arise. There was one request for earlier information about pupil

performance in Christmas examinations rather than waiting for a report at the end of the academic year.

7.2 Local authorities

In terms of their own access to data, local authority officers reported that data is becoming increasingly easy to access. Although one officer reported that 'the culture is changing; it used to be culture of delivery (a year ago). Now we are expected to go fetch the data' (England), however the officer didn't feel that this was too much of a challenge as data was readily available on the internet Another officer stated that although the publication of material on the internet has aided the speed at which it is available, hard copies of data do in some cases include a greater level of detail.

In Wales, it was felt that the creation of the new National Pupil Database will provide a much greater level of data that will be instantly available to schools.

In terms of access to data within schools, reflecting the findings from schools, the local authority officers interviewed stressed the need for data to be disseminated to all staff in schools, as there was concern that data does not 'get past' the heads of departments and so has a more limited impact on teaching. In relation to how the use of school statistics could be improved, three of the English questionnaire respondents referred to the need for wider involvement of school staff rather than just Senior Management Team (SMT) members (although this is a small number of respondents it was the sixth most common response – most people did not make suggestions).

7.3 Key contacts

A wide range of opinions was gathered, with interviewees tending to focus on areas where they had experienced problems in accessing data they needed. There was a general feeling that more data than ever before was available, especially for England, but that access was sometimes 'patchy'. It seems to depend on the country, the dataset, the level of detail required, for whom you were doing the work and your own personal contacts.

There was a strong feeling from academic respondents that access could be simplified for bona fide researchers and that there were problems getting clearance for research that was not sponsored by those who had collected the data[16]. The balance between confidentiality and the efficient use of data for multiple purposes was felt to need to be addressed generally, with consistent universal guidelines being set up. Some interviewees claimed that they had good access to data, but only through personal contacts – this certainly was said to be true for Northern Ireland.

[16] In England, DfES current policy is to restrict access to named pupil records to those research studies that are part of, or associated with, the DfES Research Programme.

Comments about accessing data for Wales and Scotland seemed to imply this was harder than for England.

The mode of accessing data was also discussed, with some interviewees stating that the advent of the internet had improved things and that material available on the web could be easily updated. Other commentators stated a need for hard copy in additional to web-based information, while there was a comment from Wales that it was not always easy to locate data or know if it was available on the web or in published form. One interviewee stated that in England there was confusion about where to find some statistics, with some coming from DfES and some from ONS. There was one comment that the DfES statistical gateway was hard to search, making DfES statistics quite hard to find – as such, a better search engine is required. There was also said to be a need to distinguish between 'research' and 'statistical' publications on the website.

There were comments about the difficulty of accessing financial data about schools, especially in Wales and one interviewee stated that the best access was via the Audit Commission.

8 Timing and timeliness

8.1 Timing

Key contacts made surprisingly few comments about this issue; however, one interviewee acknowledged that that data was often not supplied quickly enough to schools for their purposes.

The timing of requests for data from schools was reported to be satisfactory by all local authority officers interviewed. Some school interviewees did not share this view. Schools found the timing of requests for data challenging, in that they have a lot of requests at the end of the school year, which may require very quick returns and consequently require a lot of work for the school staff. A number of school interviewees commented that there were 'ridiculous collection timescales'.

Local authority officers were aware of the burden that data collection places on schools and school staff, especially primary schools. In one local authority with many small primary schools the local authority officer felt that 'the time issue is key and secondaries have the structures in place to deal with the data but with the small primary schools I have concerns especially those with teaching heads.'

Some school interviewees commented that local authorities request school data at intermittent times in the school year. Which can mean that staff responsible for dealing with data were sometimes entering data in 'dribs and drabs' which can 'disrupt daily routines'. A single data collection exercise was felt by some interviewees to offer the possibility of streamlining this process.

Some school staff in England felt that much of the data requested is available from PLASC. This view was illustrated in the comment by one headteacher who stated, 'The majority of this information should be available from PLASC and they [the LEA] needn't ask us every term to collect this data on an on-going basis'.

Although no major challenges were reported by local authority staff in relation to data collection, some local authority officers built in time to allow for slippage into the timetable between obtaining data from schools and passing this data on to national bodies. One local authority officer, who was conscious of the burden on schools having been a classroom teacher, felt that the local authority was 'working to being more efficient in the collection of data, so we are asking schools to do less.'

In a number of local authorities some data collection exercises were still undertaken on paper, which required a team of staff to enter information from these into management systems. Two of the five local authorities interviewed have moved to complete electronic capture of data, which was felt to speed up the process of data

collection but requires technology and trained, confident staff. The three other local authorities recognised that electronic data capture is something they wish to develop and are in some cases conducting small scale pilots of this. It was felt that although the theory suggests that electronic methods should be used this would require a cultural shift in schools.

School staff were very concerned about the lack of time available for them to interpret and use educational statistics. It was felt by many that more use could be made of statistics if the time was available to become familiar with them and apply them. The joint most common suggestion for how use of statistics could be improved in schools was for sufficient time to analyse and use them (see Table A6.4, Appendix 5).

8.2 Timeliness

Timeliness was raised as a particular problem in terms of assessment data, which many felt schools require as soon as possible to inform teaching and learning in the new academic year. However, this data was often reported not to be available in a finalised format until a substantial way into the academic year.

Both school staff and local authority officers recognised the need for checks to ensure the validity of the examination data prior to its publication. Despite this recognition, some interviewees from case-study schools in Wales and Northern Ireland perceived that that English examination boards were quicker in providing examination data to schools than their own examination boards. An interviewee in Wales for example, explained that they received the national results for Wales too late to be able to use them effectively. Another teacher in Wales asked, 'What is the point of comparing one cohort with another?' However, for a small number of school staff, this delay did not present such a challenge. In one school, staff assess how well key stage 3 pupils at have performed in June when they receive their results. National comparative data are not released until much later, 'but we have already sussed it out for ourselves by then so it's not that much of a problem' (Wales). The questionnaire found that respondents were quite evenly split on whether the timing of data was a problem, 36 per cent felt data was provided at the right time, 31 per cent disagreed and 31 per cent neither agreed nor disagreed with this statement (see Table A6.3, Appendix 5).

The local authority questionnaire found that that quicker provision of national comparative data was the most common response when asked how local authority data could be improved (see Table A5.1, Appendix 4).

One local authority reported that to try and provide some measure of secondary schools' performance across the local authority it now collects the examination data directly from the schools on the day of GCSE and A-level results. As a result of this data collection the local authority data unit produces a provisional report on the attainment across the local authority for that academic year. It was noted that this

report was used by many schools at the start of the new school year to review progress. Although all local authority officers wished to receive aggregated performance data earlier and recognised that 'if data is going to be useful it has to be timely', it was accepted that the process of data verification meant that this may not be possible.

A number of the local authorities reported that they do not receive examination performance data directly from all examination boards; however, in one local authority this data is received in full two days prior to the results being publicly released.

9 School–local authority relations

9.1 The nature of school–local authority relations

Developing positive relationships between local authorities and their schools in the use and collection of statistical data was reported to be an important process. The centrality of this relationship was emphasised by responses to the local authority questionnaire, the responses suggested that schools are viewed as the main users of local authority produced statistics in England, Wales and Northern Ireland and are the second ranked main users in Scotland behind the Department for Education. Schools were reported by local authority officers to be the main providers of data to local authorities in England and Scotland and were the second main source of data in Wales and Northern Ireland. In the course of the case-study interviews school staff reported that local authorities were their most common sources of educational statistics.

The school survey found that many schools received a wide range of information provided by their local authority, such as budgetary data, benchmarking information, target setting data, examination results by gender and information on similar schools (see Table A6.7, Appendix 5).

Relationships between schools and local authorities when working with data were reported to be positive by a large majority of local authority officers and school staff. In a number of cases these relationships were felt to have improved in recent years with the expansion of local authority teams to work with schools on the use of data. There were, however variations between countries and local authorities which reflected the individual circumstances in which each local authority was operating.

In one local authority in Northern Ireland, where the relationship between the local authority and schools is different to that in the rest of the United Kingdom, school interviewees reported that there was *not* a close working relationship with the local authority. There was a limited amount of data sent to the local authority by schools and very little data was provided directly by the local authority. The nature of the relationship between the local authority and schools is currently being addressed by the local authority who are in the process of setting up data interchange agreements with secondary schools. Currently much of the data that schools hold:

> …*is the intellectual property right of schools and the* [local authority] *have no statutory right to this information. The exchange of data is not openly shared and the* [Department of Education] *sends all of this rich data to schools but we as the employing authority do not have access to this*.

One member of senior management in a secondary school in this local authority felt that relations between the Department for Education, the local authority and schools need to be enhanced and that the '[Department of Education] need to lead the change and be more supportive of schools. This is happening slowly'.

In other local authorities there was a call for a rationalisation of the amount of data provided by the local authority to the schools. A number of school interviewees reported that a considerable amount of time is spent working through the amount of data that is sent to them. This shows a need for increased communication between the local authority and the schools and a need to review the purpose of providing each set of data to schools. One headteacher, whilst recognising the value of the data sent, reported that:

> *I can't take it all in, I spend half an hour working out how to read it … I don't always bother to read it. I feel overwhelmed. It is not clear and it comes in far too many forms… It means that if I want to focus on the useful bits I have to spend time working it out.*
>
> (England)

9.2 Examples of school–local authority working

In a number of local authorities it was reported that link advisors/officers are used to work with school staff on the use and interpretation of data. These visits in many local authorities are conducted on an annual basis and may focus on discussing the school's data in depth and helping develop the school's targets and school development plan. One headteacher reported that:

> *The School Link Officer comes in once a term and will go through the performance analysis from the local authority and I have to be honest here – that has been really useful for my school self evaluation – that is the only time that I do look at them is when the link officer comes in.*

One local authority officer reported that their advisory staff are subject to national standards one of which focuses upon the use of data with schools. This, it was felt, ensures that the advisors are highly skilled in their interpretation and analysis of data. In England advisors were the second most highly ranked users of local authority statistics. In a number of local authorities specific members of the advisory services were seen as lead officers in the use and interpretation of data with schools. The local authority officers interviewed reported that the use of statistical data is increasing in schools and that secondary schools generally had better structures than primary schools for using and collecting data. A number of local authority officers reported that in the course of headteachers' seminars there will be a focus on the interpretation and use of assessment data and headteachers reported that these meetings were valuable.

In addition the creation of 'data units' which deal specifically with school statistics were found to have improved access for schools to skilled staff and to have clarified lines of communication. Local authority officers reported receiving ad-hoc requests for both technical and interpretative support from schools and many schools reported the good relations which they had developed with these staff. The data made available in a number of local authorities was said to be very helpful and timely in that 'they turn things round very quickly'.

Challenges to the relations between local authorities and schools were caused primarily through the collection of data, particularly in relation to the time this involves.

This places an emphasis on clear communication between the local authority and schools as to the purpose of data collection and distribution. In many cases this was recognised by local authority officers who attempted to minimise requests to schools. Some school staff did, however, report that requests for data can strain the relations between themselves and the local authority in light of their teaching commitments.

An example of best practice in terms of the relations between schools and the local authority came from Scotland, though the interviewees were keen to stress that their authority was not typical and that relations here had been developed and were exceptionally good. There was a dedicated unit within the authority who are responsible for collecting and providing data to schools. A computer system operates across the whole authority to provide a linked database of school data; this enabled the authority staff to access data themselves without having to go via the staff. School staff described data collection as 'painless'. Schools could access the local authority database in order to make comparisons with other schools. The local authority staff regularly took reports into schools in person so that they discuss the results with the school. A secondary headteacher described the data from the local authority as excellent:

> *The local authority produced* [statistics] *are much easier than for example the national data…* [the dedicated unit] *provide a huge amount of support …* [they] *are very approachable – we are on first name terms*… [we work] *very closely, it's seamless. They are just a part of what we do not something different*.

In Scotland, local authorities have more power and decision-making over schools than in the other countries and this may be related to the closer level of relations. (Equally, school board members have more limited roles and responsibilities that in the other countries.)

The key contacts surveyed made no comments relating to the relationships between schools and local authorities in the use of statistical data.

10 Coherence

This chapter looks at the extent to which educational statistics are perceived to be coherent with one another and whether there are coherent policies and practices in the use of statistics across the educational system. It explores the views of school staff, local authority personnel and key contacts in understanding how coherent datasets are and some of the challenges associated in using data from different sources.

10.1 'Joined-up-ness' of datasets

Interviewees across schools, local authorities and key contacts generally expressed the view that data is used in a variety of ways and is needed for a variety of purposes (see Chapter 3 on uses and purposes). This was said to necessitate that data is also collected, distributed and interpreted in 'efficient and coherent ways'. Some key contacts in the statistical field appreciated that progress has been made in this direction, as least within parts of the UK, but many more interviewees commented that there was still much to do and made reference to the need for 'joined-up-ness' in relation to the collection and presentation of educational statistics and their production and use. Issues were raised regarding:

- the lack of coherence between certain datasets in terms of format and accessibility, due in part to a lack of communication between different local authority departments
- the lack of consistency over time where it is important to track data across a period of time
- the lack of coherence between datasets across the different countries within the UK (see Chapter 11 on comparability).

An area in which data is not routinely collected is in relation to student attitudes and behaviour and yet these can be important factors when looking at educational processes (see, for example, Sainsbury and Schagen, 2004). This data is collected in international studies, alongside attainment and can provide valuable insights.

Another issue raised by key contacts was the provision of information for students post-16. Their data might reside in either the NPD (if they are in a sixth form) or in the Individualised Learner Record (ILR) (in a college or other form of education or training) and these datasets currently do not collect or keep data compatibly. Statistics on school finance is another area which was regarded as difficult, with problems, in England for example, of resolving conflicting definitions from the DfES and the Treasury. One interviewee expressed the opinion that the quality of pupil

attainment data decreases as the pupil groups get younger and the Foundation Stage Profile (FSP) is 'not worth collecting'.

Many of the interviewees from case-study schools, who had little experience of dealing with educational statistics, including the majority of parents and governors, reported that they had mainly received data from the local authority and therefore could not comment on whether other data was complementary. However, case-study interviewees with more experience in the use of statistical data, noted a lack of 'joined-up-ness' in relation to official educational organisations, for example, an 11–14 school in England regularly received requests from DfES and QCA for GCSE data. An interviewee from this school also commented that there were contradictions in 'moves to reduce bureaucracy' that were followed by multiple questionnaires from the Department for Education and the local authority evaluating the impact of the reduced bureaucracy.

There was some agreement that there has been an improvement in the availability of comprehensive data and that current initiatives are likely to improve matters further, for example in England the introduction of the New Relationship with Schools (NRwS) which aims to reduce bureaucracy in the current system. However, several respondents, mainly key contacts within the statistical field, pointed out gaps and inconsistencies in existing datasets and reported difficulties extracting data. For example, it was said to be quite difficult to track young people's destinations after the end of compulsory education using the National Pupil Database (NPD) and following data through the Individualised Learner Record (ILR). A more coherent method of national data collection was thought to support a more extensive use of data[17].

10.2 The 'one-stop-shop'

A 'one-stop-shop' or centrally stored school data facility was frequently suggested as a means to obtain coherent data for different purposes. Such a system was also believed to ensure that agreed consistent definitions of key data fields were used to avoid ambiguities and discrepancies. For example, one interviewee suggested that gender be presented in the same columns across all data sources. In an education board in Scotland, for example, school staff frequently commented that consistency of data is aided by the ScotXed protocols that define the data collection fields in advance and help prevent divergent data.

A 'one-stop-shop' was also thought to improve coherence in the use of data by different local authority departments and in turn to help avoid duplicate requests and unnecessary demands on schools. Local authority officers interviewed commented that other departments within the local authority, for example social services, may access some of their data. However, school staff often commented on the lack of communication between certain local authority departments and often received

[17] In England, the DfES is currently developing plans to integrate the ILR, NPD and data from higher education institutions.

duplicate requests for the same data. It was felt that there was a need to harmonise all data sources to provide greater coherence to the data held within the local authority as a whole. Similarly, key contacts commented on the lack of 'joined-up-ness' of central government with data being sought for different purposes by different agencies.

Whilst a 'one-stop-shop' would help reduce the duplication of data collection and help improve the coherence between datasets, certain challenges were acknowledged, primarily the need to investigate data protection and confidentiality procedures so that legitimate use is encouraged and value is added to the data which is collected and unnecessary data collection exercises are reduced.

10.3 Matching people's perceptions with datasets

Interviewees within case-study schools also questioned the extent to which educational statistics for the school matched the people's perceptions of the school. Almost all thought that, on the whole, they did. However, there was profound concern that educational statistics did not provide enough contextual data to provide 'the story behind the data'. Some interviewees for example, noted that educational statistics only match perceptions in relation to a small element of the school's work: 'they reflect the academic ability of the school accurately but the statistics do not inform the parents about the non-academic aspects of school life'. As noted earlier, in England moves are underway to develop school profiles which will incorporate more information about schools. A more detailed discussion on the interpretation of statistics can be found in Chapter 5.

11 Comparability across countries and over time

In this chapter we will look at the extent to which educational statistics provide a picture where the basis is stable and consistent over time and across the four different countries of the UK. A related issue is the question of the extent to which such consistency is necessary or desirable – if systems change, or differ from country to country, does it really matter if the statistics related to these systems change to reflect this? Answers to both these questions will depend on the individual concerned and the use to which they wish to put educational statistics.

11.1 Comparability over time

School staff, governors and parents noted a need for historical data to be available so that one 'poor' cohort or individual does not impact as much on the perception of a school. One local authority officer interviewed stressed the need for the type of data that is collected to remain stable for a period of time and school staff reiterated this point.

Comparability of educational statistics over time is a big issue for many academics and those trying to get the broad picture of how educational outcomes have changed over the years. A perpetual problem with maintaining time series of data is when improved measures should replace old ones, thus breaking the series. One suggestion is that 'old' measures should continue to be reported in parallel with the new to allow comparability to be maintained. One concrete example was the latest equivalences produced by QCA to allow GCSE, GNVQ grades etc. to be given 'scores' to put them on a single tariff – the interviewee stated that this has changed the weighting between grades and can lead to anomalies.

A concern amongst some of the key contacts was the process of measuring national levels of attainment in England using the results of national curriculum testing – this topic is covered in more detail in Chapter 4, on 'fitness for purpose'. It should be noted that Scotland uses a national 'low stakes' survey to measure attainment annually (APS – Annual Performance Survey). The use of international studies to provide information on national changes of performance over time was also mentioned in Chapter 4.

Another issue is the extent to which time and resources should be spent generating series of statistics which may be produced just because they always have been, rather than focusing on statistics which address current important topics. Government departments may have a responsibility to present statistics relating to

data which has been collected; at the same time, they need to be regularly re-prioritising what is produced to ensure it is relevant and appropriate.

11.2 Comparability across the countries of the UK

This was not a major concern expressed by school and local authority staff, although some interviewees reported challenges where young people transfer from a school in one country to another and the issues associated with tracking pupil performance data. They also reported difficulties comparing one dataset from one country with another dataset from another due to the inconsistencies in format and presentation.

Key contacts raised concerns about comparability across country in both the survey responses and interviews. They mentioned a number of problems relating to the absence of particular datasets in certain countries: for example school workforce, exclusions and value-added performance data in Wales[18]; attendance, exclusions, teacher salary and value-added performance data for Northern Ireland[19] and school finance data across the UK.

Several key contacts referred to the lack of comparability of data across countries. A number of aspects were mentioned, including: different definitions of data fields; a lack of easy access to or documentation about cross-country comparisons and invalid conclusions drawn by those who do not understand the differences between the systems in different countries. A contact in Northern Ireland stated that there was 'a lot of nonsense' talked about UK comparisons based on unreliable data and one from Wales stated that they relied on 'Regional Trends' for such comparisons, but this was not as useful as it could be. In more general terms, one interviewee claimed that England was best for attainment data, Scotland had a better national survey of performance, while Northern Ireland was lacking data for the primary sector. Another contact said that we should be able to learn from the diversity across the UK, but was unsure whether this was happening[20].

The point was made that the problem of comparing different countries within the UK is no different from that of international comparisons in general; however, it might be expected that some UK-wide common statistical information could be made available and easily accessible, with agreed definitions. The main solution which was advocated to this perceived problem of cross-UK comparability was the use of international studies (PIRLS, TIMSS, PISA etc) to monitor performance across the UK and also of course relative to other countries. One interviewee said that we needed to maintain comparability of our statistics with those of the rest of the EU –

[18] However, the Welsh Assembly do publish school workforce and exclusions data and are currently developing value-added indicators.

[19] Secondary school attendance data is available, though it is not routinely published. Exclusions data is available from the DENI website.

[20] DfES have subsequently pointed to the existence of the Education and Training Theme Working Group and the National Statistics Work programme/Annual Report that attempt to share experience and initiatives between data providers across the UK.

for example, the definition of upper and lower secondary education in the UK. The need for contextualisation of statistics, including the results of international studies, was also mentioned by some key contacts.

12 Conclusions and recommendations

This chapter draws upon the evidence summarised in previous chapters in order to present a number of recommendations for consideration. These have been divided into main recommendations, which are mainly to do with broader, systemic aspects of the uses of educational statistics and additional recommendations, which tend to be more specific and to do with particular aspects of using such statistics.

12.1 Main recommendations

1 Move towards a coherent, 'uses-driven' system for educational data

The ***uses*** to which educational statistics are or could be put should become paramount. Main users include schools and local authorities (to inform self-evaluation and improve teaching and learning); policy-makers (to evaluate the effects of policy initiatives and give input to policy development) and academics (to gain longer-term understanding of the educational system, which can also feed into policy). Other users could include parents, who have an interest in the progress of their children and whether this is as good as could be expected.

In most cases these uses are better met by a comprehensive 'data warehouse' system linked to careful and detailed analysis, rather than through the collection of regular tabulated statistics which are not necessarily focused on uses. Moves in this direction, especially in England, are welcome, but should be encouraged and extended to other countries. It should be noted that this move cannot be successful without high-quality analysis applied to the data – data does not speak for itself and has to be carefully interpreted so that it can be used for this variety of purposes. More statisticians, trained and experienced in analysing complex datasets to extract meaning, should be in place at key points in the system. Government should develop a strategy to ensure that this movement is pursued effectively and delivers the potential benefits to users. Access to data for researchers who would add value to it through detailed analysis or matching to other datasets should be encouraged and obstacles to this should be removed as far as possible.

2 Monitoring national performance

The debate about how national performance levels in different subjects should be measured has already been addressed by the Statistics Commission. There seems to be some evidence to suggest that the current system in England, using 'high-

stakes' national tests, is not ideal but may be the best means of measuring educational improvement that we have available at present. It should be noted that national tests are in place to fulfil a number of purposes, of which national performance monitoring is just one. It is not clear that the introduction of an extra tier of testing would be a cost-effective solution to this issue. It should also be noted that more schools than in the past may feel unable to take part in such a programme, which might compromise its effectiveness.

The use of international studies goes some way to addressing this need and can give comparisons across the UK as well as internationally. The disadvantages are that the timing, age groups and subjects tested are not within the UK's sole control and that the issue of persuading schools to take part remains. If the UK were to take a policy decision in this direction, this should include a commitment to early and dedicated participation in international studies in order to have the maximum influence on their form.

The NFER review team recommends that a government study of these issues be set up, in order to determine the best and most cost-effective way forward in the area of national performance monitoring.

3 School performance data

The production of school-level statistics has two main functions, which can be labelled as accountability and school improvement. It is clear that schools have sometimes experienced tensions between these two functions: should data be used primarily for the purpose of *external* accountability, such as preparing for an inspection, or should it be used for *internal* purposes of school development. These two functions overlap, but are not always the same.

There is a widespread recognition that schools should be publicly accountable for their impact on young people and a feeling that the publication of performance tables has helped to drive up attainment (although the accusation has also been made that the misguided use of such tables may distort educational practice). It is not clear from our review that parents pay a great deal of attention to school performance statistics, although there is a widespread perception that this is the case. Parents seem mostly to be concerned with the broad educational experience and progress of their own children and less concerned about the details of the progress of a school or group of schools.

We recommend that school performance data should be publicly available, but presented in a form that attempts to measure (as far as possible) the impact of the school on a range of outcomes, taking into account factors outside the school's control, together with indications of the uncertainty in these measures. This requires careful analysis and open debates about methodology and the presentation of statistics in a way which is valid and accessible to all stakeholders. Decisions on these matters should be taken after the widest possible consultation with experts and other interested parties.

The use of performance data for school improvement is also important, although more research is needed (see below) into whether and how it leads to such improvement. The DfES PAT software is an example of the provision of data to schools for this purpose and the direct data link established between schools and the local authority in Scotland is another example of good practice. Governments should set up a cross-country body or team to study these developments, advise on best practice in this area and coordinate developments. Measures other than attainment (such as attendance and pupil attitudes) should be considered, in order to give a more detailed picture to schools of their strengths and weaknesses.

4 Interpretation of statistics

It seems clear that the wealth of educational data available has increased faster than the system's overall ability to interpret it. On the other hand, many in schools are increasingly coming to grips with data and finding that their skills in interpreting it are growing. Skill development, however, is patchy and seems to depend on local initiatives, mainly organised through the local authority. It seems that there is a need for a more coherent approach to helping school staff to understand statistics and use them effectively and that this should be coordinated more centrally. This approach should consider the needs of all school staff, not just those of school managers. One possibility would be for the development of some kind of national qualification or INSET programme to develop such skills. More training for governors would also be useful.

With regard to interpretation of statistics (and educational research in general) by policy-makers, there seems to be evidence of a gap between this group and those who produce research, with a tendency for each party to believe that the other is responsible for bridging it. We believe there is an onus on statisticians and researchers to present their findings in ways which are valid and accessible, but at the same time there should be certain levels of statistical understanding for those developing policy. It would be beneficial to establish regular forums where the two sides could come together and share ideas. This would need to be a two-way dialogue and open to as wide a range of ideas as possible and would ideally help to ensure that policy is based on sound statistical information[21].

12.2 Additional recommendations

1. Educational performance indicators should not be based on 'threshold' measures (ie whether or not a particular level of attainment is reached) unless they represent a real 'step-change' or binary divide (eg entry to university, absence from school).

[21] See for example New Measures of Success a joint initiative from the Learning and Skills Council (LSC), DfES, Ofsted and Adult Learning Inspectorate (ALI).

2. Consideration should be given to producing school performance indicators based on several years' data, to reduce their sensitivity to one 'anomalous' cohort.

3. Financial data related to schools should be improved in terms of coherence, consistency, accessibility and documentation.

4. Standards should be set up for the interpretation and use of pupil-level data, to avoid the danger of 'labelling' young people and ignoring the uncertainty in projections of individuals' future attainment.

5. Data related to post-16 education needs to be integrated, with inconsistencies between data collected for those at schools and at colleges removed.

6. The timing of the release of national data to LEAs and schools should be reconsidered. Although quality assurance takes time, it may be that effective use can be made of data which is of less than final quality if it is provided earlier.

7. Government should encourage LEAs and schools to move towards electronic systems of data capture and sharing, but support should be provided to school staff to overcome problems which may arise with the ICT.

8. The collection of attendance data should be improved, with data provided at the pupil level and collected termly. The distinction between 'authorised' and 'unauthorised' absence should be clarified and made consistent between schools.

9. Wales and Northern Ireland should reconsider the publication of school performance data, in the form of 'contextualised value-added' rather than 'raw league tables', in order to foster public accountability.

10. Legal and other difficulties in the way of bona fide researchers receiving access to national data should be resolved. The principle that data is collected once and used many times should take precedence, subject to suitable safeguards to protect confidentiality and prevent misuse of personal data.

11. The 'assessment for learning' movement should be supported and the formative use of assessment data should be encouraged through, for example, the development of tools such as PAT for tests other than those directly related to the national curriculum.

12. When the basis on which statistics are computed changes, consideration should be given to publishing both old and new versions in parallel for a period, to assist with maintaining information on changes over time.

13. More research is needed into whether providing detailed statistical information to schools does actually help to raise attainment. If this is the case, research

should identify the mechanisms by which this happens and spread information on how to produce the desired effect.

14. More research should be carried out into the best formats for presenting data to school staff for use in self-evaluation and improvement. Clear guidelines could be issued based on such research.

15. In England, with the advent of the 'New Relationship with Schools', the School Improvement Partners need to be given the necessary training in understanding and interpreting statistics to fulfil their role effectively.

12.3 Conclusions

This review of educational statistics relating to the five to 18 age group across England, Northern Ireland, Scotland and Wales, has shown that this is a large and complex field. The use of such statistics, in many respects, has increased dramatically and greater numbers of individuals and organisations now use such statistics for one purpose or another.

This is all the more reason for careful examination of how the collection and use of educational statistics could be rationalised and improved and this review has provided the NFER research team with a rare opportunity to conduct such a review. It has been based closely on the views of key contacts, local authority officers, school managers, teachers, governors and parents, as well as on the experience of the research team in using and interpreting statistics of this sort. It is to be hoped that at least some of the recommendations set out above will provide helpful starting points for further discussion on the best ways to take the uses of educational statistics forward.

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Appendix 1
An overview and critique of educational statistics across the UK

This appendix has two parts. The first part presents an overview of the basic details of what is being produced in each country, how these outputs are being presented, the topics covered and how help can be obtained by users. Following that, there is a critique which identifies some of the technical, methodological and wider educational issues which the NFER review team believes should be taken into account as part of the overall review. These comments are based largely on the extensive experience of the Statistics Research and Analysis Group (SRAG) in analysing and interpreting educational statistics at the NFER.

1 Overview

As part of this review, the NFER team has compiled a database of available educational statistics (related to pupils aged 5–18) throughout the four countries of the UK. This has included material published both in traditional form and on-line, as well as datasets which can be accessed to provide educational information. We note that there may well be other educational statistics available, but that these were not readily accessible to the research team.

The numbers of entries relating to the different countries are as follows:

•	England:	40	(8 of which include Wales)
•	Wales:	26	
•	Scotland:	37	
•	Northern Ireland:	17	
•	UK-wide	12	

Statistical publications produced by the four countries

The situation regarding the numbers of statistical publications produced is very different in the four countries. The DfES produces the largest number of publications in a year, mostly either for England and Wales[22] or for England only. The DfES Gateway website also produces UK wide statistical publications where appropriate.

[22] Publications cover Wales in relation to areas of responsibility not devolved to the National Assembly, eg teachers pay and pensions.

Wales is partly covered by the DfES publications, but the Welsh Assembly also produces a number of publications of its own. Perhaps the most obvious difference is the lack, as a result of a policy decision (following a public consultation), of 'school league table' information for Wales. Scotland, with its distinct system, has its own series of statistical publications. League table information is not formally produced in Scotland, though it would be possible to abstract this information by collating information from a number of school web sites. While the other home countries have in the region of 40 statistical publications a year, Northern Ireland only has 17 entries in the database and, in these, education statistics are only a section of the whole publication (it may be that this is for historical or political reasons). What follows, therefore, applies to the other three countries only, unless otherwise stated.

With a very few exceptions, statistical material is produced in book or pamphlet form. However the main way of accessing statistical information is electronically, via the world-wide web. Most publications are available in pdf (Acrobat) format and can be down-loaded from websites. They are generally also available in html format. Some tables, additionally, are available in Excel format. The Scottish Executive notifies its releases to a users' group.

Form in which results are presented

It is difficult to overstate the extent to which access to statistical material has been improved by the use of the world-wide web as the main dissemination channel. For anyone with convenient access to the internet, statistics are relatively easy to find and obtain. They can be downloaded free from wherever one has internet access, as much or as little as is required and can be browsed to determine whether they are valuable before deciding to use them. Having tables available in Excel format, where appropriate, also permits ready transfer of numerical information to other documents.

Material is generally produced in the form of tables, accompanied by graphs and commentary, together with definitions of the terms involved. Statistics are often produced under the auspices of National Statistics and, in the words found in many publications:

National Statistics are produced to high professional standards set out in the National Statistics Code of Practice. They undergo regular quality assurance reviews to ensure that they meet customer needs. They are produced free from any political interference.

In the surveys and interviews that formed part of this review, it was noticeable that comments from users who had experience of areas other than education indicated that they held a view that education statistics tend to be better produced and fuller than those for other topics.

Educational topics covered

Topics on which statistical material is available for school age children include:

1. children educated outside school
2. class sizes
3. attendance and absence
4. National Curriculum attainment
5. public examination results
6. free school meals
7. ethnicity
8. special educational needs
9. exclusions
10. Violence and Anti-Social Behaviour Orders (ASBOs)
11. drugs education
12. ICT in schools
13. transport
14. placing requests/admissions
15. pupil number projections
16. teacher census: teacher workforce planning
17. expenditure: (gross and capital)
18. school budget costs.

For post-compulsory education:

1. school leavers : destinations and qualifications
2. post-16 individual student data
3. age-participation index.

Obtaining help

All these statistical releases are quite well-documented, but it is also possible to contact the supplier directly to obtain further help. Our enquiries confirm that the Departments concerned are helpful once the enquirer knows who to ask. It can be difficult, however, to find things on the DfES Internet Gateway: indeed some of our respondents indicated that it was easier to use a commercial search engine and carry out a general search. Some interviewees took the view that having too much information on the DfES site and having statistics and research together, does not help.

Improvements suggested

From this brief initial overview of available statistics, the following potential improvements are suggested:

1. the DfES website should include a better quality search engine, to enable users to find statistics more quickly and more easily
2. wherever possible statistics should be available during the academic year to which they relate. This is not always possible, but a turnaround of four months from collection to publication should be considered a maximum
3. for each topic, there should be a first contact point, displayed clearly and prominently on the web site
4. at present 'research' and 'statistics' publications are mixed in together, though there is a category indicator beside each reference. It would be preferable to have them listed separately
5. some thought should be given to the question of producing similar statistical input in Northern Ireland as in the other three countries.

2 Critique of educational statistics

From the above overview and the NFER team's extensive experience of acquiring, matching, cleaning, analysing and interpreting educational statistics we would like to raise some points which can be regarded as a critique of the current situation. These can be summarised under the following headings:

1. better data, but needing better analysis
2. making better use of the data
3. measuring national attainment
4. school performance measures
5. the use of threshold indicators
6. presenting the results of complex analyses.

1 Better data, but needing better analysis

It is clear that the situation with regard to the provision of high-quality detailed educational statistics has improved and is continuing to do so; the possible exception in the UK is Northern Ireland (where the current situation is under review). But fuller and more comprehensive data has an overhead in terms of analysis – deep and important messages for the system as a whole and for individual elements can be extracted from it, but these do not spring out from a superficial examination. They require careful analysis and modelling in order to gain the important insights which

are needed for all kinds of purposes. Without the commitment to good analysis, the resources spent in collecting the data could well be wasted – it may therefore be regarded as a false economy to be cutting back on analytical staff when the need for them is perhaps greater than ever.

As more and better detailed data (especially at the pupil level) becomes available, it is appropriate to consider switching statistical resources away from the production of large quantities of tabulated data into the more sophisticated types of analysis outlined above. It used to be the case that routine tabulation of data was the main way in which educational issues were addressed quantitatively – however, this may be changing and it is important that strategies for the efficient use of the data being collected are developed coherently, spanning government agencies, researchers and policy makers.

2 Making better use of the data

Following on from the above, the uses to which data can be put should be considered further. National education departments are moving towards a recognition that data can be put to greater use for school improvement purposes (see Miliband, 2004), but to ensure that this happens effectively there are important details which must not be overlooked (see Schagen, 2004). The processes by which data informs self-evaluation and improvement are not fully understood, but are critical to ensuring that effective use is made of this valuable resource.

Another major use of data is to generate better understanding of educational processes and initiatives; for this to happen effectively what has been collected must be put together. One major stumbling block to this which has arisen is the difficulty which sometimes arises in gaining access to datasets for bona fide research, due to apparent legal or administrative barriers. It is important that government and national agencies should give careful thought to minimising the obstacles put in the way of researchers in the use of data – the principle that it is collected once and used many times is crucial and should be upheld whenever possible.

3 Measuring national attainment

When the Assessment and Performance Unit (APU) surveys of attainment were ended with the advent of national curriculum testing, NFER argued (with others) that this would not give as clear a picture of national performance. Since then NFER statisticians have been involved in the development of the national tests and the maintenance of standards from year to year and believe this has been carried out in an open and professional fashion. The national curriculum tests have multiple purposes and measurement of national performance levels is only one of these. There is some evidence (see Massey *et al*., 2003) that in some cases the present system has failed to maintain standards precisely from one year to the next, although it still seems to be true that national performance has risen over recent years, albeit not necessarily to the extent indicated by national tests. Tymms (2004) produced a large amount of data to support a similar claim – though, in our opinion, most of his

datasets do not support his arguments and only the Massey report provides convincing evidence in this direction.

Tymms goes on to argue for the setting up of an independent agency to oversee the measurement of national performance, using a system similar to that of the old APU surveys. His argument has some merits and would enable performance across all four countries of the UK to be compared on a regular basis. The question to be considered is whether this would be cost-effective and if the benefits would outweigh the problems of imposing yet more testing on the current system. Another option which provides relevant information is UK involvement in international testing (eg TIMSS, PISA, PIRLS) which gives comparisons internationally as well as between the home countries and over time. If this is to be carried forward, it requires government commitment to these surveys at an early date, so that the UK can be fully involved in the development of the testing.

4 School performance measures

SRAG at NFER have long been advocates of the use of indicators of school performance which take account, as far as possible, of all the factors which can influence pupils' outcomes and which are outside the school's direct control. Whether used for accountability or school self-evaluation, the use of indicators based on outcomes only can give very misleading impressions about a school's strengths and weaknesses. This 'contextualised value-added' approach to school indicators is not simple or straightforward and requires good data and sophisticated modelling, but is the best way in which valid measures can be derived. Alongside the estimated school indicators, it is vital that measures of uncertainty (such as confidence intervals) should be presented.

The use of data for school self-evaluation is an important area, with the potential to help schools to raise the performance of their pupils. This is critically dependent, however, on a number of different things all being in place together: the right analysis and presentation; the data getting to the right people; their being able to interpret it and see ways to change practice and those changes leading to improvements in teaching and learning (see Schagen, 2004). Providing schools with data is not on its own going to raise performance unless all the elements in this process are in place – having said that, it is clear that more progress is being made in this direction in some parts of the UK than in others.

5 The use of threshold indicators

This follows on from the discussion of school performance indicators, but relates also to statistics produced for policy consumption. A 'threshold indicator' is a binary variable derived from another scale which is either continuous or has a number of ordered categories (eg level achieved at key stage 2). Often these are aggregated to the school level and one of the key school-level indicators for many years in England has been the percentage achieving at least five GCSE grades from A* to C. Obviously there are binary indicators which relate to two clear and distinct states –

for example, life or death; present in school or absent; accepted by a university or not. But others seems more arbitrary – why five and not four or six? Is it really educationally crucial if someone achieves five grade Cs rather than three Cs, a B and a D?

The main problem with such indicators is that they are sensitive to the performance of a subset of individuals close to the threshold. Pupils performing well above or below the threshold who improve their results will not affect this measure. This fact has led to 'game-playing' strategies by schools anxious to improve their apparent performance by techniques such as focusing on 'borderline' pupils (this has even been encouraged by some government initiatives) or entering them for alternative qualifications which seem to offer an easier route to passing the threshold. The NFER team takes the view that school performance indicators should be sensitive to gains in attainment by *all* pupils, not just those near some threshold. Measures such as average level attained or average (capped) total GCSE point score are to be preferred and these indicators have begun to make an appearance in the school performance tables in England.

A further problem is the use of threshold indicators in public pronouncements showing, for example, that 'performance has risen faster in deprived areas'. It is easy to show, using a simple normal model, that this can happen with threshold indicators even when the underlying upward trend is actually lower in the deprived areas. This kind of manipulation or misuse of statistics should be discouraged if the aim is to assist policy-makers to gain a fuller understanding of educational processes through the use of quantitative data.

6 Presenting the results of complex analyses

The previous section included an argument for a move away from the routine tabulation of data towards an approach based on sophisticated modelling of matched datasets to address particular issues. However, there can be a problem in getting the results of such complex analysis across to policy-makers in a way that is relevant to their needs. Many presentations of, for example, multilevel modelling results in academic papers are extremely hard to get to grips with.

In a recent seminar relating to these issues (see Schagen and Elliot, 2004), there was much discussion of the need to make research outputs more accessible to non-technical stakeholders. This is almost as important as getting the right model in the first place. Researchers and analysts need to meet policy-makers more than halfway if the results of their work are to be taken seriously. The development of a common 'language' in which statisticians and policy-makers could share analysis would be an important target for governments to foster, as would the provision of forums in which this kind of understanding is shared.

Appendix 2
Email survey of key contacts

Overview of the respondents

A list of approximately 100 key contacts was developed and these were contacted by email and invited to return a simple questionnaire. A few emails were returned as undeliverable and some contacts responded that they had no dealings with statistics or were passing the survey on to some-one else who would be more able to respond. At present we have received completed surveys from 35 individuals representing a wide range of organisations across the UK.

When asked with which UK countries they were involved, 14 replied 'All UK' and of those who specified particular countries there were 13 for England, 6 for Wales, 3 for Scotland and 5 for Northern Ireland. To the question about their main role or roles with regard to education statistics, the following replies were received:

10	14:	production of education statistics
11	20:	use of education statistics for policy
12	29:	use of education statistics for research
13	4:	journalistic commentary
14	11:	international comparisons
15	8:	other uses.

Other uses included making decisions as a Schools Adjudicator, advice and guidance to education provides, equating national test standards over time and producing feedback to schools.

It is clear that use for research is the dominant category, but producers of statistics and policy-makers are also well represented.

Quality of statistical series

A number of generic statistical series were presented and respondents were invited to rate each on a 1 to 5 scale for different aspects of quality, including technical quality, ease of access, clarity, comparability over time and relevance to their area of work. Not all respondents filled in this matrix and those that did tended to focus on certain statistical series. In most cases the ratings were at level 3 ('acceptable') or above – not altogether surprisingly, the producers of statistics were more likely to rate them highly than the users. In this brief paper we will highlight particular areas where one or more key contacts gave ratings below 3.

Technical quality was given low ratings for some series, especially school performance data, pupil background and attainment data and information about financial resources for schools. Attendance, exclusions, school staff and teacher salary information attracted 'poor' ratings from one or two respondents each and there were none for pupil numbers.

In terms of ease of access, financial information received the most 'poor' or 'very poor' ratings, followed by school performance and pupil background data. The other generic series had just three low ratings on this aspect, except for pupil numbers and school staff information which had one each.

School performance data and financial resources came out worst in the ratings for clarity, with other datasets receiving just one or two low ratings on this aspect. Data on pupil numbers attracted no ratings lower than 'acceptable'.

For comparability over time, the usual four datasets (school performance, pupil background and attainment data and financial resources) received the lowest ratings. Other datasets received between one and three low ratings, except for pupil numbers which had none.

This brief summary probably gives an impression of the wide range of opinions, interests and backgrounds of the key contacts who responded. Some of the points which have been highlighted are picked up in more detail in the emerging issues presented below.

Issues highlighted by respondents

Reading through the comments provided by the key contacts, it is possible to detect a number of issues which are flagged by one or more respondent. These are outlined briefly below, although it should be noted that these are not necessarily exhaustive and further issues may emerge in the course of more in-depth interviews.

- **Standards over time:** educational policy can be influenced by and targeted towards, changes in measures of attainment based on national testing, particularly in England. Academic concerns have been voiced about the comparability of such measures over time, based as they are on fresh tests each year. Another issue is the comparability of different qualifications, for example at the end of key stage 4. While the debate continues, it is vital that policy is based on measures which are shown to be consistent over time. Confidence that the best possible methods are being used needs to be maintained. The use of international surveys for this kind of information also forms part of this issue.
- **Comparability across countries:** several respondents highlighted this as an issue. A number of aspects were mentioned: different definitions of data fields; a lack of any easy access to, or documentation of, cross-country comparisons; invalid conclusions drawn by those who do not understand the differences

between the systems in different countries and a range of related comments. The point was made that the problem of comparing different countries within the UK is no different from that of international comparisons in general; however, it might be expected that some 'UK-wide' common statistical information could be made available and easily accessible, with agreed definitions.

- **Diversity of datasets:** there is some agreement that there has been an improvement in the availability of comprehensive data and that current initiatives are likely to improve matters further, but several respondents pointed out gaps and inconsistencies in existing datasets and statistics. For example, young people after the end of compulsory education are quite hard to track, as they may appear in the National Pupil Database (NPD) or on the Individualised Learner Record (ILR). One respondent commented on a 'lack of joined-up-ness' of central government, with data being sought for different purposes by different agencies. There also appear to be problems with the consistency of definitions across different datasets and with a lack of documentation of the detailed calculations which give rise to particular statistics.

- **Interpretation of statistics:** a number of respondents alluded to this, most commonly within the context of school performance tables. On one hand, academics who are expert in this area called for properly contextualised value-added measures for schools, including confidence intervals, to prevent schools being judged on inappropriate measures. On the other hand and not inconsistently with the above, other respondents called for more and better training of policy-makers and other users of statistics in the correct understanding and interpretation of statistical data. The need for contextualisation of statistics, including the results of international studies, was also mentioned. Public misunderstanding of changes to the education system which make some interpretations of statistics invalid was also highlighted by one respondent. There was a call for more focus on local statistics and on statistics related to current issues.

- **Access to data:** several key contacts, particularly those with a research role, made comments about the difficulties they can experience gaining access to data which is available. One respondent mentioned difficulties with the DfES website and said that the gateway was hard to navigate. Another called for a 'one-stop-shop' for access to comparative and time series data across all four countries. There was a comment about difficulty in gaining access to school-level data from the DfES for research which is not directly funded by DfES and at NFER we have experienced similar problems with gaining access to pupil-level data. It seems that data should be collected once and then used as efficiently as possible for multiple purposes – however, this implies that data protection and confidentiality procedures need to be investigated so that legitimate use is encouraged and value is added to the data which has been collected and unnecessary data collection exercises are reduced.

- **Quality and existence of particular datasets:** a number of comments were made about problems with particular datasets, or the need for them where they do not exist within a particular country. These included: school workforce, exclusions and value-added performance data in Wales[23]; attendance, exclusions, teacher salary and value-added performance data for Northern Ireland[24] and school finance data across the UK.

These issues were explored in more depth through the interviews with a selected subset of the respondents.

[23] However, the Welsh Assembly do publish school workforce and exclusions data and are currently developing value-added indicators.

[24] Secondary school attendance data is available, though it is not routinely published. Exclusions data is available from the DENI website.

Appendix 3
Key contact interviews

A total of 13 key contacts who responded to our email survey were interviewed to obtain their views in more depth. Most of the interviews were carried out by telephone. Interviewees came from all four countries and included data producers as well as academics and policy-makers. The issues raised in these interviews are summarised below, by theme.

1 Format and fitness for purpose

The key contacts made a number of detailed criticisms of particular datasets and statistics in their individual countries, but overall a broad picture emerged which could be crudely generalised as follows.

- A big advance has taken place in England in the collection of detailed pupil-level data and a burgeoning use of this for purposes including research and monitoring school effectiveness – but these developments are not without their problems and areas where significant improvements could be made.
- Wales is less advanced in terms of comprehensive datasets, but tends to take similar approaches to England when that seems worthwhile – for example the collection of detailed pupil level data through PLASC. The main exemption is in the publication of school performance tables and no way at present of deriving value-added information on schools (though these are being developed).
- Scotland has a quite different system for maintaining and using educational data, focusing on web-based school information and greater involvement of LAs. Information on attainment at the later stages of secondary school is gathered from the SQA. Information on attainment in primary school and early secondary was until recently collected centrally through the 5–14 collection, however this central collection of data has now been stopped and in its place a new sample based survey of achievement will be used to report on learning.
- Northern Ireland tends to be characterised as being behind the rest of the UK in terms of the availability and use of educational statistics – in fact, there was a mistaken perception that the publication of school performance measures was 'illegal' in Northern Ireland.

Specific criticisms of particular datasets tended to focus on England, but some were relevant to other countries of the UK. Although the NPD (including PLASC) was regarded as innovative, there were said to be problems with it, in terms of missing

data and data not fully cleaned. Another major problem area is in the provision of statistics for students post-16 – their data might reside in either the NPD (if they are in a sixth form) or in ILR (in a college or other form of education or training) and these datasets currently do not collect or keep data compatibly. Financial statistics on schools is another area which was regarded as difficult, with problems in resolving definitions between DfES and the Treasury. One interviewee expressed the opinion that the quality of pupil attainment data decreases with age and the Foundation Stage Profile (FSP) is not worth collecting.

Moving away from the quality of the basic data, a number of comments related to how data was processed or presented. A mention was made of the RSS guidelines on reporting statistics, in particular the need for confidence intervals and sample sizes. Several interviewees concurred with the need for confidence intervals, with particular reference to school performance tables, which came in for a good deal of criticism. The recently-developed school value-added measure which now appears in performance tables was said to be technically poor and the arbitrary addition of 100 to the mean residual allows these values to be confused with standardised scores, with which schools are more familiar. Another interviewee said that regression methods should be used for these statistics and a call was made for more open description of methodology to be included.

A related issue was the use of data from 'high-stakes' national testing to track overall national attainment and a strong call for a separate independent body to monitor standards over time. This was linked with the need for broad and balanced descriptors of children, based on representative samples.

2 Training

The need for training was mentioned by several interviewees, mainly for teachers and other staff in schools, especially primary. This was specifically linked by one key contact to the use of assessment data to improve teaching and learning, with a clear reference to the 'assessment for learning' movement.

The need for training for other key staff within education was also mentioned; these included school inspectors and LEA staff, as well as those providing data. Mention was made of policy makers needing training in understanding statistics and it was claimed that a very low proportion of these actually have any research training. It was also suggested that staff within the media who deal with statistics need training in interpreting and presenting data and there was some discussion by one interviewee of the concept of 'statistical literacy'.

However, there was little or no discussion of how such training might be provided or who would be responsible for developing and delivering it.

3 Timing and Timeliness

There was an acknowledgement by one interviewee that data was often not supplied quickly enough to schools for their purposes. Otherwise, surprisingly little was said about this issue.

4 Interpretation

Much of the comment on interpretation tended to focus on school performance data, particularly in England. Some interviewees made the point that data published for accountability purposes (ie school performance tables) should be kept clearly separate from data for school self-evaluation and improvement. Many of the indicators which have been used for accountability are based on 'threshold' indicators (eg percentage of pupils achieving 5 or more GCSEs at grades A* to C) and such indicators can lead to 'game-playing' strategies by schools. Another issue was the strong feeling amongst several interviewees that school performance statistics should not be produced without associated confidence intervals; however, it was also claimed that the public does not understand confidence intervals and this would be a waste of time.

More generally, there was a feeling that data was often presented to the public without suitable caveats, which led to over-interpretation and misunderstandings. It was also stated that the public does not understand changes to the education system which can make simple comparisons with the past invalid.

5 Uses and purposes

In some ways there is a rather fluid boundary between the previous area and this one, as many of the interviewees' comments could be classified in either area – problems of interpreting statistics can be directly tied into the use or misuse of them.

Again, many of the issues raised related to school accountability, monitoring and self-evaluation purposes. There was a strong call for more and different school-level indices to be available, including measures such as pupil attitudes and behaviour in addition to attainment. Although the argument for 'value-added' analysis has received increasing support, with prior attainment of pupils now being allowed for in some of the DfES accountability measures, it was stated that more background factors (outside the school's control but affecting performance) should be taken into account. Clearly, the statistics produced should reflect the uses to which they are put – measures for accountability may be quite different from those used by the school's management to probe deeply into their own strengths and weaknesses. From Northern Ireland came a comment that the lack of published school-level information is a serious weaknesses for users interested in the functioning of the system and from Wales a statement that the use of data is thinly spread and depends on individuals.

There were some comments on the use of data by policy makers. It was stated that there had been some improvements in this over the last 20 years, with acknowledgements towards the need for 'evidence-based' policy – however, major initiatives (the Specialist Schools initiative was mentioned) are still launched without clear research evidence. Another interviewee concurred that there were problems with the use of data by policy makers, with politicians in particular taking only the messages they want to hear.

From Scotland came a comment that there is an increasing demand for international comparisons, including cross-UK comparisons. However, the quite different systems in place may lead to spurious comparisons. It may be appropriate to make use of international studies such as PISA, TIMSS and PIRLS, which measure using a common test rather than trying to force comparability onto incomparable national systems. However, it is still important to consider the impact of national systems on the outcomes (for example, the age of pupils and extent to which the national curriculum covers the international tests).

6 School/LEA relations

None of the interviewees made any specific comment relating to this area.

7 Coherence

Several of the interviewees made reference to the need for 'joined-up-ness' in relation to educational statistics and their production and use. Many of these comments referred directly to particular datasets (see above) – for example the difficulty of tracking post-16 students who might be in the NPD or ILR and the lack of consistency between those datasets. Other comments related to lack of consistency over time or between countries (see below) or to the need for a 'one stop shop' from which users could obtain coherent data for their purposes. Within this whole area there were several observations about the need to agree consistent definitions of key data fields to avoid ambiguities and discrepancies.

More broadly, there was a perceived need for more 'joined-up-ness' in general, in terms of considering the data which is likely to be needed for a variety of purposes and ensuring it is collected, distributed and interpreted in efficient and coherent ways. A great deal of progress has been made in this direction, at least within parts of the UK, but the there is still much to do. From Northern Ireland came comments that different elements of the educational system do not communicate and that there is a lack of understanding of a 'broader picture'.

8 Accessibility

A wide range of opinions was gathered, with interviewees tending to focus on areas where they had experienced problems in accessing data they needed. There is a general feeling that more data than ever before is available, especially for England,

but that access is patchy. It seems to depend on the country, the dataset, the level of detail required, for whom you are doing the work and your own personal contacts.

There was a definite feeling from academic respondents that access could be simplified for bona fide researchers and that there were problems getting clearance for research that was not sponsored by DfES. The balance between confidentiality and the efficient use of data for multiple purposes was felt to need to be addressed generally, with consistent universal guidelines being set up. Some interviewees claimed that they had good access to data, but only through personal contacts – this certainly was said to be true for Northern Ireland. Comments about accessing data for Wales and Scotland seemed to imply this was harder than for England.

The mode of accessing data was also discussed, with some interviewing stating that the advent of the Internet had improved things and that material available on the Web could be easily updated. Other commentators stated a need for hard copy in additional to web-based information, while there was a comment from Wales that it was not always easy to locate data or know if it was available on the Web or in published form. One interviewee stated that there was confusion about where to find some statistics, with some coming from DfES and some from ONS. There was a comment that the DfES statistical gateway was hard to search, making DfES statistics quite hard to find – a better search engine is required. As well there was a need to distinguish between 'research' and 'statistical' publications on the website.

There were comments about the difficulty of accessing financial data about schools, especially in Wales – one interviewee stated that the best access was via the Audit Commission.

9 Comparability across time and over countries

Comparability of educational statistics over time is a big issue, especially for many academics and those trying to get the broad picture of how educational outcomes have changed over the years. A perpetual problem with maintaining time series of data is when improved measures should replace old ones, thus breaking the series. One suggestion is that 'old' measures should continue to be reported in parallel with the new to allow comparability to be maintained. One concrete example was the latest equivalences produced by QCA to allow GCSE, GNVQ grades etc. to be given 'scores' to put them on a single tariff – the interviewee stated that this has changed the weighting between grades and can lead to anomalies.

A major issue which was raised was the process of measuring national levels of attainment in England using the results of national curriculum testing. The latter is 'high stakes' and involves new tests being run each year, with standards being maintained each year through a complex equating process overseen by QCA. The claim is that this process has not worked unproblematically and some of the apparent rise in pupils' attainment is due to this factor rather than real improvements. This interviewee has made a case for such monitoring of national attainment to be carried out by an independent body, separate from government. This debate

continues and has been looked into by the Statistics Commission. It should be noted that Scotland uses a national 'low stakes' survey to measure attainment annually (APS – Annual Performance Survey).

Turning to comparability across the different countries of the UK, several interviewees states that it caused confusion and difficulty having separate conventions for collecting and reporting data between them. A contact in Northern Ireland stated that there was a lot of nonsense talked about UK comparisons based on bogus data and one from Wales stated that they relied on 'Regional Trends' for such comparisons, but this was not as useful as it could be. In more general terms, one interviewee claimed that England was best for attainment data; Scotland had a better national survey of performance, while Northern Ireland was largely missing data for the primary sector. Another contact said that we should be able to learn from the diversity across the UK, but was unsure whether this was happening.

The main solution which was advocated to this perceived problem of cross-UK comparability was the use of international studies (PIRLS, TIMSS, PISA etc) to monitor performance across the UK and also of course relative to other countries. One interviewee said that we needed to maintain comparability of our statistics with those of the rest of the EU – a particular issue is the definition of upper and lower secondary education in the UK.

Appendix 4
Local authority survey tables

Table A5.1 How local authority data could be improved

	England count	NI count	Scotland count	Wales count	Totall count
Quicker provision of national comparative data	15	0	0	1	16
Need a method for easy electronic transfer of data	9	1	3	2	15
Full web-based method for disseminating data	9	0	2	3	14
Streamlining/rationalisation of data sent out	8	0	2	0	10
Accuracy/quality of data	9	0	0	1	10
More/improved ICT systems and resources	6	0	4	0	10
More meetings/training course re info	5	0	3	1	9
Speed of distribution/timing of distribution	7	0	0	1	8
Enhanced INSET for schools (to make more use of the data)	5	0	1	0	6
Dedicated LA staffing	2	0	1	2	5
Dev. of tools for electronic collection /distribution	2	0	2	0	4
Increase interactivity of website	3	0	0	0	3
School involvement/data tailored to schools needs	3	0	0	0	3
Other	3	0	2	0	5
No response	17	0	8	4	29
N = 107	**69**	**1**	**26**	**11**	

Source: NFER Survey of Local Authorities, 2004. A multiple-response question.

Table A5.2 Data received from government/official sources

	England count	NI count	Scotland count	Wales count	Totall count
National Curriculum results	66	1	19	11	97
School attendance figures	56	1	26	10	93
School performance tables	64	1	23	4	92
Value-added data	59	1	16	8	84
Pupil characteristics/class sizes	49	0	20	9	78
Permanent exclusions	42	1	21	10	74
Post-16 performance tables	56	1	10	3	70
Participation of 16 and 17	41	1	20	4	66
Participation by 16–18	44	1	17	3	65
Participations rates in HE	33	1	23	1	58
Vocational qualifications	39	1	9	8	57
Key skills qualifications	32	1	10	4	47
Admissions appeals	22	1	8	2	33
Other	10	0	4	4	18
N = 107	**66**	**1**	**26**	**11**	

Source: NFER Survey of Local Authorities, 2004. A multiple response item. 3 England respondents did not answer this question

Table A5.3 What schools are expected to do with local authority data

	England count	NI count	Scotland count	Wales count	Totall count
Guide school self-evaluation	66	1	25	10	102
For school development plan	65	1	25	10	101
Set targets	66	1	24	9	100
Guide curriculum development	61	1	24	9	95
Provide information: governors	62	1	8	11	82
Provide information: parents	47	0	22	9	78
Produce reports for staff	42	0	16	8	66
Information: potential investors	6	0	0	0	6
None ticked	1	0	1	0	2
N = 107	**69**	**1**	**26**	**11**	

Source: NFER Survey of Local Authorities, 2004. A multiple-response question.

Appendix 5
School survey tables

Table A6.1 School survey responses by country

	Questionnaires sent	Questionnaires returned
England	400	157
Northern Ireland	200	77
Scotland	200	82
Wales	200	89
	1000	**N = 405**

Source: *NFER Survey of Schools, 2004. A single-response question.*

Table A6.2 School survey responses by phase of schooling

	Questionnaires returned	%
Primary	208	51
Secondary	197	49
	N = 405	**100**

Source: *NFER Survey of Schools, 2004. A single-response question*.

Table A6.3 View on whether data is given at the right time

	%
Strongly agree	2
Agree	34
Neither agree nor disagree	31
Disagree	25
Strongly disagree	6
Don't know	1
No response	1
	N = 405

Source: *NFER Survey of Schools, 2004. A single-response question*.

Table A6.4 How use of statistics could be improved

Category label	%
Need training	6
Allowing sufficient time for analysis and use	6
Uniform presentation/format needed	4
Involving all staff	4
Improve software/ICT	4
Specific type of data mentioned	4
Simpler/more straightforward	4
Data in a single/easily accessible data base	3
Greater coordination between the different bodies involved	3
Conclusions not reliable/relevant in small schools/small cohorts	3
Provision of data earlier	3
More relevant/focussed	3
Too much data collected	2
Ensure data is accurate/sound	2
Nothing/information meets our needs	2
Consider how the information can be passed to parents	2
Receive/use very little data from LEA	2
Include more accurate benchmarking info	1
Inter-school comparisons of like cohorts	1
Data having proven use	1
Use qualitative info as well as quantitative	1
Early transfer of transition data	1
Having a data manager or more central analysis	1
Need funding	1
Collaborative case studies	1
Too much emphasis on raising attainment	1
Unsure/don't know	1
Ongoing development to target-setting	1
Exclude children arriving during KS2	1
Data in single booklet	1
No response	60
Total responses	**405**

Source: *NFER Survey of Schools, 2004. A multiple response item. A total of 130 responses were given. Not all responses are listed.*

Table A6.5 The main statistical sources used by primary schools

Primary[25]	England %	Northern %	Scotland %	Wales %	Overall %	Overall N
Key stage results/ SATs/5–14 test results	26	37	61	50	40	84
Autumn package/PANDA	73	N/A	N/A	N/A	31	64
Attendance/absence	8	27	48	11	20	42
Budgetary	10	47	26	11	19	40
Benchmarking	8	20	0	34	14	28
LA analysis/ SPATs sheets	25	0	2	11	14	28
School information system/ own data	17	13	11	9	14	28
Target tracker/targets	13	7	20	9	13	26
Standardised scores	1	33	9	23	12	25
Pupil teaching/pupil	11	3	4	16	10	20
Fischer family trust	18	N/A	N/A	0	8	16
Baselines/data from	1	0	4	21	6	12
PIPS	7	0	11	0	5	11
PAT	13	N/A	N/A	N/A	5	11
School profile	7	0	0	9	5	10
CATs	0	0	0	16	3	7
No response	2	7	11	7	6	12
Total	**88**	**30**	**46**	**44**	**208**	

Source: *NFER Survey of Schools, 2004. A multiple-response question.*

[25] It should be noted that not all of the following data sources are available in all four countries.

Table A6.6 The main statistical sources used by secondary schools

Secondary[26]	England %	Northern %	Scotland %	Wales %	Overall %	Overall N
GCSE/A level outcome	16	62	44	20	33	65
CATs	23	6	11	40	21	41
Attendance/absence	7	23	36	13	18	35
Autumn package/ PANDA	48	N/A	N/A	N/A	17	33
Key stage results/ SATs/5-14 test results	10	13	31	16	16	31
YELLIS/MIDYIS	20	13	8	18	16	31
Fischer family trust	32	N/A	N/A	16	15	29
Benchmarking	1	28	6	24	14	27
School information system/ own data	19	6	14	2	11	22
Budgetary	4	28	3	9	11	21
STACS	N/A	N/A	53	N/A	10	19
LA analysis/ SPATs sheets	7	2	11	7	7	13
Value-added information	7	6	0	11	7	13
WED data	N/A	N/A	N/A	13	3	6
No response	10	9	3	9	8	16
Total	69	47	36	45	197	

Source: *NFER Survey of Schools, 2004. A multiple-response question*.

Table A6.7 Data received from the local authority

	%
Budgetary data	78
Benchmarking information	68
Target setting data	65
Examination data: boys/girls	65
Similar schools/families of schools	63
Prior attainment data	59
Value-added data	51
Predicted examination. Grades	29
Examination data by ethnic group	19
None ticked	7
	N=405

Source: *NFER Survey of Schools, 2004. A multiple-response question*.

[26] It should be noted that not all of the following data sources are available in all four countries.

Table A6.8 The usefulness of local authority data to primary schools

Primary	England	Northern	Scotland	Wales	Overall	N receiving this data
	%	%	%	%	%	N
Prior attainment data	97	50	94	95	95	115
Value-added data	91	100	100	88	91	95
Benchmarking information	94	73	85	84	87	151
Examination data: boys/girls	85	85	91	84	86	141
Similar schools/families of schools	89	75	91	81	86	135
Target setting data	90	67	93	85	88	142
Predicted examination grades	83	0	100	100	87	53
Budgetary data	91	88	97	97	93	162
Examination data by ethnic group	83	0	100	67	83	47
Total	**88**	**30**	**46**	**44**	**208**	

Source: *NFER Survey of Schools, 2004. A single-response question. Those reporting data is useful or very useful. Due to the small number of schools in some of the cells the results should be treated with some caution.*

Table A6.9 The usefulness of local authority data to secondary schools

Primary	England	Northern	Scotland	Wales	Overall	N receiving this data
	%	%	%	%	%	N
Prior attainment data	89	82	97	96	92	113
Value-added data	85	67	100	100	91	104
Benchmarking information	83	97	80	97	90	118
Examination data: boys/girls	81	88	96	89	88	109
Similar schools/ families of schools	74	90	100	88	87	109
Target setting data	79	89	91	77	82	108
Predicted examination grades	81	67	100	100	89	55
Budgetary data	87	92	96	58	93	135
Examination data by ethnic group	69	50	100	67	72	25
Total	**69**	**47**	**36**	**45**	**197**	

Source: *NFER Survey of Schools, 2004. A single-response question. Those reporting data is useful or very useful. Due to the small number of schools in some of the cells the results should be treated with some caution.*

Table A6.10 How primary schools use local authority data

Primary	England %	Northern %	Scotland %	Wales %	Overall %	Overall N
To guide school self-evaluation	97	80	94	91	92	192
To inform the school development plan	96	90	89	93	93	193
To guide curriculum development	86	77	83	93	86	178
To provide information for governors	98	90	35	91	81	169
To produce reports for staff	68	53	63	59	63	131
To provide information for parents	66	80	89	73	75	155
To provide information for investors	6	7	2	2	4	9
Other	8	3	4	9	7	14
None ticked	0	3	2	2	1	3
Total	**88**	**30**	**46**	**44**	**208**	

Source: *NFER Survey of Schools, 2004. A multiple-response question. Due to the small number of schools in some of the cells the results should be treated with some caution.*

Table A6.11 How secondary schools use local authority data

Secondary	England %	Northern %	Scotland %	Wales %	Overall %	Overall N
To guide school self-evaluation	81	94	92	89	88	173
To inform the school development plan	74	94	97	84	85	168
To guide curriculum development	64	72	83	73	72	141
To provide information for governors	74	89	19	89	71	140
To produce reports for staff	64	72	83	78	73	143
To provide information for parents	41	60	83	62	58	114
To provide information for investors	9	4	0	7	6	11
Other	9	15	6	9	10	19
None ticked	16	0	0	7	7	14
Total	**69**	**47**	**36**	**45**	**197**	

Source: *NFER Survey of Schools, 2004. A multiple-response question. Due to the small number of schools in some of the cells the results should be treated with some caution*.

Table A6.12 How the local authorities provision of statistics could be improved: primary schools

Primary	England %	Northern %	Scotland %	Wales %	Overall %	Overall N
Improved training in the use of statistics	55	70	63	48	57	119
Increased support in collating school data	48	47	39	16	39	81
Better presentation of data received	19	57	28	21	27	56
More support in interpreting the data	61	60	50	46	55	115
Other	10	7	9	5	8	17
None ticked	16	7	15	21	15	32
Total	**88**	**30**	**46**	**44**	**208**	

Source: *NFER Survey of Schools, 2004. A multiple-response question. Due to the small number of schools in some of the cells the results should be treated with some caution*.

Table A6.13 How the local authorities provision of statistics could be improved: secondary schools

Secondary	England %	Northern %	Scotland %	Wales %	Overall %	Overall N
Improved training in the use of statistics	51	70	53	53	56	111
Increased support in collating school data	44	49	17	31	37	73
Better presentation of data received	33	32	25	31	31	61
More support in interpreting the data	45	53	53	47	49	96
Other	13	11	8	13	12	23
None ticked	30	11	19	24	22	44
Total	**69**	**47**	**36**	**45**	**197**	

Source: *NFER Survey of Schools, 2004. A multiple-response question. Due to the small number of schools in some of the cells the results should be treated with some caution*.

Appendix 6
Case-study schedules

A7.1 LEA officer interview schedule

Section A Context and background

A1 Can you give me a brief overview of the context of the LEA and any issues you think we should be aware of?

A2 What is your role within the LEA?

How long have you been here?

For how long have you held this post?

A3 What is your role in the terms of the collection, distribution and use of educational statistics within the LEA?
(refer to questionnaire response)

A4 Is anyone else involved in the collection, distribution and use of educational statistics?
(see questionnaire)

A5 Do you have a background in the use of educational statistics?

A6 Have you received any training in the use of educational statistics?

If so, what, how useful was it in helping you in your current role?

If not, what training would you like to receive?

Section B School statistics

B1 What data do you collect from schools?
(see questionnaire)

B2 Why do you collect this/what is the purpose of collecting the data from the schools?

Does it allow you to do this/does it meet its purpose?

Do you have any suggestions for improvements?

B3 How is it collected?/What data collection methods are used?

B4 What do you think of this process?

What are the strengths?

What are the challenges?

B5 Is there any guidance material/training to support schools on the collection of data by schools? (from yourself and/or from others)

B6 Do any individual schools buy in services from the LEA to collect educational statistics?

B7 Do you have any suggestions for improvements in relation to data collection?

Section C National statistics/not from individual schools

C1 Which national statistics do you use?
(check questionnaire)

Are these sent to you or do you go and find them?

Who are the main providers? (eg DfES, QCA)

What does this data relate to? (eg assessment results, exclusion data)

C2 In your questionnaire you ranked XXX as the most important provider of educational statistics for the LEA. Can you explain why you have ranked them in this order?

If any have not been ranked, is this because they are not seen as relevant or is it because the data are difficult to understand?

C3 What is this data used for/what is the purpose of it?

Does it meet that purpose?

Are there any data sources the LEA would like to have access to but have difficulty obtaining?

C4 What do you think of the educational statistics you receive from these sources?

How easy are they to access? (eg hard to come by/too many sources)

How easy are they to understand and interpret?

What do you think of the format/presentation?

What do you think of the quality of the data? (eg validity/reliability)

Is the timing right? (eg too often, too late etc)

What are the strengths/challenges?

C5 How useful are national data sets?

Should anything else be provided at a national level?

C6 Do other departments within the LEA use this data?

How well is this process coordinated?

C7 Do you have any suggestions for improvement?

What other data would you like to receive?

Section D LEA produced statistics

D1 Who do you see as being the main users of LEA produced statistics? (eg schools, parents, government, media)

D2 From your questionnaire I see you have ranked XXX as the most important/frequent users of educational statistics produced by the LEA. Can you explain why you have ranked them in this order?

If any have not been ranked, why is this?

D3 What do you perceive as the benefits for others in using data produced by the LEA? (Schools, media, government etc)

D4 What are schools expected to do with the data they receive from the LEA? (eg communication with parents and the local community, self-evaluation)

To what extent do schools actually do this?

Does the LEA monitor schools use of statistics?

D5 How does the LEA distribute data to others?

In what format(s)?

Why are these formats used?

Via whom? (eg is there a link member of staff within each school)

How often?

D6 Is there any guidance material/training to support others in how to use and interpret LEA produced statistics?

Is there support in the use of statistics in general?

If no training has been provided, why is this?

Are there any plans to provide support and guidance in the future?

D7 Do you have any suggestions for improvement in the LEA's provision of statistics to others?

Section E Reflection

E1 How well do you feel that the LEA and schools work together in the collection and use of educational statistics?

E2 What do you perceive as the main challenges schools face when using educational statistics?

E3 Do you have any suggestions for improvement?

A7.2 Schools: Person responsible for statistical data interview schedule

A Personal background

A1 What is you role within the school?

A2 How long have you been responsible for statistical data?

A3 Is your involvement because of the nature of your job/post, or because of personal interest and experience?

A4 Is your responsibility a formal part of your role?

Do you receive any management allowances/salary points for this?

B Educational statistics collected – for others

B1 What statistical data is collected from the school?

By whom? (eg LEA, DfES)

B2 Who is responsible for the collection of this data within the school?

Do you receive any administrative support for data collection?

B3 For what purposes is this data collected?

Do you think the data serves its purpose?

If not, why/in what way?

B4 What do you think of the process? (eg time of year, time it takes, ease, format)

What are the strengths?

What are the challenges?

B5 Do you have any suggestions for improvement in relation to data collection?

C Educational statistics received/obtained – from others

C1 What educational statistics do you use?

Are these sent to you or do you have to access these yourself?

What are the time implications of the this?)

Who are the main providers? (eg LEA, DfES, QCA, your own internal statistics)

If LEA, then is it just one department or many?

C2 Why do you use educational statistics/what is the purpose? (eg making comparisons with other schools, development plans, targeting resources, attract prospective pupils/ parents).

Do the statistics you receive allow you to do this?

How are the statistics you receive used for decision-making?

If not, why not? (eg too late)

What are the benefits of using educational statistics?

C3 What do you think of the educational statistics you receive?

How easy are they to access? (eg hard to come by/too many sources)

How easy are they to understand and interpret? (eg user friendly)

What do you think of the format/presentation?

What do you think of the quality of the data? (eg validity/reliability)

Is the timing right? (eg too often, too late etc)

What are the strengths/challenges?

C4 Are the statistics you receive from different sources complementary? (eg similar formats, similar conclusions, do they overlap or are there gaps)

C5 Have you received any training/guidance in using educational statistics?

If so, what, how useful was it in helping you in your current role?

If not, what training, if any, would you like to receive?

C6 How do you communicate these statistics to others? (eg website, school profile, summarise or leave as raw data)

C7 Who has access to/makes use of educational statistics (eg governors, parents, teachers, support staff)

Why some and not others?

What do they use them for?

What is your perception of the usefulness of educational statistics to them?

C8 Do you have any suggestions for improvement?

What other data would you like to receive?

D Reflection

D1 Do the statistics match people's perceptions about the schools? (your own perceptions and others)

D2 How well do you feel that the LEA and schools work together in the collection and use of educational statistics?

A7.3 Schools: Parents interview schedule

[Ask about general and specific to this school]

A Background

A1 How many children do you have?

How old are they?

Do they all attend the same school

A2 Are you involved in the school in other ways as well as being a parent? (eg lunchtime supervisor, school governor)

B Use of educational statistics

B1 Do you receive/use any educational statistics? (eg league tables, school newsletters)

From this school and from any others?

B2 How are these sent to you (via/from the school)/or do you have to access these yourself?

B3 What do you think of the educational statistics you receive/use?

How easy are they to access? (eg hard to come by too many sources)

How easy are they to understand and interpret? (eg user friendly)

What do you think of the format/presentation?

What do you think of the quality of the data? (eg validity/reliability)

Is the timing right? (eg too often, too late etc)

What are the strengths challenges?

B4 Why do you use educational statistics/what is the purpose? (eg to select schools/to compare schools).

Do the statistics you receive allow you to do this?

How are the statistics you receive used for decision-making?

If not, why not? (eg too late)

What are the benefits of using educational statistics?

B5 Are the statistics you receive from different sources complementary? (eg similar formats, similar conclusions, do they overlap or are there gaps)

B6 If you had a particular query regarding certain data (eg local exclusion rates), do you feel you would know where to look?

B7 Do the statistics match people's perceptions about schools and education? (your own perceptions and others)

B8 Do you have any suggestions for improvement?

What more would you like to receive?

A7.4 Schools: Governor/school board interview schedule

A Use of educational statistics

A1 Do you receive/use any educational statistics?

Is this due to your role as a governor or through personal interest?

How are these sent to you (via/from the school)/or do you go and find them?

A2 Which educational statistics do you use?

Who are the main providers? (eg LEA, DfES, QCA, your own internal statistics)

A3 What do you think of the educational statistics you receive?

How easy are they to access? (eg hard to come by/too many sources)

How easy are they to understand and interpret? (eg user friendly)

What do you think of the format/presentation?

What do you think of the quality of the data? (eg validity/reliability)

Is the timing right? (eg too often, too late etc)

What are the strengths/challenges?

A4 Why do you use educational statistics/what is the purpose? (eg annual governors report/school development plan).

Do the statistics you receive allow you to do this?

How are the statistics you receive used for decision-making?

If not, why not? (eg too late)

What are the benefits of using educational statistics?

A5 Why do school staff use educational statistics?

A6 Are the statistics you receive from different sources complementary? (eg similar formats, similar conclusions, do they overlap or are there gaps)

A7 Do the statistics match people's perceptions about the schools? (your own perceptions and others)

A8 Have you received any training/guidance in using educational statistics?

If so, what, how useful was it in helping you in your current role?

If not, what training, if any, would you like to receive?

A9 Do you have any suggestions for improvement?

What other data would you like to receive?