Data Dictatorship and Data Democracy: understanding professional attitudes to the use of pupil performance data in English secondary schools

Research report

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About this report

This report presents findings from a nationwide survey of English secondary school teachers on their use of, and attitudes towards, pupil performance and progress data. Participants were drawn from the full range of teaching experience, level of responsibility and subject background, and from a range of schools. The project investigated, using a mixed methods approach, the extent o which staff in schools are satisfied with their level of understanding of data, whether they have sufficient time to engage with it, whether they require better training to interpret and utilise it, and the extent to which they think that the data tells them something 'they don't already know'. This full report details the findings of the survey. The Research Summary report is available in hard copy by emailing research@cfbt.com and electronic copy from the CfBT website: www.cfbt.com/evidenceforeducation

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Executive Summary

Introduction

This report presents findings from a survey of teachers in English secondary schools on their use of, and attitudes towards, pupil performance data. Participants were drawn from the full range of teaching experience, level of responsibility and subject backgrounds, and from a range of schools.

Findings: the extent of use of pupil performance data

- Usage is widespread across the profession, but least so among teachers in non-management roles. Headteachers, deputies and assistant heads report more frequent use of pupil performance data; classroom teachers report the lowest levels of use (followed by heads of department).
- Schools with low raw GCSE scores but high CVA scores report the most frequent use of pupil performance data. Staff from the schools with high raw GCSE scores but low CVA scores, and coasting trend schools, have significantly less frequent use.
- There were no significant differences in use of pupil performance data across the subjects.
- Newly qualified teachers (NQTs) show the lowest extent of data usage, and young teachers report lower usage than older teachers.
- Use grows with length of service up to the point (on average after 15 years) when teachers assume management roles, when it levels off.
- There is no relationship between gender and use (or perceptions about use). It is not the case that data use is a 'male exercise'.

Findings: satisfaction with level of use

- Approximately 75% of school staff report being satisfied or very satisfied with level of use, but levels of satisfaction with use are much lower than levels of use.
- Schools with high CVA scores report the highest level of satisfaction with use, and schools that 'come out badly' from CVA analysis report the highest level of satisfaction.
- All schools have a non-trivial percentage of staff - up to 12% in the case of National Challenge schools - who are dissatisfied or very dissatisfied with level of use.

- Almost 10% of heads are dissatisfied or very dissatisfied with level of use, but generally heads, deputies and assistant heads are more satisfied than classroom teachers.

- The longer staff are in the profession the more likely they are to be very satisfied with level of data use.

Findings: confidence in skills

- Nearly 90% of school staff, across the range of school attainment, report feeling confident about their skills in accessing, utilising and interpreting pupil performance data, but classroom teachers and heads of department are less confident.

- Maths, English and science teachers are most confidence in their data skills.

- There is a significant difference in skills confidence depending on length of service and age: those in current post less than 10 years and those in current post longer than 25 years are least confident; i.e. staff in the age range 30-45 are most confident.

- It is widely accepted among staff that greater and better understanding increases the usefulness of pupil performance data for target-setting.

- Those who lacked confidence in their own skills had issues relating to:

  Technical / software aspects of data processing and interpretation.

  School size and subject-specific factors.

  Need someone to demonstrate data use.

  Need more and better refresher / in-service training.

  Need more time to develop better data skills.

  The jargon and acronyms associated with data.

  The tension between the metrics being too crude for some tasks and yet being too complex to understand.

- There are generally concerns that:

  The data lacks application to individual pupils, there are problems regarding aggregation and that it is difficult to link it to intervention, pupil aptitude and classroom practice.

  There is a lack of help for those using RAISEOnline and SIMS, and a lack of training generally in the interpretation of data, particularly CVA.

There is a lack of familiarity with what data is actually available so that informed choices can be made as to the utility value of the various sources and types.

- And in terms of how teachers would like their data skills developed and improved, staff suggested:

  More after-school / twilight sessions.

  More one-to-one help.

  School- and subject-specific training in schools, supplemented by 'generic' training in local centres.

  NQTs are struggling to get on-board and to keep up, so perhaps data use should form a larger part of ITE / PGCE programmes.

  There is little resistance to the use of pupil performance data per se, but there is a widespread perception that teachers lack the necessary skills and the opportunity to acquire them.

  Regular in-school forums to establish priorities and update staff (and their skills).

  Regular opportunities to dry-run / practise data techniques.

  Regular checks that interpretations are correct and a greater use made (in training) of worked examples.

  Policy makers 'stop moving the goalposts'!

Findings: using pupil performance data to inform practice

- 95% of staff report trying to use pupil performance data in a practical way to inform teaching and management.
- Schools with high raw GCSE scores but low CVA scores, and coasting trend schools, use data least to inform teaching in a practical way.
- Heads, assistant heads and Key Stage leaders use it (in practical ways) most widely.
- There is no significant difference between subjects in terms of using data to inform teaching, but teachers with the longest teaching careers and older teachers generally have a much higher percentage that do not use pupil data to inform how/what they teach.
- The most popular uses are pupil-focused, rather than teacher-focused or accountability-focused.
- At all responsibility levels, a large percentage of staff use pupil performance data to evaluate learning and performance, and to set targets for pupils.

The use of data to evaluate pupil learning and to set targets for pupils is higher in schools with low raw GCSE and low CVA scores.

A much lower percentage of staff in schools with low raw GCSE but high CVA scores use data to evaluate own teaching.

In National Challenge schools, pupil data is most often used to set targets for colleagues.

- Using data to evaluate and set targets for own teaching is reported in larger percentages by deputies and assistant heads; possibly because of their reported school-wide involvement with data analysis and interpretation.

- Using pupil data to evaluate the teaching of colleagues and to set targets for them is unsurprisingly reported much more by respondents with senior leadership responsibilities, and heads of department use data for these reasons much more than classroom teachers, although almost a quarter (of heads of department) do not use data to evaluate own department.

- Although senior leaders use data more for whole school evaluation compared to the other staff groups, a significant percentage would like to know more about analysing, interpreting and understanding data at a school-wide level.

- Staff who use pupil data to inform practice indicated using it in a variety of ways that included:

  To share targets with pupils and parents.

  To motivate pupils.

  To identify and evaluate groups for interventions, especially pupils with English as an additional language, pupils with special educational needs, gifted and talented pupils and pupils from different ethnic backgrounds.

  To compare information on pupil progress in different subjects.

  To select mixed ability groups in lessons and/or make ‘strategic’ seating arrangements within teaching groups.

  To allow students to evaluate own progress and to write student references.

  To gauge how to run lessons and to differentiate within lessons.

  To track attendance and punctuality, and to establish good practice in these areas.

  To identify aspects of courses with which pupils struggle (or find easy).

Findings: how teachers rate own understanding

- Staff generally rate their understanding of pupil performance data as good, but less than a quarter report being 'very' satisfied. Satisfaction with level of understanding across school type and across the responsibility range follows the same pattern as level of understanding.
- Classroom teachers report significantly lower levels of understanding and the highest percentage of very dissatisfied respondents.
- Staff in schools with high raw GCSE but low CVA scores rate their understanding lower than other schools.
- Understanding increases with role seniority, although there is a reversal between deputies and heads (possibly explained by the fact that deputies are most often 'gatekeepers' of pupil performance data). 4% of heads and deputies describe their understanding of pupil data as poor.
- Younger and less experienced teachers have the lowest reported levels of understanding, which may reflect poor training / preparation in PGCE courses.

Findings: training and professional development

- 40% of staff have received data training less frequently than annually and another 20% have never received data training.
- Approximately 10% of heads, deputies and assistant heads, 20% of middle managers and 30% of class teachers report not having had any training over the past five years.
- Staff in senior roles report higher levels of frequent professional development.
- Classroom teachers and heads of department report the lowest frequency of professional development and the highest levels of never having received training. Assistant heads report the highest levels of training.
- Staff in schools with low raw GCSE but high CVA scores indicate a more frequent pattern of training, which matches higher levels of use and understanding. Higher use, understanding and satisfaction may be linked to more frequent training.

Findings: teachers' own sources of pupil data

- Most staff make regular or frequent use of own pupil data, and half of all respondents find this more useful than external / official sources of pupil performance data. A further 50% (approx) find their own data as useful, so that viewing own sources of data as more or equally useful is almost universal across the profession. This is a clear challenge for policy makers; to raise the use and the perception of 'official' sources of data.

- Class tests and continuous assessment still plays the leading role in informing practice.

- Schools with high CVA report a more frequent use of own pupil data; schools with low CVA report least frequent use.

- Senior management personnel, especially deputy heads, report a higher level of use of own pupil data; heads and pastoral personnel report the least frequent / regular use, possibly because they deal more with external sources.

- Teachers of mathematics, science and languages make the greatest use of own pupil data, compared to teachers of other subjects.

- Generally, the longer teachers are teaching, the more frequently and regularly they use their own pupil data, but the less they find such own data 'more useful' than external data. The pattern is the same for length of time teaching in current school, which suggests that more experienced teachers use own data but see it only as part of the picture as they get more familiar with alternative sources.

- Those respondents who use own pupil data indicate that they use it because:

  Own data is more specific to subjects or areas within subjects.

  Own data better takes into account student motivation and effort, and personal factors affecting performance.

  External pupil performance data is primarily concerned with targets; own data is primarily concerned with where students are with regard to targets.

  Teachers trust own data more. They believe that own data is more accurate, more consistent, more frequently updated, more immediate, more up-to-date, more user-friendly, more accessible, and easier to interpret.

  Most staff say that own and external data are complementary, feeding into each other, and that both have value.

  External pupil performance data does not take into account pupil effort.

  The removal of KS3 SATS national tests suggests to many that teachers' own judgment is now acknowledged as being of more value.

  Own data tells teachers how pupils are performing against teachers' expectations. External data might be able to predict grades, it is thought, but it cannot tell teachers what areas to concentrate on with pupils or whether they are on track. External data cannot highlight problems with individual topics or identify gaps in learning.

  There is a lack of confidence in secondary schools about the quality of KS2 SATS, how they are delivered and how pupils are 'prepped' by feeder primary schools.

There is widespread dissatisfaction among non-core subject teachers that assessment in core subjects is used as a based for predicting attainment in non-core subjects.

Findings: the management, analysis and interpretation of data - who does what in schools?

- Data management is mostly done by one individual senior colleague or by a number of senior colleagues.
- The analysis of data and the interpretation of data is a task more often delegated than the management of data.
- Only 5% of schools report that pupil performance data is analysed by class teachers, and class teachers (especially younger / inexperienced ones) are more often unclear about who is responsible for data management, interpretation and analysis in their schools.
- Twice as many teachers are involved in data interpretation as are involved in data analysis.
- Teachers in pastoral teams have little involvement in data analysis or data interpretation.

Findings: the management, analysis and interpretation of data - who should do what in schools?

- The preferred approach overall is for heads of department to analyse and interpret pupil data. More than one-third feel that data should be analysed and interpreted by classroom teachers and only a small percentage feel that it should be analysed and interpreted by a senior colleague.
- In schools with low raw GCSE but high CVA scores, the preferred approach is for a number of senior colleagues to carry out this task.
- The preferred approach to data interpretation differs from the preferred approach to data analysis in the extent to which teachers are thought of as the group that should be responsible. There is a greater expectation that teachers be responsible for data interpretation than data analysis. Nearly half of all classroom teachers themselves feel that they should be responsible, especially NQTs.

Findings: the availability of pupil performance data

- Data is readily available in schools. Data is least widely available in schools with moderate raw GCSE results and either low CVA or a coasting trend in their raw GCSE scores.

- Almost 60% can access pupil data and carry out their own analyses / interpretation, but for almost 20% of school staff, pupil data is accessible only to senior management or is given to them in a pre-interpreted form.

- Data is least 'widely' available to classroom teachers and heads of department, and most widely available to deputies, assistant heads and Key Stage managers. Generally, the more senior the role, the more the incumbent can access and carry out own analysis and interpretation. Classroom teachers and heads - the two ends of the seniority spectrum - are most often given pre-interpreted data.

Findings: access to RAISEOnline

- Only a quarter of staff have access to data via RAISEOnline. Schools with low raw GCSE but high CVA scores have greatest access, which coincides with the same schools having the greatest use, the best understanding and the most frequent training.

- Generally, with the exception of pastoral leaders, more senior roles in schools have greater access to RAISEOnline so there appears a hierarchy of access to pupil performance data. The lack of access among classroom teachers to this 'external' source of data is extremely high (95%).

Findings: views on the rationale for collecting pupil performance data

- Slightly more than half of all staff suggest that the reasons why pupil performance data is currently collected are 'internal': to assist schools in self-evaluation, to enable pupils to make better academic progress, to enable teachers to be more effective and to identify the relative performance of different groups in schools.

- Slightly less than half think it is collected for 'external' reasons: to hold schools accountable, to hold teachers accountable, to enable authorities and/or the media to rank schools and to enable parents to choose the best school for their children.

- All deputy heads feel that pupil data is collected primarily to assist schools with self-evaluation. All Key Stage leaders think it is done to enable students to make better progress. Classroom teachers and heads of department, on the other hand, feel that ranking schools according to performance is currently the main reason for collecting pupil data.

- There is considerable negative feeling about current reasons for collecting pupil data, specifically: to tick boxes; to be used as a stick to beat teachers and schools; to set ever-increasing targets; to encourage competition between schools; and because the government does not trust teachers to be professional.

- Teachers acknowledge that they 'play games' with data and that the system rewards such behaviour.

- Slightly more than half accept that the collection of pupil performance data as a necessary feature of their lives as educators, but almost one-fifth feel irritated and resentful as a result. Deputies and assistant heads report the lowest levels of irritation, and feel most often rewarded.

- There is a clear difference between what staff think are the existing reasons for collecting pupil performance data and what they think should be the reasons for collecting it. Staff think the current reason why pupil data is collected is 'external' (i.e. for accountability and public use), but that it should be collected for 'internal' reasons (i.e. self-evaluation, and pupil and teacher improvement).

- Teachers in schools with moderate raw GCSE results and either low CVA or a coasting trend in their raw GCSE scores are more inclined to the view that the reasons for data collection should be to assist schools with self-evaluation. National Challenge schools are much more inclined to the view that the primary reason for data collection should be to identify the relative performance of different groups within schools.

Section 1: Methodology

Introduction

The purpose and prevalence of data in schools

Over the past 10-15 years a variety of measures for gauging pupil attainment and progress in schools have been introduced. These range from simple threshold measures of raw academic attainment, such as the percentage of pupils obtaining a particular National Curriculum level or set of GCSE grades, through more complex value-added (VA) models adjusting only for prior attainment, to the latest highly contextualised (CVA) models which take account of a wide range of factors considered outside the control of schools. These same measures are used to evaluate the effectiveness of schools and the effectiveness of teachers in those schools.

The development of value-added measures has, by and large, been greeted favourably by teachers (Saunders & Rudd, 1999) as a response to their call for metrics to be fairer than unadjusted threshold measures such as the percentage of pupils obtaining 5 or more GCSE passes at grades A*-C. The explicit aim of value-added measures was to make schools 'data rich' (Miliband, 2003) and to foster a culture of 'intelligent accountability' (Miliband, 2004) among teachers. The implicit assumption was that data can improve the quality of teaching and lead to improved educational outcomes for pupils. In this study we have surveyed the full range of teaching staff in secondary schools across England to gather evidence of teachers' awareness, perception and utilisation of data in order to determine the extent to which these aims have been achieved.

The expectation of data literacy among teachers

Since their introduction, both raw attainment and value-added measures have been used to inform and focus school improvement through the process of school self-evaluation and pupil target setting, as well as being part of the accountability agenda through the publication of school performance tables, the work of School Improvement Partners and the Ofsted inspection framework. Data has been presented in a variety of incarnations such as Performance and Assessment (PANDA) reports, the Pupil Achievement Tracker (PAT) and most recently via the sophisticated outputs produced by the web-based 'RAISEonline' ('Reporting and Analysis for Improvement through School Self-Evaluation'). Data flows to schools from a variety of sources: the Department for Children Schools and Families (DCSF), Ofsted, the Fischer Family Trust's Data Analysis Project and through collaborations such as the London Families and the Lancashire Schools projects. The recently revised Teacher Performance Standards emphasise the use of performance data for assessment and monitoring.

Trainee teachers seeking to achieve Qualified Teacher Status (QTS) must provide evidence that they can use performance data 'to evaluate the effectiveness of their teaching, to monitor the progress of those they teach and to raise levels of attainment' (TDA, 2007a: 9). This standard also applies to qualified and post-threshold teachers (TDA, 2007b; TDA, 2007c). In addition to using data to inform own practice, teachers in the recently introduced category of 'Excellent Teacher' must be able to 'analyse statistical information to evaluate the effectiveness of teaching and learning across the school' (TDA, 2007d: 7). The standards for 'Excellent Teachers' have been subsumed into those required for 'Advanced Skills Teachers' (TDA, 2007e) so that the two highest grades of classroom practitioner are now required to improve the practice of colleagues in the use of data and to extend their own focus beyond their curriculum specialism towards whole-school evaluation of teaching and learning. With such an explicit focus on classroom practitioners' use of data now written into teacher standards it is crucial that research into the use of data draws from all levels of teacher practice and not just from school leaders.

The ability to utilise performance data (and teachers' emotional and intellectual response to it) go to the very heart of teachers' professionalism. The implicit assumption on the part of government in encouraging the availability and use of pupil data in schools is that it will improve performance at school, teacher and pupil levels. We think that this presupposes that school culture around the use of data can facilitate high-level professional enquiry and engagement, and that adequate management structures exist in schools to facilitate data utilisation. Yet good management structures alone are not sufficient. There are other obstacles to the development of a data-friendly culture in schools, one of which is the tension inherent in the fact that the same data is used for both improvement-evaluation and accountability-monitoring purposes. The same (yard)stick used by teachers to improve own performance can (potentially) also be used to 'beat' them. This is why we have sought to explore teacher attitudes and data management alongside each other.

A further obstacle to the development of a data-supportive culture lies in the terminology used to facilitate the professional dialogue needed when schools engage with data, so that 'data literacy' – 'the extent to which individuals can interpret statistical information and extract meaning and understanding from it, while critically evaluating its validity and applicability' (Kirkup et al., 2005: 54) - is an important research question for our project. VA / CVA measures are based on complex statistical models and the data they generate carries with it a context-specific lexicon whose terms and cognates, while being straightforward to those familiar with their provenance, have different shades of meaning in everyday life (Downey & Kelly, 2008, Kelly & Downey, 2007).

Evidence from research into the views and practices of school leaders with respect to data: its influence on the research questions and methodology for this study

Previous research on developing a positive school culture around the use of data, drawing as it does almost exclusively on the practice and views of school leaders rather than school teachers, has not properly represented data culture' as it affects classroom

practice. It is an under-researched area, yet there are few more important topics in the allied fields of School Effectiveness and School Improvement than how teachers use data to improve pupil learning, and how schools build a supportive culture around this imperative. One of the studies, which focused on the use of data by school leaders, concedes that the development of 'intelligent accountability' in schools requires some attention 'not just to how leaders themselves manage and use information, but also how they seek to develop an information-based culture within the wider school' (Stevens et al. 2005: xlvi).

Research on the impact of school leadership on pupil outcomes by Day et al. (2008), for which participating schools were selected on the basis of demonstrating improved or sustained high levels of value-added performance, has found that in such schools headteachers:

- use performance data to plan individual pupil needs (ibid: xviii-xix)
- ensure that teachers use evidence-based approaches to data usage, intervening and evaluating continually at school and classroom level (ibid: 104)
- view the ability to analyse and utilise data as key professional goals (ibid: 69).

As one head summarised, school staff must increasingly 'get involved in the close examination of data', 'understand issues' around attainment, gender and ethnicity, and become 'more sophisticated in data analysis' (ibid: 69). Thus we have sought to extend current research both in terms of scale (by surveying teachers and not just heads) and in terms of focus (on the impact of the wider school data-culture, and not just leadership, on data utilisation).

Day et al. (2008) concluded that the use of data is different in schools in which pupils make low and high levels of academic progress, as measured by school level value-added scores (ibid: xx, 104). In light of this finding, this study was designed to gather the views of teachers working in schools that have a range of pupil outcome measures in the most recently published Achievement and Attainment Tables (DCSF, 2008a), focusing specifically on the percentage of students obtaining five or more A*-C grades passes at GCSE (including an English and a maths-based subject) and the school level contextual value-added (CVA) score.

It seems clear from previous research that there are 'top-down' issues regarding data usage in schools. We have sought to balance this perspective with what we consider a more important one: the 'bottom-up' perspective of teachers. This methodology extends the approach of Day et al (2008) and also that adopted in an earlier study by Bush et al. (2005), which investigated why teachers choose to work in schools operating below government GCSE floor targets. [1]Bush et al. found that teachers in these 'challenging' schools expressed frustration that their 'good work' was not reflected in threshold measures of their school's performance (e.g. the percentage of pupils obtaining a particular set of GCSE grades). For them, value-added measures, though fairer, were little understood and did not allow pupils to demonstrate progress in a variety of ways. The challenge was framed in terms of the need to create and understand 'a system that enables teachers to have a realistic yet optimistic account' of pupil progress (ibid: 43).

1 Schools (compared with similar schools in the same 'travel to work area') with a percentage of five or more grades A*-C at GCSE < 25%.

Around the same time an extensive survey on the use of data in schools was carried out by the National Foundation for Educational Research (Kirkup et al. 2005), with a focus on the views of school leaders in primary and special schools, and Heads of English, mathematics and science in secondary schools. The NfER research looked at systems and practices associated with the use of the Pupil Achievement Tracker, finding that data is used most effectively when one person takes a proactive role in focussing on specific areas and in supporting colleagues in its interpretation, but that inadequacies of training and support can result in staff experiencing a lack of ownership. The study did not discuss the tensions inherent in its findings: that the utilisation of externally supplied data needs both leadership from above and a sense of ownership of internally generated assessment data among classroom users. These tensions, and the tension of using the same data for both accountability and improvement purposes, tend to manifest themselves in schools' data-culture and thus we provided participants with opportunities to comment and respond to this issue within the survey.

Previous research also suggests that some of the challenges associated with data relate to perceptions of trust, to the fact that data is sometimes perceived as unreliable or untimely, and that there are inherent difficulties in interpreting it for use in classrooms. School leaders have spoken of the need for a willingness to 'look for patterns' (Kirkup et al. 2005) in order to engage in a fruitful dialogue with the data, and that schools must be 'ready' in terms of their developmental maturity in order to benefit from it. Practitioners have additional problems relating to data storage and access. Some heads feel that restricted access, issues of usability and lack of ownership inhibit positive engagement, but others disagree and the conflicting views illustrate well the range of data cultures that can exist in schools. Our research has sought to explore perceptions around issues of access, interpretability, validity and reliability of data, for internally generated assessments as well as externally generated attainment and progress data.

Alongside teachers themselves, 'data managers' are key to the development of statistical literacy in schools. In our experience, the role of data manager is typically undertaken by a Deputy or an Assistant head. Kirkup et al. (2005) suggest that some teachers view data mangers as valuable colleagues providing tailored outputs that obviate the need to learn complex systems, while others see them as adding yet another layer to the data hierarchy. Our recent research with Local Authorities and data managers has enabled us to produce cameos (Table 1.1) of two contrasting approaches to the management of data in schools (Downey 2007).

Data dictatorship	Data democracy
Led by 'data gatekeepers'	Led by 'data advocates'
Deficit view of colleagues	Developmental view of colleagues
Views self as 'data expert'	Views self as 'data facilitator'
Need to control	Need to support
Teachers get what they are given	Teachers given appropriate access
Pre-digested data-bytes	Undigested data sets
Prevented from exploring further	Encouraged to explore further
Colleagues de-skilled	Colleagues up-skilled
Stilted self-evaluation	Wide-ranging self-evaluation

Table 1.1

These cameos can be viewed as representing extreme positions on a continuum of how 'democratic' schools are with data. We have sought to investigate, albeit to a limited extent within the scope of this survey, the structures schools have constructed around data management and whether they serve or hinder the development of positive data-cultures.

According to Kirkup et al. (2005) there are differences in how heads of department in schools perceive the usefulness of VA data. We have sought to investigate the extent to which all staff, including Heads of Department, are satisfied with their level of understanding of data; whether they have sufficient time to study it, whether they require better training to help themselves and others to interpret and use it; and the extent to which they think that the data tells them something 'they don't already know' (ibid: 151). This is an important research question because in the value-added progress models currently employed in England the predominant independent (predictor) variables used to account for prior attainment are based on the outcomes of national assessments in the core subjects of mathematics, science and English[2]. If department leaders in core subjects sometimes struggle to see the relevance of models even when they are based on data from their own subject area, how must teachers of non-core subjects feel when the progress of their students is measured using prior attainment data from other curriculum areas?

Understanding teacher attitudes to data

Research literature on teacher attitudes to the use of data is sparse. Research by Dudley (1997, 1999a, 1999b) into teachers' responses to data provided by surveys of student attitudes to schooling was carried out as part of the Essex Primary School Improvement programme. Dudley reported that teachers responded to such data as either 'good news' or 'bad news', and that teachers' responses to 'news' could be categorised as taking one of four positions: (a) an 'action-orientated and positive' view aimed at improving the issues behind the data; (b) a 'passive filing away' view of the issues; (c) a 'passive rejection' of the issues; (d) an 'active denial' or rejection of the issues. Dudley (1999b) also concluded that a teacher's response was often dependent on the way presentation and feedback of data was managed. We have sought to investigate whether this remains the case with the increasingly complex data used in schools today, a decade on from Dudley's work.

The Quantitative Analysis for Self-Evaluation (QuASE) project (Saunders, 2000) provided value-added performance data to schools and included a study of teacher attitudes to data sharing in and between schools. Drawing on work by Dudley, as described above, Saunders developed a theoretical framework for understanding teacher attitudes to data (Figure 1.1). It consists of qualitative sketches of four positions, on two axes, representing the extent to which teachers engage with data. One axis represents their emotional responses ranging from 'cold' to 'hot' according to their enthusiasm for the potential of data to inform teaching and learning; the other represents a range of intellectual stances towards the use of data, ranging from 'literal' to 'provisional' depending on the extent of teachers' reliance on data as a manifestation of pupils' ability (ibid: 249-50).

2 Unlike the DCSF/Ofsted VA and CVA models, which exclusively use the results from national tests in English, maths and science for their KS2-4 progress indicators, the value-added measures provided by the Fischer Family Trust incorporate teacher assessment data from both core and non core subjects.

In order to develop a richer picture of the attitudes prevalent among teachers towards data usage, our survey instrument was designed to incorporate a number of open-ended responses in areas addressing key attitudinal concerns and this was supplemented with ten telephone interviews conducted with teachers who had expressed a willingness to participate further in our research.

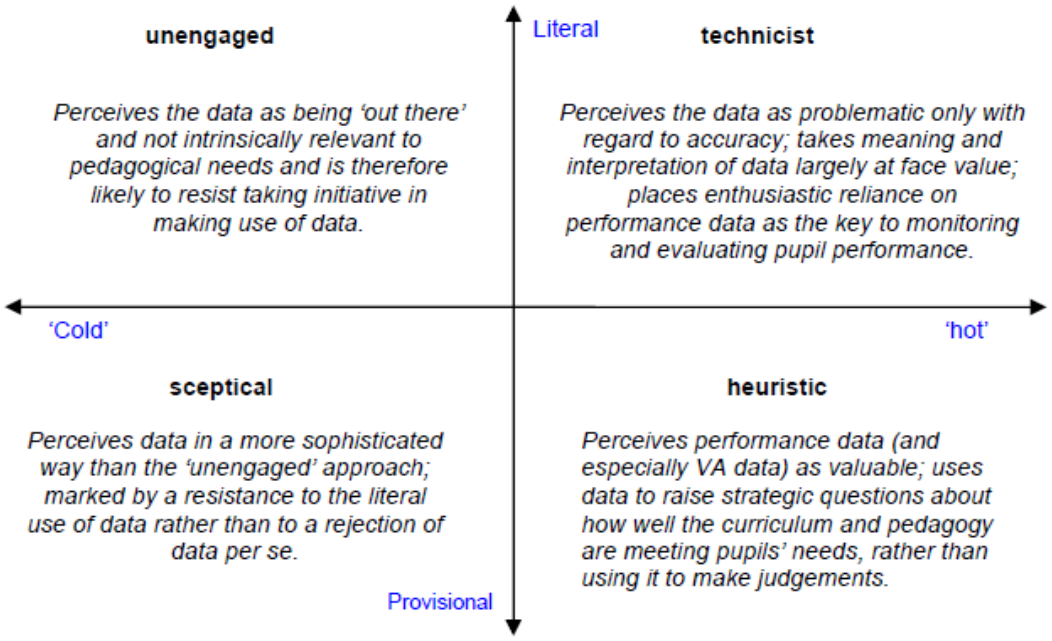

Figure 1.1

Sampling methodology

A provisional version of the questionnaire was piloted by 23 teachers from two secondary schools.

2008 school performance data for all English maintained secondary school was obtained from the DCSF School and College Achievement Tables[3]. After excluding special schools, recently closed schools, newly opened schools and other schools with insufficient data available, the resulting database consisted of 3060 schools.

A key element of the research was to explore with teachers the relationship between data used both for public accountability (via published performance / league tables) and for school improvement and self-evaluation. To facilitate this, schools were sampled from the dataset of 3060 according to the most recent published school level performance measures. The DCSF Achievement Tables for English secondary schools currently contain two key school level indicators of performance: the percentage of students obtaining 5+A*-C grades at GCSE (including English and maths) and the CVA measure of progress.

Survey sampling thresholds based on CVA values were set to include all schools with a significantly high or significantly low school-level CVA score as indicated by the 95% confidence interval included in the DCSF 2008 School Performance Tables. While the practice of applying statistical confidence measures to this type of data is not without its critics[4], it is now widely embedded in the presentation of value-added data to schools and by the two most prominent sources (DCSF/Ofsted via CVA scores available via RAISEonline and in value-added data produced by the Fischer Family Trust in reports issued to schools via Local Authorities). It is therefore a key indicator in helping teachers consider whether the patterns and trends they observe in the data are of practical significance.

The lower sampling threshold for the raw attainment measure of school performance was set to include all schools below the National Challenge floor target of 30% of students obtaining 5+A*-C grades at GCSE (including English and maths) in 2008. When this floor target was announced in June 2008 it received widespread publicity and lists of schools failing to meet the threshold were published in the news media.[5] It has therefore had a substantial impact on the way the performance of schools are viewed both by external and internal stakeholders.

The upper sampling threshold was set to include all schools in which 60% or more of students attained 5+A*-C grades at GCSE (including English and maths) in 2008. This was in line with one of the criteria used in 2007 to determine entry into the category of 'High Performing Specialist School' (PricewaterhouseCoopers, 2008: 8).[6]

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3 http://www.dcsf.gov.uk/performancetables/

4 See Gorard 2007 and Hutchison & Schagen 2008 for a flavour of the debate.

5 For example by the BBC News online service see http://news.bbc.co.uk/1/hi/education/7444059.stm

6 This threshold has since been raised to 65% in the new criteria for High Performing Specialist Schools issued by the DCSF (2008b).

Application of these sampling thresholds resulted in four school types / categories being identified with complementary and contrasting data pictures in their 2008 public performance indicators measures:

- Plus-plus ('PP') schools in which 60% or more obtained 5+A*-C grades at GCSE (including English and maths) AND had a significantly positive[7] school level CVA score (n=317 schools).

- Plus-minus ('PM') schools in which 60% or more obtained 5+A*-C grades at GCSE (including English and maths) BUT had a significantly negative school level CVA score (n=59 schools).

- Minus-plus ('MP') schools in which less than 30% of students obtained 5+A*-C grades at GCSE (including English and maths) BUT had a significantly positive school level CVA score (n=97 schools).

- Minus-minus ('MM') schools in which less than 30% of students obtained 5+A*-C grades at GCSE (including English and maths) AND had a significantly negative school level CVA score (n=194 schools).

The total number of schools identified in these four categories was 667 or just under 22% of the dataset of 3060 schools (Figure 1.2)

7 A significantly positive CVA measure is indicated by the lower limit of the 95% confidence interval of the school's CVA score being greater than the national average of 1000; a significantly negative CVA score by the upper limit of the 95% confidence interval of the school's CVA score being less than the national average of 1000.

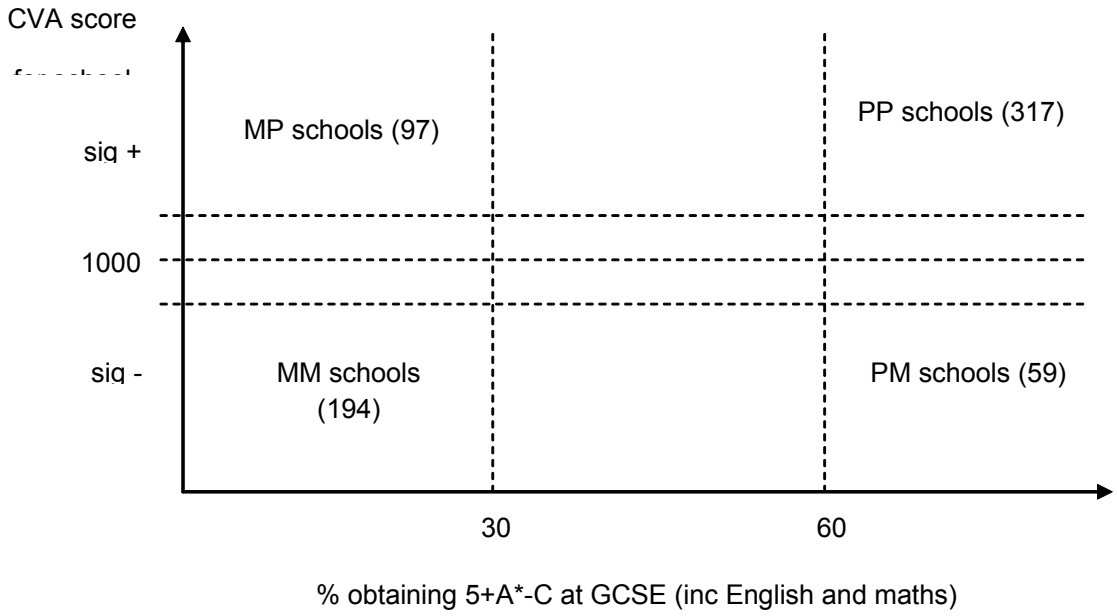


Figure 1.2

In 2008 an additional category of 'coasting school' was announced by Ed Balls, the Secretary of State for Children, Schools and Families, which also received widespread attention in the media, although lists of schools were not made public as was the case with National Challenge schools. The criteria set out by the Secretary of State (Balls, 2008) for identifying coasting schools were more varied and complex than the criteria for identifying National Challenge schools and included the results of Ofsted inspections, evidence of differential effectiveness within the school (for groups of students such as those entitled to free school meals) and weak monitoring and assessment practices. The criteria also included a mix of indicators based on school-level public measures of performance:

- More than 30% of pupils achieving 5+ good GCSEs including English and mathematics but overall progress from KS2 to KS4 is unimpressive]
- There has been little or no improvement in the school's progression rates over several years
- The school's CVA score is significantly below average.

In the light of these criteria from the Secretary of State we analysed our 2008 secondary school performance dataset and identified a further two categories of schools:

- Schools in which the percentage of students obtaining 5+ A*-C GCSE passes (including English and maths) was between 30% and 49%[8] (inclusive) AND had a significantly negative school-level CVA score. Such schools were termed 'Coasting on CVA' or 'CC'[9] schools (n=394 schools).

- Schools in which the percentage of students obtaining 5+ A*-C GCSE passes (including English and maths) was between 30% and 49% (inclusive) AND had a downward or static trend in this measure for the four years during the period 2005-2008. Such schools were termed 'Coasting on Trend' or 'CT' schools (n=165 schools).

A final set of schools was added to the sample:

- Other National Challenge ('ON') schools in which less than 30% of students (in 2008) obtained 5+A*-C grades at GCSE (including English and maths) with a non-significant school level CVA score (n=157 schools).

This added an additional 716 schools to the sample giving a total of 1383 schools, or just over 45% of the dataset of 3060 secondary schools (Figure 1.3).

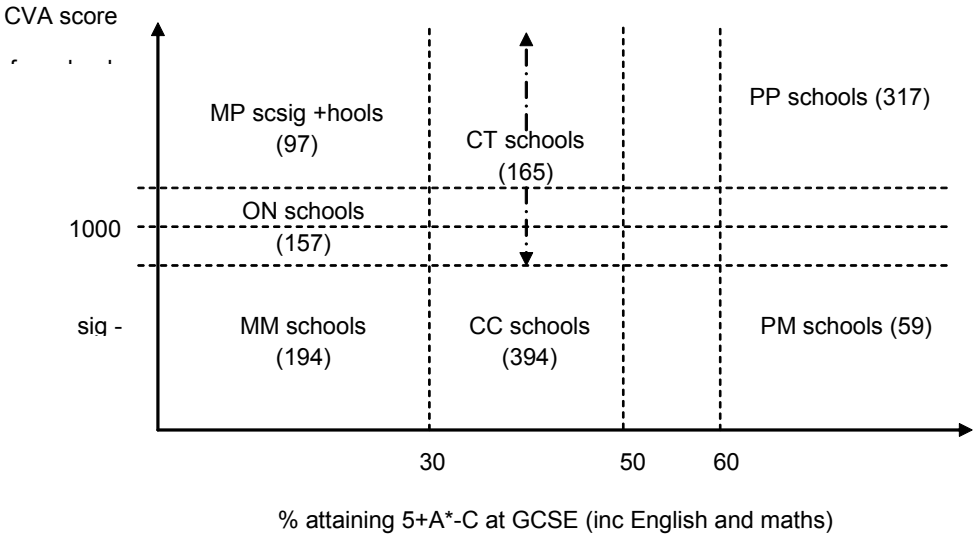


Figure 1.3

8 Although no upper limit on the percentage of students obtaining 5+A*-C GCSE passes (including English and maths) was set by the Secretary of State in his criteria for the identification of coasting schools, the 30-50% figure was widely publicised by national news media. See http://www.guardian.co.uk/politics/2008/nov/13/edballs-coasting-schools-gcses for an example.

9 We acknowledge the controversial nature of the designation 'coasting', but given the amount of media attention devoted to the identification of schools in both the National Challenge and Coasting categories in the months preceding our research, we feel they exemplify the tensions inherent in data being used both as a public accountability measure and a source of evidence for school self-evaluation and improvement, which is a key issue for the research.

The distribution of threshold raw attainment and CVA measures for the 2008 dataset of schools and for schools in the seven sampling categories

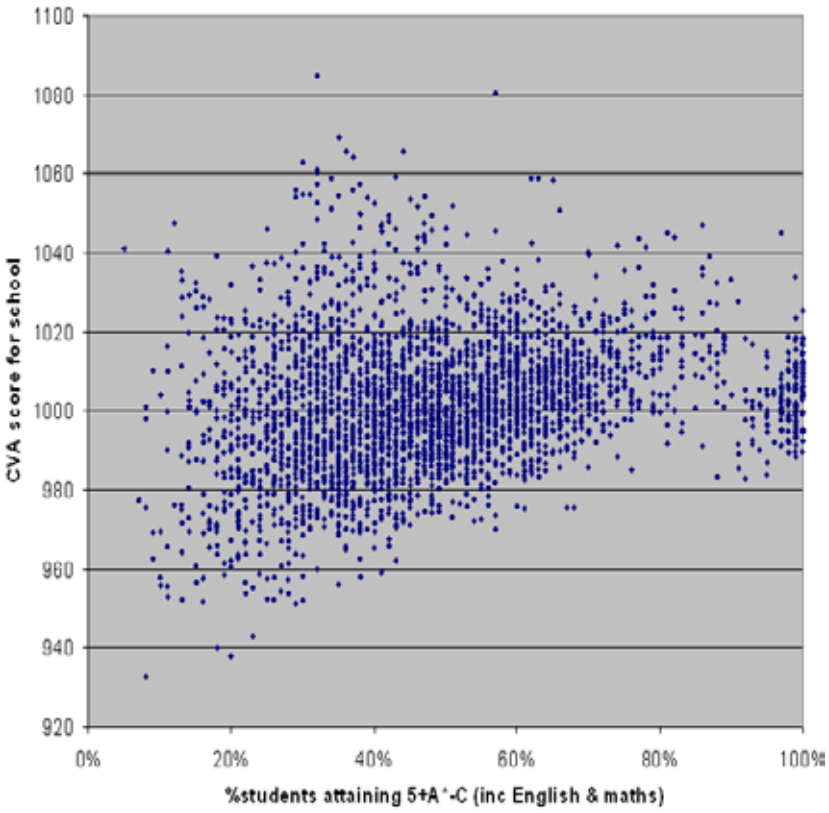


Figure 1.4

Figure 1.4 shows the distribution of all 3060 secondary schools in the database based on both CVA measures and the percentage of students obtaining 5+A*-C grades at GCSE (including English and maths). The correlation for the two school performance measures is relatively weak (r = 0.232) suggesting that the two measures do give different perspectives on school performance. This compares with a stronger correlation (r = 0.501) for the association between the percentage of students obtaining 5+A*-C at GCSE in any five or more subjects and the school CVA score.

Figures 1.5 - 1.11 show the distribution of schools in each of the seven sampling categories based on the 2008 values of their school performance measures.

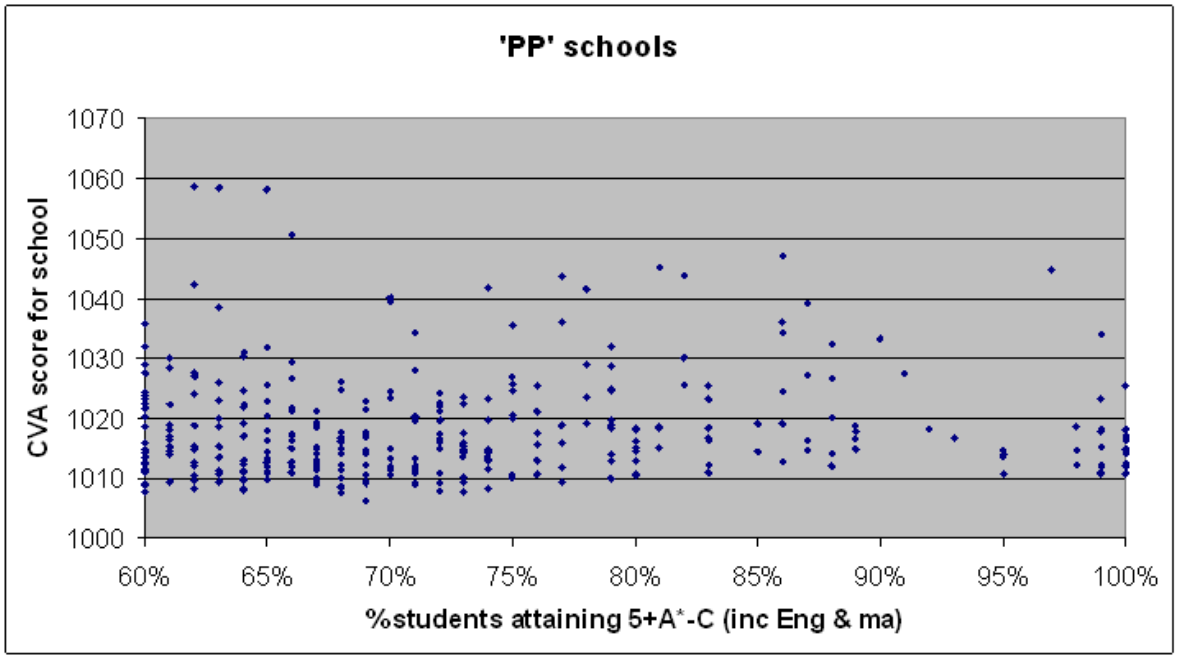


Figure 1.5

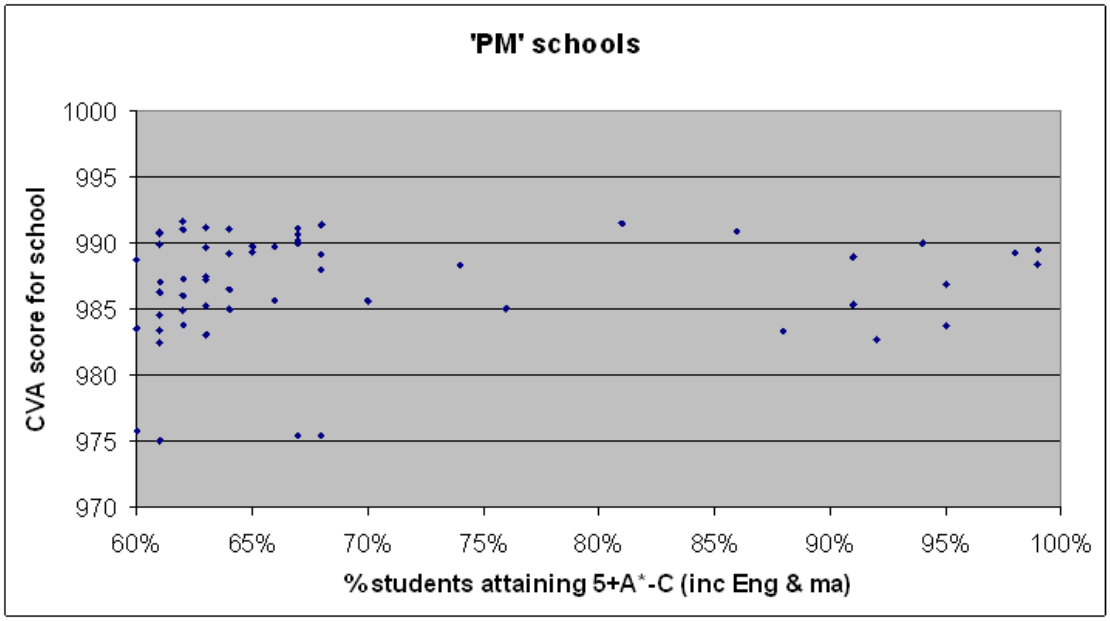


Figure 1.6

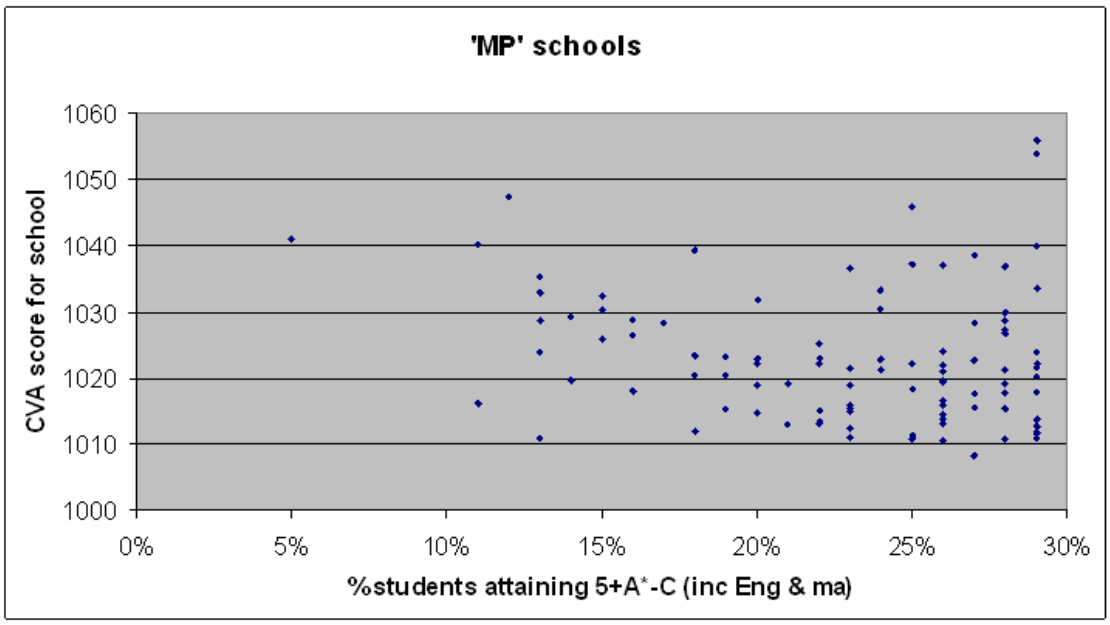


Figure 1.7

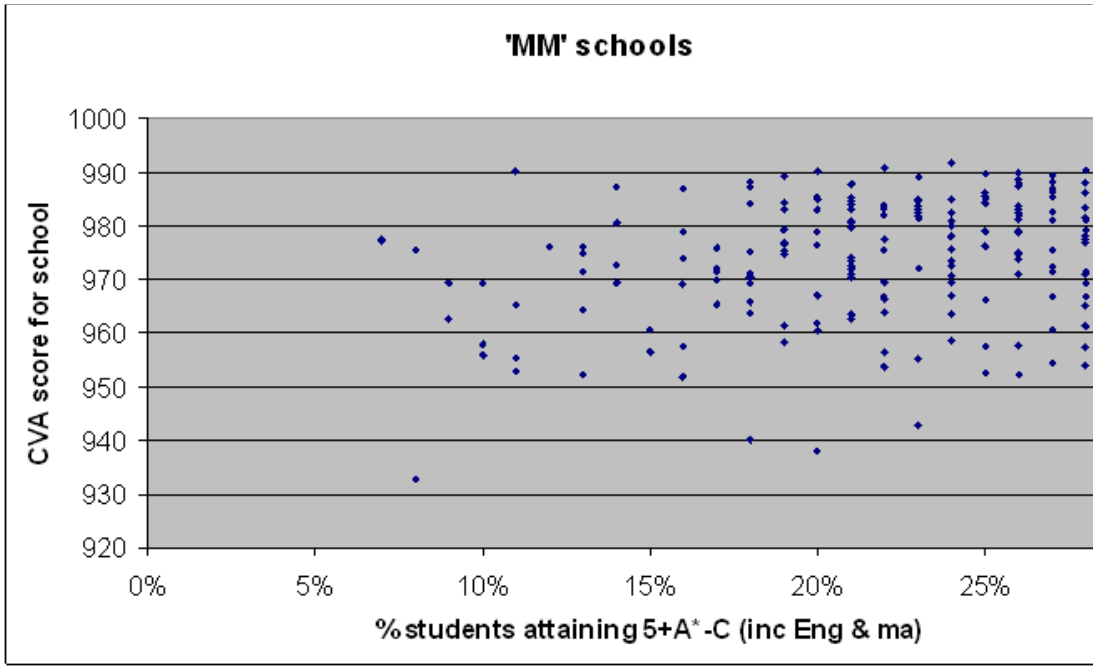


Figure 1.8

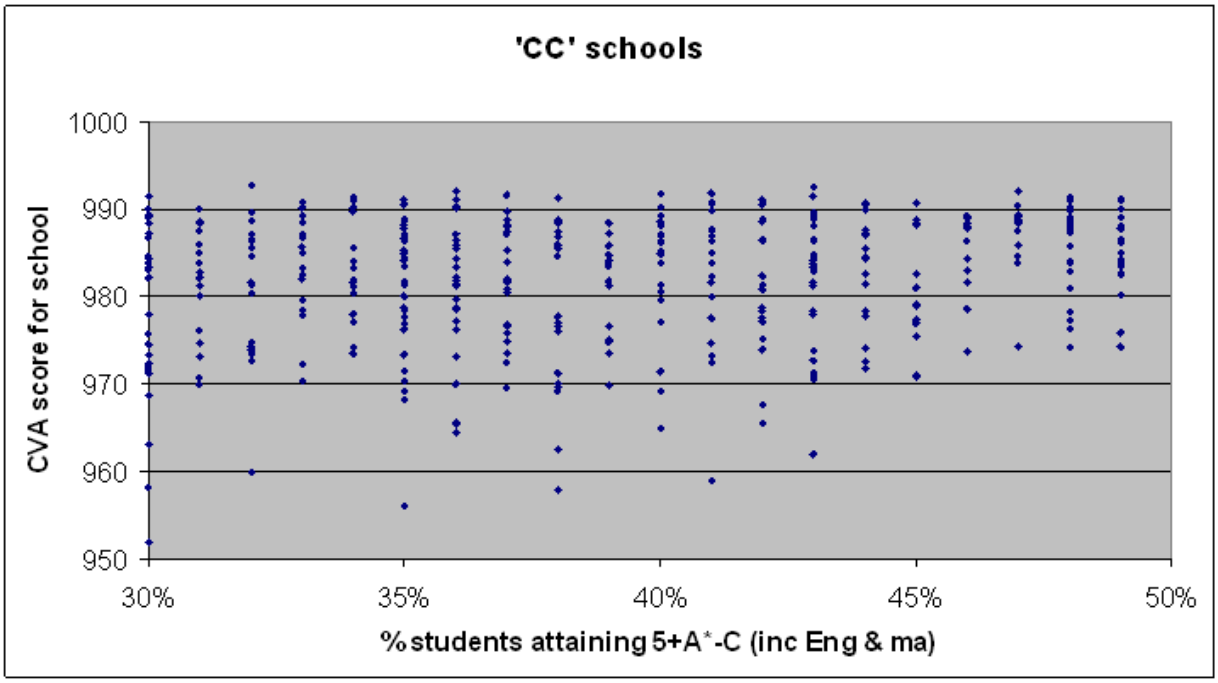


Figure 1.9

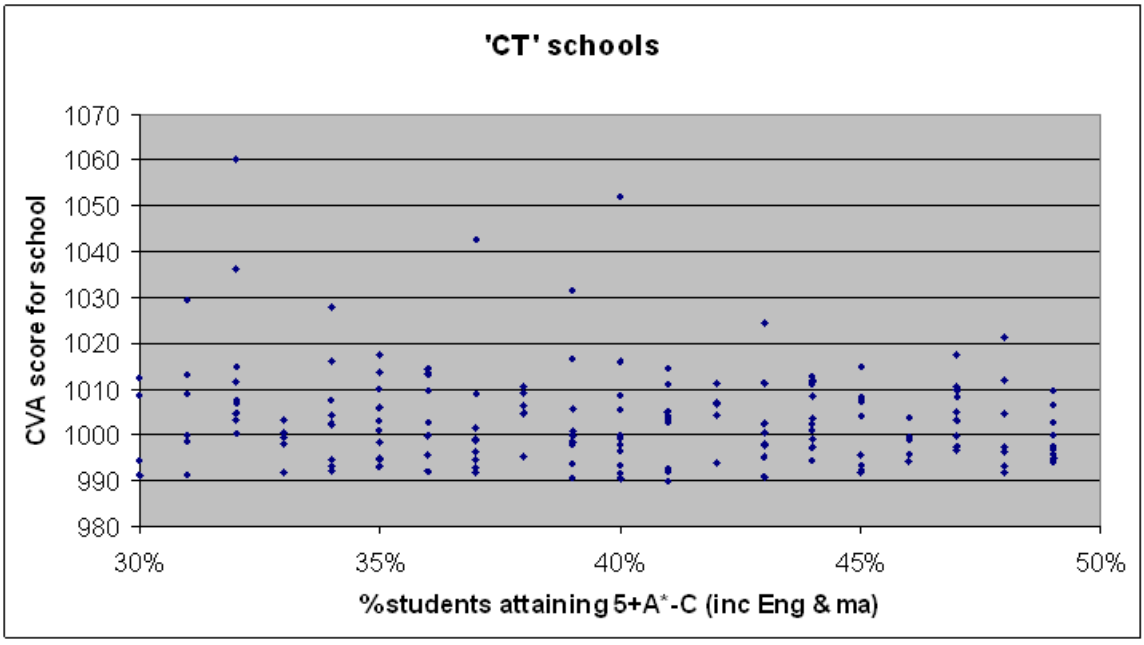


Figure 1.10

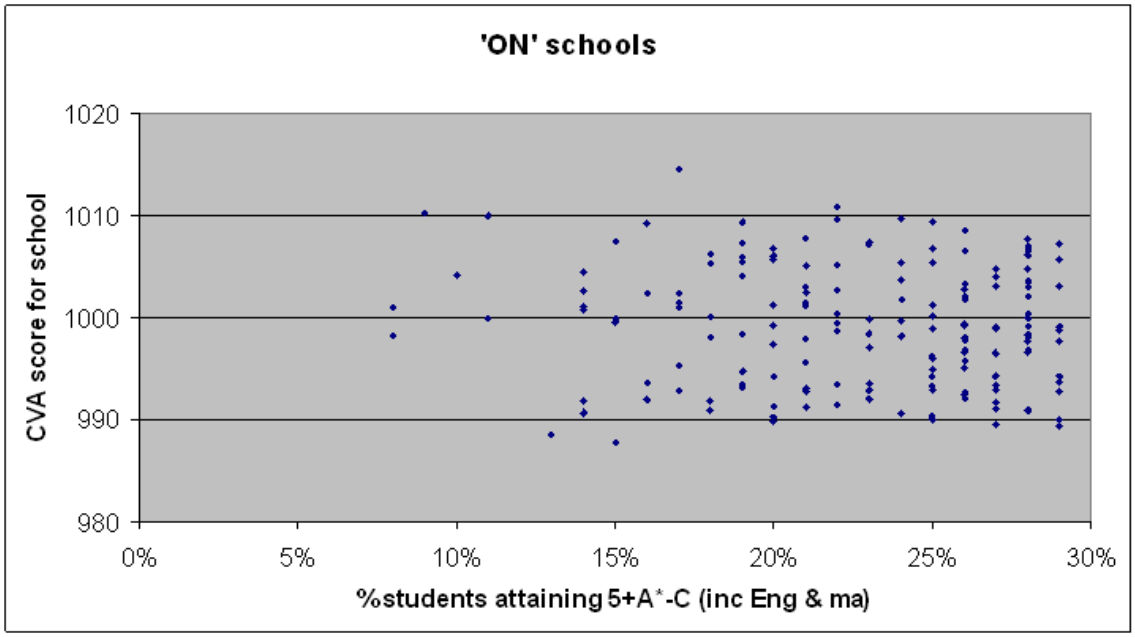


Figure 1.11

Contact with schools

In May 2009, the 1383 schools in the sample were contacted by telephone and permission sought to send an e-mail invitation to participate in the survey. That email contained a hyperlink to the online questionnaire, and a request to the headteacher to make the link available to all members of the school's teaching staff.

In 25 schools, a member of the school administrative staff indicated that the headteacher operated a policy of not participating in research. Six schools informed us that they were in the process of closing down. Another six could not be reached by telephone after at least five attempts.

The remaining 1346 invitations were sent via e-mail in May and early June. Approximately 500 individual teacher responses were generated in this phase. A preliminary analysis of the data showed that responses were from a wide range of teachers in various levels of responsibility within their schools and not just from headteachers or other school leaders.

At the start of July, a reminder was sent to all schools, excluding those where the headteacher had declined the invitation. This yielded another 200 individual responses from teachers. Those headteachers, 20 in all, who replied to the reminder stating that the close of the academic year was not a convenient time to participate in the survey were invited to participate again at the start of the Autumn term 2009.

A further round of invitation e-mails was sent mid-September 2009 to sample schools that had not yet participated in the research and to schools that had responded but with fewer than five individual teacher respondents. This generated further responses. In October, a final round of e-mail reminders was sent.

In total 813 individual teachers responses were received from 178 different schools.

The final part of the online questionnaire asked participants to indicate their willingness to participate further in the project by leaving an e-mail contact. 220 participants (approximately 25%) gave their contact details in this way. In order to provide additional qualitative data to develop a clearer understanding of how the use of data relates to wider aspects of practice and data-culture in schools, a sample of ten – from those who had offered particularly fulsome comments to the open response items in the questionnaire, regardless of how positive or negative those responses might have been - were interviewed by telephone. (140 respondents were invited to participate in the telephone interview phase during a two week window and the first ten positive responses were selected as a way of randomising the participants).

Details are show in Table 1.2

Interview schedule

Prompts / questions:

1. In what ways do you feel the use of pupil attainment and progress data impacts on yourpersonal practice specifically as a class teacher?

2. How would you describe/characterise the approach that your school takes to the use of pupil data?

3. Are there any elements of your school's practice with which you strongly agree or disagree? Would you suggest any changes to the way data is led and managed in your school?

4. In what way do you feel your school's approach to the use of data is influenced by external pressures? Do you feel your school's approach to using pupil data has been influenced to any extent by previous published results?

5. Do you have any other comments about the use of pupil data that you would like to share?

Interview 1: Mathematics Teacher in a PP School
Interview 2: Science Teacher/Head of Department in a CC School
Interview 3: Assistant Head/Data Manager/Classroom teacher in a CT School
Interview 4: AST/English Teacher in a PM School
Interview 5: Deputy Headteacher/Data Manager in a PP School
Interview 6: SENCO/Head of vertical Pastoral Zone/Classroom teacher in a CC School
Interview 7: Class teacher (also Union Rep) in a CC School
Interview 8: English Teacher in a CC School
Interview 9: Science Teacher/Former assistant head/Currently pastoral leader in a MM School
Interview 10: Subject Leader in a PP School

Table 1.2

Background to data types available for use in English secondary schools

Sources of data for schools

The DCSF and Ofsted provide schools with an extensive web-based database to assist school self-evaluation known as RAISEonline[10] . There are fixed reports within the database which are also used to inform Ofsted inspections and there is therefore a perception of a link between this data for self-evaluation and also accountability. These reports allow schools to analyse the school level performance measures referred to above in greater depth. There is also the facility to produce custom reports and to drill down to analyse the attainment and progress of sub groups of students in order to look for evidence of differential effectiveness. Access to the data is restricted to nominated staff working in schools and local authorities, but the statistical methodology behind these analyses is published and therefore subject to scrutiny. The focus of RAISEonline is predominantly on outcomes in the core subjects of English and maths.

10 The acronym RAISE stands for Reporting and Analysis for Improvement through School Self-Evaluation.

The Fischer Family Trust[11] (FFT) is an independent charitable organisation that provides raw attainment data and the results of a range of value added statistical analyses to all local authorities in England and Wales for distribution to schools and also directly to schools via their online database known as FFTlive. It provides analyses for a wider range of subject areas than those provided in RAISEonline and also includes the results of teacher assessments in its analyses. Over 98% of secondary schools now make regular access of the FFT data via FFTLive, with the most popular online analyses being accessed over 4,000 times a day during some times in the year[12] . This is equivalent to approximately one access per day by every secondary school in England and Wales.

Other sources of data are available to schools for a fee via commercial services from organisations such as the Centre for Evaluation and Monitoring (CEM)[13] with its Middle Years Information System (MidYIS), Year Eleven Information System (Yellis) and A-level Information System (Alis) which provide predictive estimates of pupil potential and value added reports of student progress. They require additional supplementary tests to be completed by students including some measures of academic self-concept and attitude towards study and school. A further source of value added data is the 'Data EnablerToolkit', another online resource developed by the Specialist Schools and Academies Trust (SSAT)[14] . It provides value added analyses of GCSE outcomes without the inclusion of the contextual variables included in CVA. Finally the Advanced Level Performance System (ALPS)[15] provides both predictive estimates for target setting and value added progress measures for schools and colleges teaching courses to students aged 16-19. As well as benchmarking analyses at the school/college level there are also specific analyses are available by subjects and pupil sub-groups for internal evaluation of differential effectiveness.

Many schools in England make use of Cognitive Abilities Tests (or CATs)[16] that are also available to schools on a commercial basis. These tests assess the verbal, non verbal, quantitative and spatial abilities of students reported via standardised scores. They also provide predictive estimates of the likely outcomes or students in national examinations and so are often used as data source to inform student target setting.

The majority of schools have internal Information Management Systems which they use to log a wide range of their own internally produced data such as teacher assessments of attainment, progress and effort, and also logs of student behaviour and attendance. The systems can ten be used to produce bespoke analyses for monitoring and tracking purposes.

11 www.fischertrust.org

12 Information gained via a personal communication from Mike Treadaway, the Director of the FFT Data Analysis Project (March 2010).

13 www.cemcentre.org

14 www.ssatrust.org.uk/toolkit

15 http://www.alps-va.co.uk/Home

16 http://shop.gl-assessment.co.uk/home.php?cat=310

Uses of data by schools

Essentially, the data drawn from these various sources tends to be used for the following purposes:

To inform whole school evaluation and public accountability

Data used for theses purposes includes measures of pupils' raw, unadjusted attainment outcomes as well as value added measures of pupil progress, adjusted for prior attainment and varying degrees of pupil and school level context. Some of this data is only available to schools, such as that provided by the commercial organisations described above. FFT data is made available to schools and also to Local Authority staff working to support school improvement. Such data is used to inform the process of internal self-evaluation within the school.

The attainment and value added measures published by the DCSF are also used to inform school self-evaluation, but significantly they also have a public accountability role. Key school level measures are published annually via the School and College Achievement and Attainment Tables, which the media uses as its source of data for the infamous school 'league tables' with rank schools on a variety of measures. The list of public school performance indicators has grown and developed over time and currently includes:

- Threshold measures of raw attainment including the percentage of students attaining 5 or more A*-C grades (including an English and mathematics based subject) and 5 or more GCSE passes (A*-G grades),
- Threshold measures of progress including the percentage of students making 2 levels progress across a Key Stage,
- Value added measures of progress: KS2-4 Contextual Value Added (CVA)

To inform target setting

This is sometimes referred to as 'estimates' data in order to make clear that such data is provided to inform the process of target setting rather than to dictate it (a distinction that is not always maintained when such data is utilised in schools). Like value added evaluation data, these estimates of future pupil performance are generated by statistical models but, unlike value added data, they provide an estimate based on the performance of past students taking account of prior attainment and, in the case of FFT estimates data, a limited range of pupil and school level contextual factors (gender, age, subject based differences in prior attainment and the range and spread of prior attainment within the cohort of pupils to which the individual belongs). It is a government requirement that schools set targets for pupil attainment at the whole school level and many schools regularly make use of estimates data to inform target setting with individual pupils and also for groups of pupils.

To track and monitor the progress of individual and groups of pupils

This often includes teacher evaluations of pupil progress arising from a range of regular internal assessments which are collected regularly and compared with pupil targets. Such data is normally stored within the Information Management Systems of a school and this is also where analyses by teachers can take place. Access to such data is often at the discretion of senior leaders in schools.

For question level analyses (QLA) for individual subjects

These enable in depth analyses of pupil performance within a particular subject area derived from a study of pupil responses to specific questions in internal assessments and, via RAISEonline, in the national end of Key Stage tests known as SATs. Such data will normally be used by middle leaders (such as Heads of Departments) and classroom teachers depending on access to the data.

In order to illustrate and develop the analysis contained in this report we have incorporated a number of comments which were derived from the telephone interviews and open ended questions within the online survey, it is important to bear in mind that the respondent may be referring in general terms to a range of data types and uses, or may be focusing more specifically on a particular data source or use of data. Where this isn't immediately obvious from the individual response we have included some supporting commentary where we believe this helps to clarify the type and use of data to which the participant is referring.

Section 2: Response Overview

In total, 813 teachers participated in the survey. Tables 2.1-2.8 below gives an overview of the numbers and percentages of respondents according to school type, age of respondent, gender, main responsibility, years of teaching experience, and main subject specialism.

School category	No. of schools invited to participate	No. of	School response	No. of teachers	% of total
PP	302	44	14.6	223	27.4
PM	59	11	18.6	60	7.4
MP	90	8	8.9	23	2.8
MM	187	28	15.0	100	12.3
CC	386	51	13.2	253	31.1
CT	164	23	14.0	118	14.5
ON	153	13	8.5	36	4.4
Total	**1341**	**178**	**13.3**	**813**	**100.0%**
Others		26		53	

Table 2.1

Proportionally, the highest response rate was from PP, PM and MM schools. MP and ON schools had lower proportional response rates.

Age category of respondent	No. of teachers	% of total sample	% nationally (Primary & Secondary, from GTC 2009)
20-25	38	4.7	4%
26-35	250	30.8	28%
36-45	212	26.1	25%
46-55	217	26.7	24%
56-65	91	11.2	19%
(Missing)	(5)	(0.6)	
Total	**813**	**100**	**100**

Table 2.2

The highest percentage response was in the 26-55 age category. The youngest and oldest age categories had the lowest response rates (see Table 2.2).

Gender of respondent	No. of teachers	% of total sample	% nationally (Secondary only, from GTC 2009)
Male	28	35.5	39
Female	510	62.7	61
(Missing)	(14)	(1.7)	
Total	**813**	**100**	**100**

Table 2.3

Women made up a much larger part of the sample (see Table 2.3). While 61% of secondary teachers nationally are female, 69.5% of respondents to this survey are either classroom teachers or subject leaders / heads of department, and a proportionally larger part of these are females nationally.

	Class teachers	Subject Leader	School-wide	School-wide pastoral leader	One of 3 senior	Other		% of total
Male	93 32.2%	90 31.3%	3 1.0%	8 2.8%	80 27.7%	15 5.2%	289	35.5 100%
Female	217 42.5%	165 32.4%	9 1.8%	28 5.5%	69 13.5%	22 4.3%	510	62.7%
Missing							14	1.7
Total	310 38.1	255 31.4%	12	36	149	37	813	100%

Table 2.4

Table 2.4 shows the distribution of response across the range of responsibility in schools. It is worth noting that of the responding males in the sample, 27.7% occupy senior leadership positions (assistant head, deputy head, head) while only 13.5% of responding females occupy similar positions. For the role of school-wide pastoral leader, we see the reverse pattern: 5.5% of responding females occupy this post compared to 2.8% of responding males. 74.9% of female respondents are either classroom teachers or subject leaders / heads of department, compared to 63.5% of male respondents. This is a marked difference, but is in line with the national profile[17].

The 60 respondents who indicated a responsibility other than, or in addition to, one of the seven options given (see Table 2.4 and Appendix A), gave information about their responsibilities in an open text box. There were 37 respondents with responsibilities in Special Needs, ICT, Staff Induction and respondents in middle or senior management positions. Several had responsibilities in IT.

Years of teaching experience	No. of teachers	% of total sample
<1yr	24	3.0
1-5yrs	179	22.0
6-10yrs	177	21.8
11-15yrs	115	14.1
16-20yrs	76	9.3
21-25yrs	61	7.5
26-30yrs	82	10.1
>30yrs	92	11.3
(Missing)	(7)	(0.9)
Total	**813**	**100.0**

Table 2.5

Respondents with fewer than ten years teaching experience represent 46.8% of the total sample (see Table 2.5). Teachers with less than one year experience are under-represented, with a response rate of only 3.0%, although it is not known how this figure relates to the percentage of first year teachers in the profession nationally.

Table 2.6 shows the response rate by years teaching in current school. More than half the sample are teaching in their current school for five years or fewer, with approximately three-quarters of the sample being in post up to ten years.

17 89% of the teaching profession are 'classroom teachers'; 6.3% are assistant heads; 3% are deputies; and 1.8% are heads.

Number of years teaching in current school	No. of teachers	% of total sample
<1yr	98	12.1
1-5yrs	333	41.0
6-10yrs	195	24.0
11-15yrs	57	7.0
16-20yrs	53	6.5
21-25yrs	34	4.2
26-30yrs	24	3.0
>30yrs	15	1.8
(Missing)	(4)	(0.5)
Total	**813**	**100.0**

Table 2.6

Number of full-time / part-time teachers	No. of teachers	% of total sample
Full-time	602	74.0
Part-time	88	10.8
(Missing)	(123)	(15.1)
Total	**813**	**100.0**

Table 2.7

The majority of responding teachers were working full-time (87.2%). 15.1% of respondents did not answer this question.

Main subject specialism	No. of teachers	% of total sample
Mathematics	101	12.4
Science	129	15.9
English	94	11.6
Technology/Engineering	56	6.9
ICT/Business Studies	89	10.9
Media/Citizenship/Art/Drama	77	9.5
Modern Foreign/Other Languages	59	7.3
History/Geography/Other Humanities	108	13.3
Religious Education	26	3.2
Physical Education	54	6.6
(Missing)	(20)	(2.5)
Total	**813**	**100.0**

Table 2.8

Table 2.8 shows the response by teacher specialism. The highest percentage single subject category respondents were English, maths and Science, but there was a fairly even spread over all subjects.

Section 3: Analysis of the survey data

The extent of use of pupil attainment and progress data

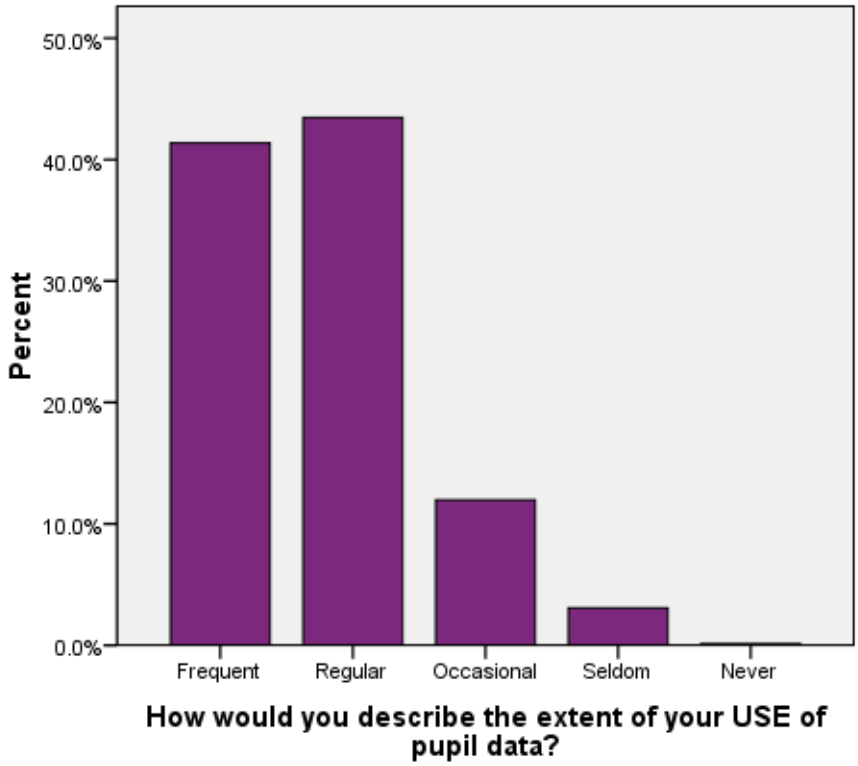


Fig 3.1

A large proportion of respondents (approx 85%) use data regularly or more frequently than regularly.

As one of the interviewees succinctly described it:

"Everybody is using it now; everybody. There isn't anybody who won't look and see what trends are appearing."

School-wide pastoral leader (and SEN Coordinator), CC school

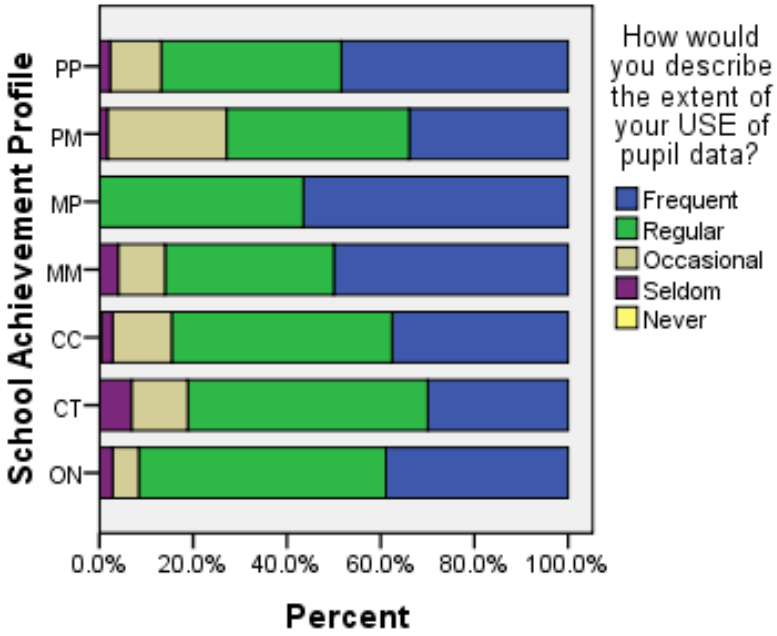


Fig 3.2

MP schools[18] report the most frequent use of pupil data; staff from the PM and CT schools report significant less frequent use.

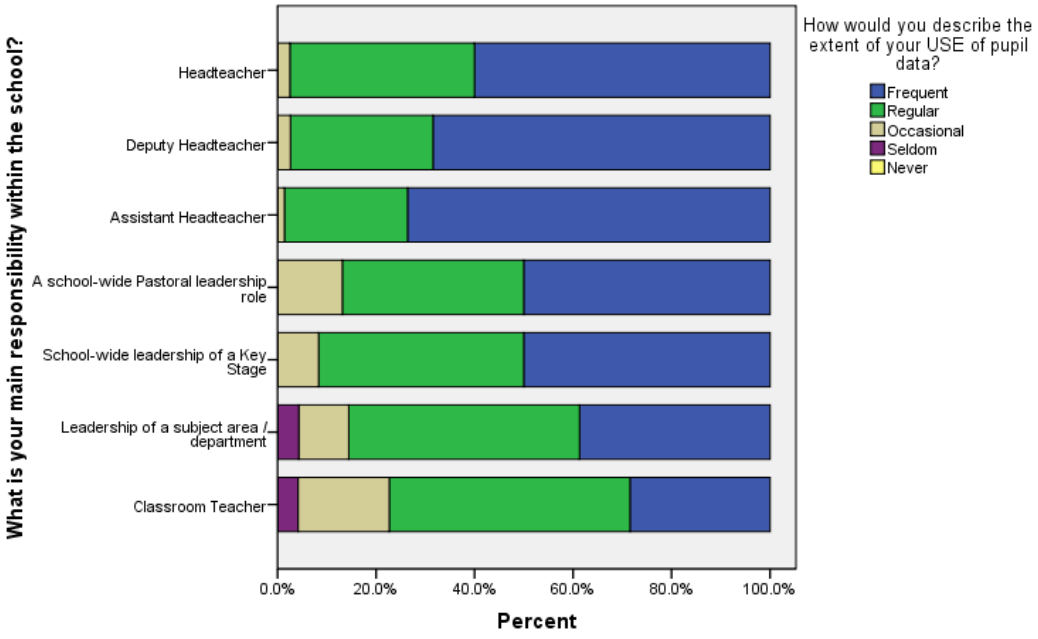


Fig 3.3

18 The school achievement profile is based on the school's GCSE results (5 A*-C including English and Maths) in 2008 and its CVA score. Please refer to the methodology section for a full explanation of the abbreviations used and characteristics of the seven achievement profile categories.

Senior management - heads, deputies and assistant heads - as a whole report more frequent use of pupil data than middle management and classroom teachers, with significant higher percentages describing their extent of use of pupil data as 'frequent' (Fig 3.3). Classroom teachers report the lowest levels of frequent use (23%), followed by subject leaders / department heads (38%). Only a small percentage of teachers and subject leaders report 'seldom' use of pupil performance data (5%) and less than 20% of respondents report 'occasional' use. It is fair to say that the use of pupil data is widespread across the profession, but least so among teachers in non-management roles.

There were no significant differences in the use of pupil performance data across the categories of subject specialism. Media/Citizenship/Art/Drama reported lowest frequent use; Mathematics / Science teachers reported greatest use, but only marginally.

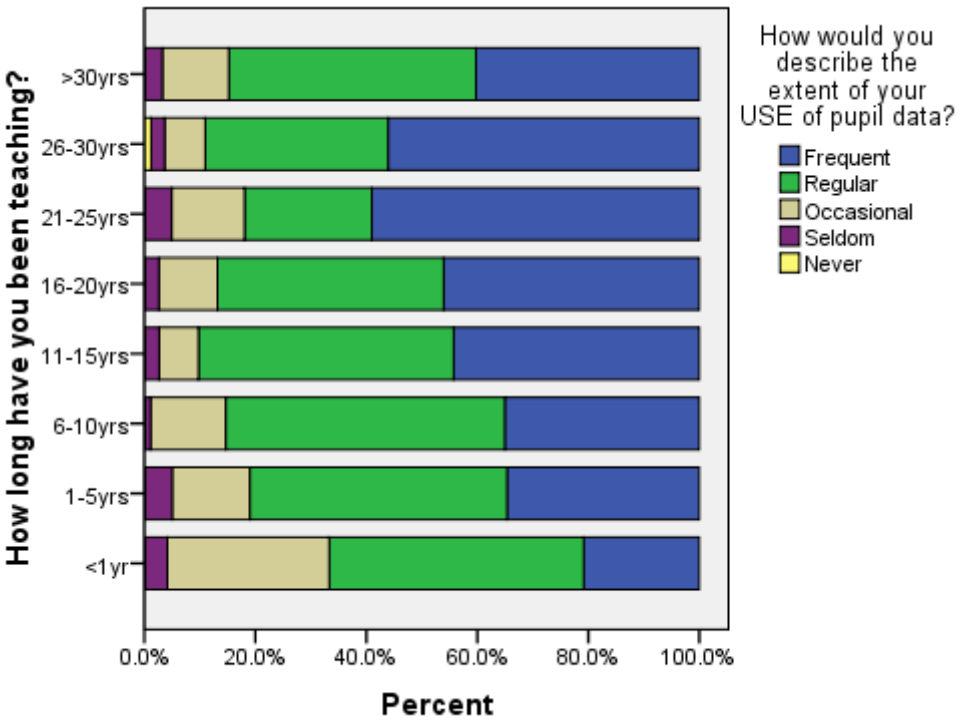


Fig 3.4

Newly qualified teachers show the lowest extent of use, which seems to grow with length of service up to about 15 years, after which it plateaus as management roles kick-in (see Fig 3.4). There is no significant relationship between time in current school and engagement with pupil data. Generally, younger (and part-time) teachers report lower usage.

There is no link between gender and use of pupil performance data, but when we take into account that 75% of participating female staff are classroom teachers and subject leaders, compared to 32% of male respondents, it seems that female respondents make relatively wide use of pupil data. Certainly, it is not the case that pupil data usage is a 'male exercise'.

Satisfaction with level of usage

Approximately 75% of respondents report being satisfied or very satisfied with their level of usage of pupil performance data, but although 40% of respondents said that they use data frequently, only 25% were very satisfied with their level of usage. The association between reported extent of use and level of satisfaction with data use is examined in more detail below.

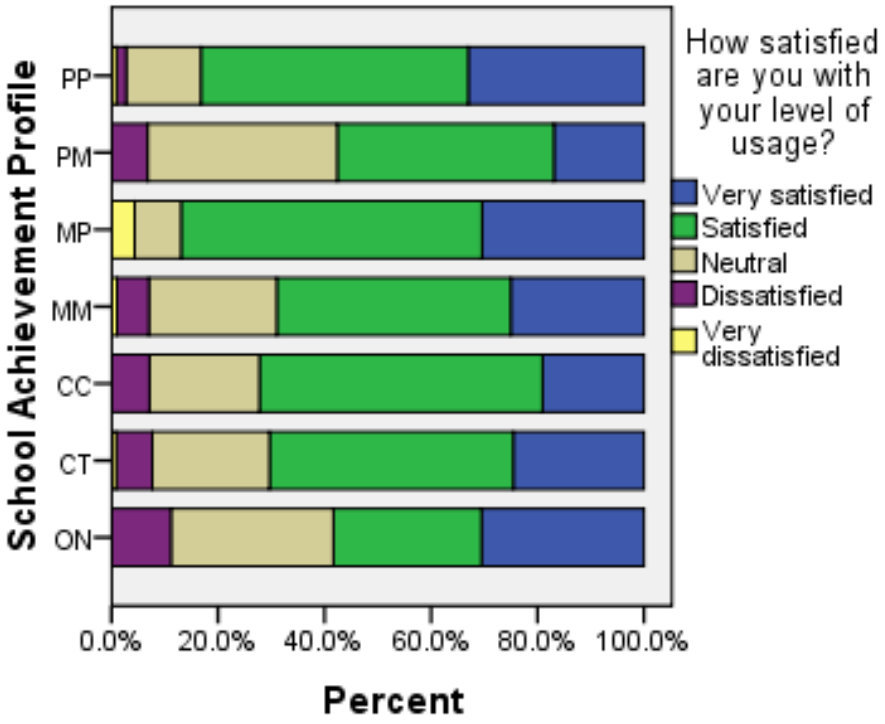


Fig 3.5

As Fig 3.5 illustrates, respondents from PP and MP schools - the two school types with a significantly positive CVA - report the highest levels of satisfaction with usage of pupil performance data (around 30% 'very satisfied' and 82-86% 'satisfied' or 'very satisfied'); staff in PM schools report the least satisfaction with their level of usage. (Interestingly, staff in PM schools report both less frequent use of pupil data and lower levels of satisfaction with their level of use).

5% of staff in MP schools are very dissatisfied with their level of use[19]. Each school category contains a percentage of respondents (from 3% in PP schools to 12% in ON schools) who are dissatisfied or very dissatisfied with level of data usage.

19 The number of respondents in this category is small.

Unsurprisingly, some contrasting views regarding satisfaction with level of usage were expressed by participants in the telephone interviews. The following two contributions, both from experienced classroom teachers, illustrate that level of satisfaction is linked in a complex way to a wide range of issues, such as the primary purpose for which the data is collected and used, and concerns around its reliability and validity. Both these comments refer to individual pupil level used for the tracking of pupil attainment and progress.

> *"I think using pupil data in teaching is all positive: obviously it improves the results of my students [and] it improves where my focus is in my lessons. If I know that students are underachieving I can give them extra homework. I can make sure I'm on top of them. I can set them accurate targets to get them back on track to where they should be. I feel it's helping my teaching to a great extent. I don't understand how it could be negative. Data informs teaching."*

English (and Advanced Skills) teacher, PM School

> *"I think the level that we use data at the moment is getting to the slightly overkill side of things, you know. There's too much data being used and some of it isn't valid anymore. By the time they reach secondary school it's not really important anymore what their KS1 or 2 SATS results really were; the kids might have come on leaps and bounds or something might have happened in the interim years. I think sometimes we focus too much on the data and not on the actual surroundings of the student or what's going on in their lives at the time."*

Classroom teacher and union rep, CC School

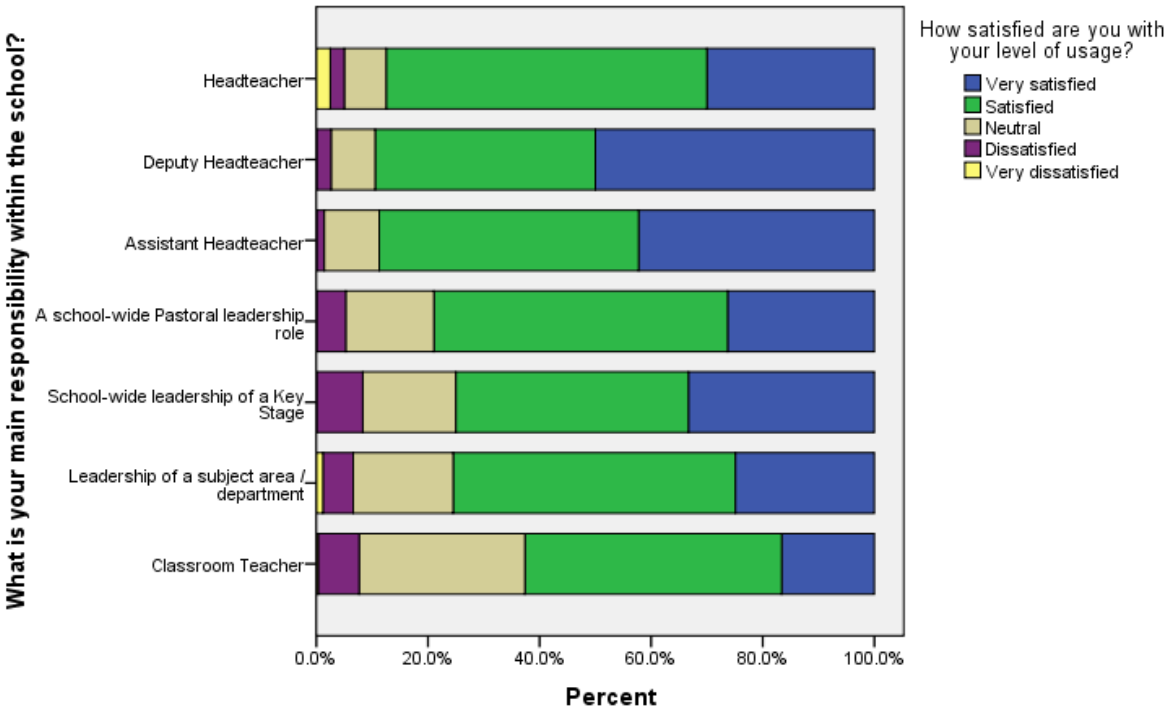


Fig 3.6

Generally, more senior staff (heads, deputies and assistants) are more satisfied with level of use than classroom colleagues, though heads are less often 'very satisfied' than deputies and assistants (see Fig 3.6). The percentage of heads dissatisfied or very dissatisfied is 8%, which is significant.

Teachers of Religious Education and Media/Art/Drama/Citizenship are significantly less satisfied with their level of use of pupil performance data, but otherwise there is no relationship between subject specialism and satisfaction with level of use.

The longer teachers are in the profession the more likely they are to be very satisfied with level of use, but overall there is little difference in satisfaction across the experience range, except for teachers of 1-5 years standing who are generally least satisfied (perhaps because the first year teaching is usually very challenging and their priorities might lie elsewhere).

Gender, age and employment status (full-time or part-time) have no effect on satisfaction with level of use.

The association between extent of use and satisfaction with level of use

This association was investigated using a classification tree analysis[20]. The analysis in Fig 3.7 shows that there is a significant association ($p<0.001$) between teachers' level of responsibility and their reported frequency of data use.

20 Classification tree analysis is a way of identifying statistically different groups or 'classes' of respondents within a dataset. The technique uses a chi-square test of difference to separate respondents into statistically different groups based on the distribution of responses to each item on the questionnaire. The outputs here were produced using either the 'CHAID' or 'exhaustive CHAID' algorithm to compute the classifications.

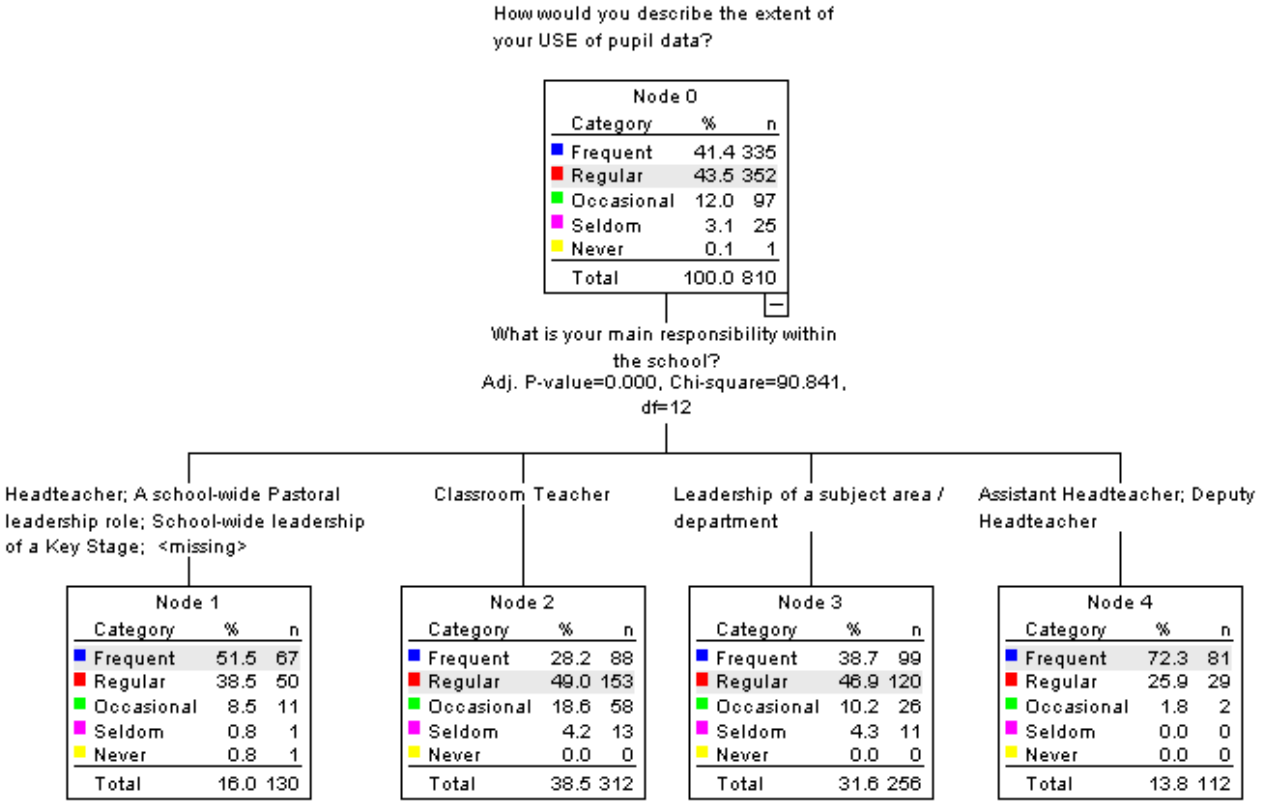


Fig 3.7

Deputy and assistant heads report the highest extent of use with a modal response of 'frequent' and almost all reporting either 'frequent' or 'regular' use. This would appear to confirm a key conclusion drawn from the descriptive analysis; namely that those charged with the analysis and interpretation of pupil performance data at school level appear more likely to be deputies or assistant heads. (Anecdotally, headteachers often delegate the role of 'data manager' to a colleague at this level of the senior management group).

There is also a significant association ($p<0.026$) between school type and the extent of use of pupil performance data by teachers (Fig 3.8). For staff in PP, MP and MM schools, the modal response was 'frequent' whereas it was 'regular' for teachers in the other school types. This may be indicative of a data culture in these schools which places particular value on the role data plays in self-evaluation and improvement. Once again this group contains the two school types with significantly positive school level CVA scores and also the schools for which neither attainment nor progress performance indicators suggest above average performance. By contrast, teachers in PM schools (with high levels of attainment but with significantly negative CVA scores) gave the highest proportion of responses in the 'occasional' and 'seldom' categories (27.1%).

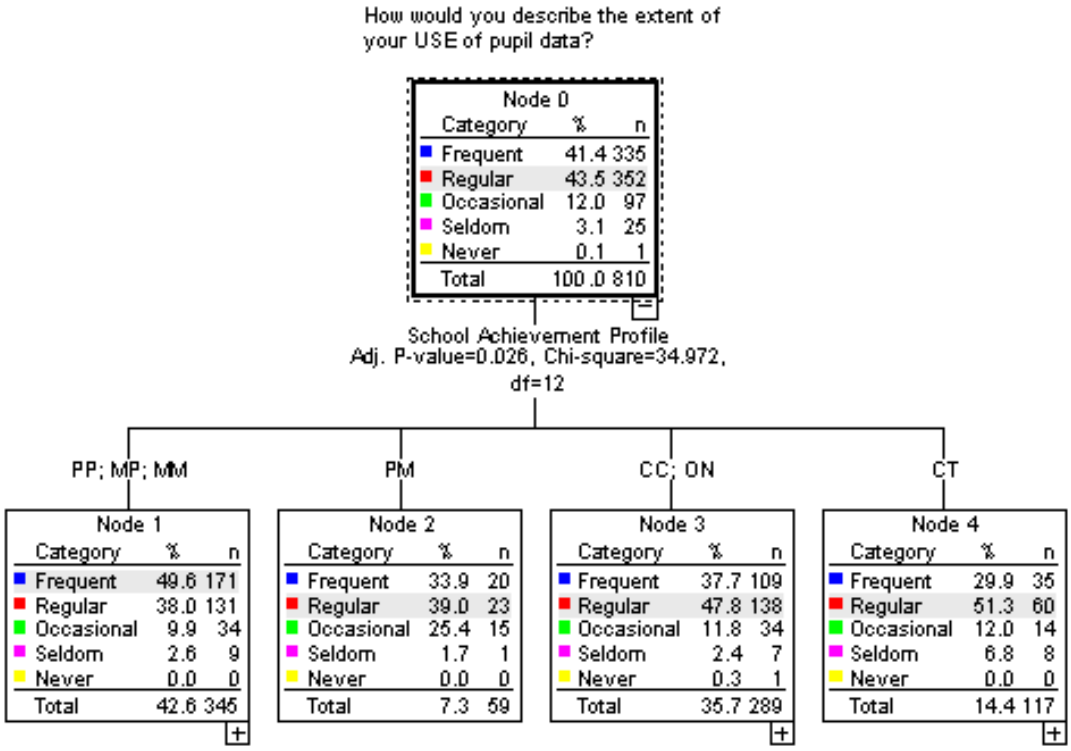


Fig 3.8

When exploring school type as a moderator of the association of extent of use with level of responsibility (Figs 3.9a & 3.9b), it becomes clear that in the high-use school types (PP, MP, MM) it is the assistant heads and those with a school wide pastoral leadership role that report higher levels of use than other groups (82.0% 'frequent' and 98% 'frequent' or 'regular'). This may suggest a delegation of responsibility for data down the senior leadership chain. This devolved approach to data appears to be confirmed by the fact that heads and deputies in these schools are grouped together with middle managers in terms of their extent of use of data in a group with a modal response of frequent use, suggesting that middle managers in high-use schools are also carrying significant responsibilities for handling data.

Classroom teachers in this group of high-use schools have a modal response of 'regular' and report very similar extent of use to their colleagues in CC and ON schools (80.4% 'frequent' or 'regular' compared with 79.6% in CC and ON schools).

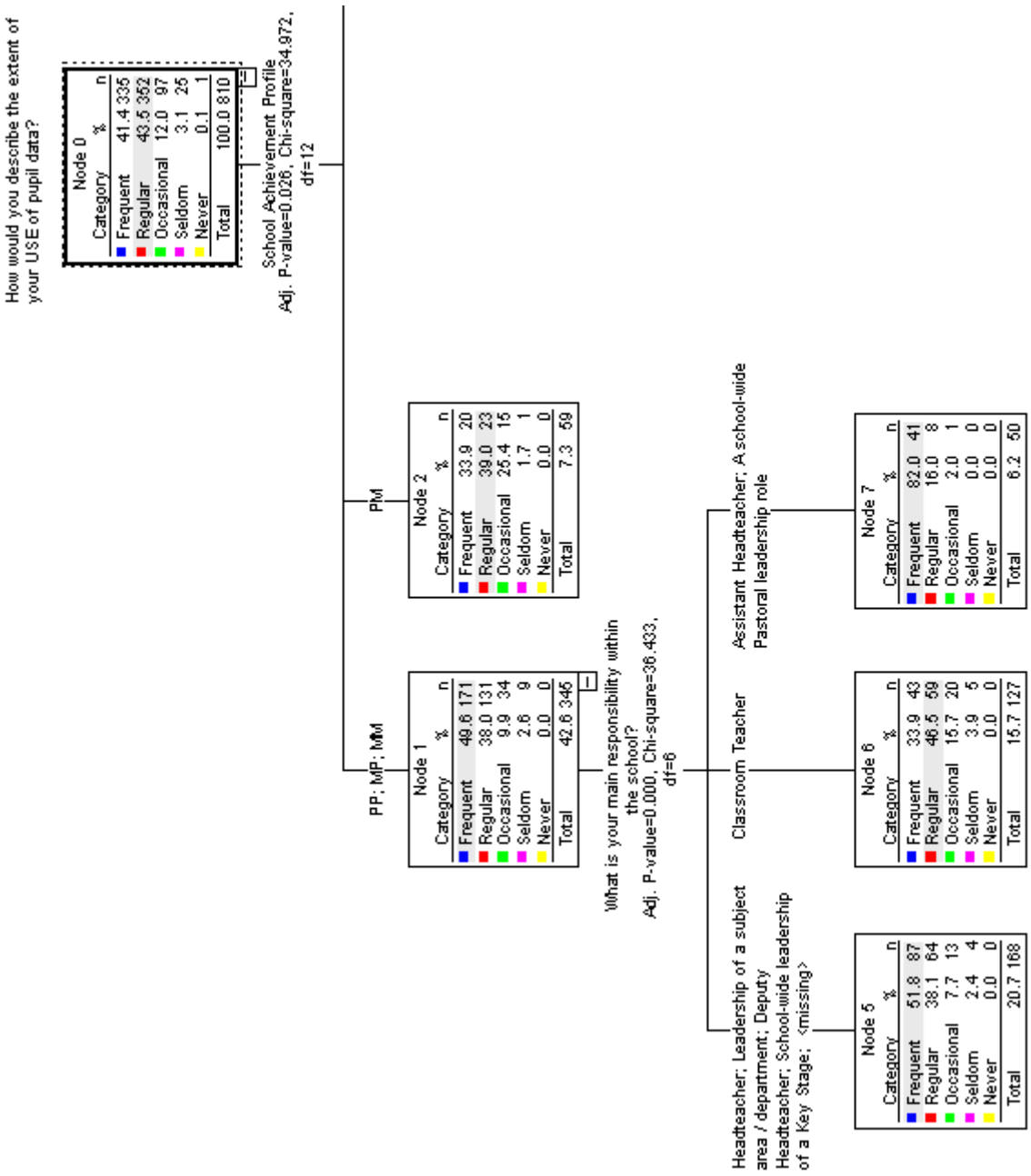

How would you describe the extent of your USE of pupil data?
Node 0
Category % n
Frequent 41.4 335
Regular 43.5 352
Occasional 12.0 97
Seldom 3.1 25
Never 0.1 1
Total 100.0 810
School Achievement Profile
Adj. P-value=0.026, Chi-square=34.972, df=12
PP; MP; MM
Node 1
Category % n
Frequent 49.6 171
Regular 38.0 131
Occasional 9.9 34
Seldom 2.6 9
Never 0.0 0
Total 42.6 345
PM
Node 2
Category % n
Frequent 33.9 20
Regular 39.0 23
Occasional 25.4 15
Seldom 1.7 1
Never 0.0 0
Total 7.3 59
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=36.433, df=6
Headteacher; Leadership of a subject area / department; Deputy Headteacher; School-wide leadership of a Key Stage; <missing>
Node 5
Category % n
Frequent 51.8 87
Regular 38.1 64
Occasional 7.7 13
Seldom 2.4 4
Never 0.0 0
Total 20.7 168
Classroom Teacher
Node 6
Category % n
Frequent 33.9 43
Regular 46.5 59
Occasional 15.7 20
Seldom 3.9 5
Never 0.0 0
Total 15.7 127
Assistant Headteacher; A school-wide Pastoral leadership role
Node 7
Category % n
Frequent 82.0 41
Regular 16.0 8
Occasional 2.0 1
Seldom 0.0 0
Never 0.0 0
Total 6.2 50

Fig 3.9a

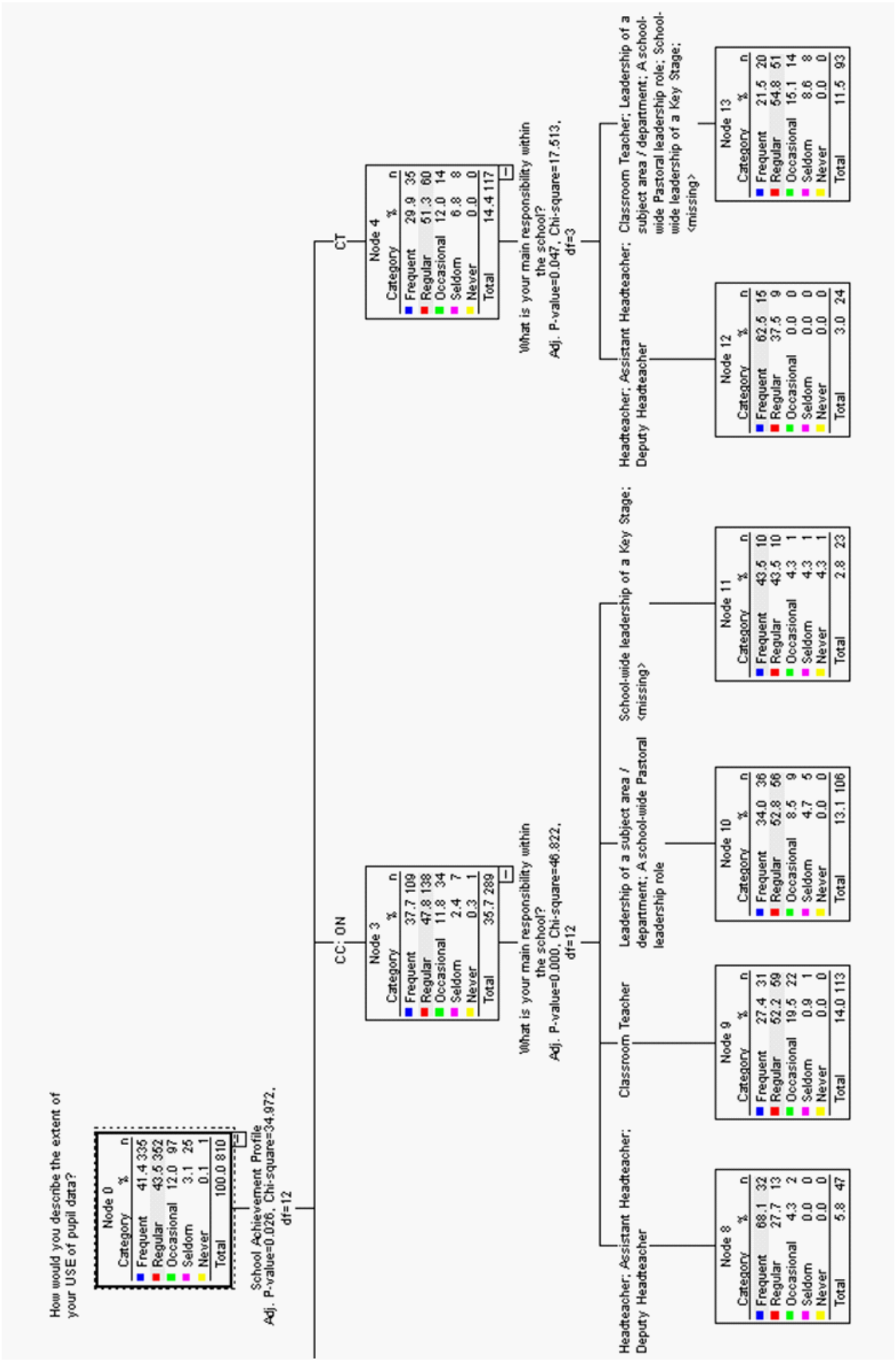

How would you describe the extent of your USE of pupil data?
Node 0
Category % n
Frequent 41.4 335
Regular 43.5 352
Occasional 12.0 97
Seldom 3.1 25
Never 0.1 1
Total 100.0 810
School Achievement Profile
Adj. P-value=0.026, Chi-square=34.972, df=12
CC: ON
Node 3
Category % n
Frequent 37.7 109
Regular 47.8 138
Occasional 11.8 34
Seldom 2.4 7
Never 0.3 1
Total 35.7 289
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=46.822, df=12
Headteacher; Assistant Headteacher; Deputy Headteacher
Node 8
Category % n
Frequent 68.1 32
Regular 27.7 13
Occasional 4.3 2
Seldom 0.0 0
Never 0.0 0
Total 5.8 47
Classroom Teacher
Node 9
Category % n
Frequent 27.4 31
Regular 52.2 59
Occasional 19.5 22
Seldom 0.9 1
Never 0.0 0
Total 14.0 113
Leadership of a subject area / department; A school-wide Pastoral leadership role
Node 10
Category % n
Frequent 34.0 36
Regular 52.8 56
Occasional 8.5 9
Seldom 4.7 5
Never 0.0 0
Total 13.1 106
School-wide leadership of a Key Stage; <missing>
Node 11
Category % n
Frequent 43.5 10
Regular 43.5 10
Occasional 4.3 1
Seldom 4.3 1
Never 4.3 1
Total 2.8 23
CT
Node 4
Category % n
Frequent 29.9 35
Regular 51.3 60
Occasional 12.0 14
Seldom 6.8 8
Never 0.0 0
Total 14.4 117
What is your main responsibility within the school?
Adj. P-value=0.047, Chi-square=17.513, df=3
Headteacher; Assistant Headteacher; Deputy Headteacher
Node 12
Category % n
Frequent 62.5 15
Regular 37.5 9
Occasional 0.0 0
Seldom 0.0 0
Never 0.0 0
Total 3.0 24
Classroom Teacher; Leadership of a subject area / department; A school-wide Pastoral leadership role; School-wide leadership of a Key Stage; <missing>
Node 13
Category % n
Frequent 21.5 20
Regular 54.8 51
Occasional 15.1 14
Seldom 8.6 8
Never 0.0 0
Total 11.5 93

Fig 3.9b

Teachers in CC and ON schools divide into four significantly ($p<0.001$) different categories based on their report extent of use of pupil performance data (Fig 3.9b). Only those in the senior leadership group of heads, deputies and assistant heads report a sharp modal use of 'frequent' and those in middle leadership positions as Heads of Department and pastoral leaders report similar levels of use to their classroom teacher colleagues (86.8% and 79.6% respectively 'frequent' and 'regular').

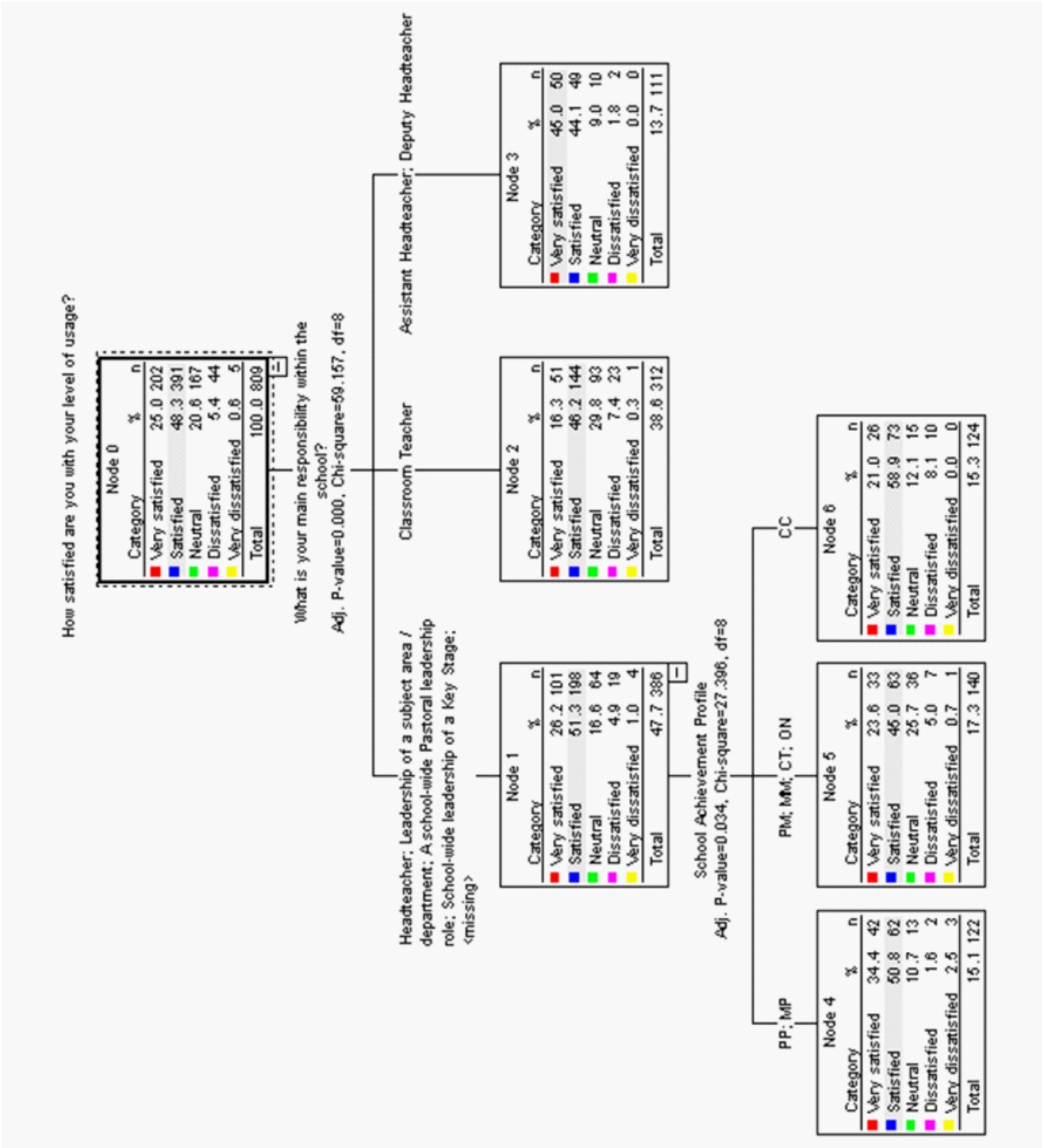
In CT schools, only two significantly ($p<0.05$) different groups of staff emerge based on extent of use: senior leaders; middle managers and classroom teachers (Fig 3.9b). Senior leaders report a similar extent of use to their counterparts in CC and ON schools. Middle managers and classroom teachers in CT schools are clustered together and report a slightly lower extent of use than the classroom teacher only group in CC and ON schools.

The analysis suggests that those schools reporting significantly high levels of data use do so because they have devolved higher levels of use to staff at middle management level. This devolution of responsibility does not appear to extend down to the classroom teacher level to the same extent.

School leaders, especially those who are data managers, report facing delicate balancing issues when trying to devolve data usage to teaching staff as the following contribution from an interview suggests:

> *"Some staff are a little worried that schools are, and our school is, becoming very data-driven and that we are forgetting the individual. But I think there is a happy medium and I wouldn't want my school or myself being criticised for not providing enough info to staff."*
>
> Deputy head and data manager, PP School

Fig 3.10


How satisfied are you with your level of usage?
Node 0
Category % n
Very satisfied 25.0 202
Satisfied 48.3 391
Neutral 20.6 167
Dissatisfied 5.4 44
Very dissatisfied 0.6 5
Total 100.0 809
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=59.157, df=8
Headteacher; Leadership of a subject area / department; A school-wide Pastoral leadership role; School-wide leadership of a Key Stage; <missing>
Classroom Teacher
Node 1
Category % n
Very satisfied 26.2 101
Satisfied 51.3 198
Neutral 16.6 64
Dissatisfied 4.9 19
Very dissatisfied 1.0 4
Total 47.7 386
School Achievement Profile
Adj. P-value=0.034, Chi-square=27.396, df=8
PP; MP
Node 4
Category % n
Very satisfied 34.4 42
Satisfied 50.8 62
Neutral 10.7 13
Dissatisfied 1.6 2
Very dissatisfied 2.5 3
Total 15.1 122
PM; MM; CT; ON
Node 5
Category % n
Very satisfied 23.6 33
Satisfied 45.0 63
Neutral 25.7 36
Dissatisfied 5.0 7
Very dissatisfied 0.7 1
Total 17.3 140
CC
Node 6
Category % n
Very satisfied 21.0 26
Satisfied 58.9 73
Neutral 12.1 15
Dissatisfied 8.1 10
Very dissatisfied 0.0 0
Total 15.3 124
Node 2
Category % n
Very satisfied 16.3 51
Satisfied 46.2 144
Neutral 29.8 93
Dissatisfied 7.4 23
Very dissatisfied 0.3 1
Total 38.6 312
Assistant Headteacher; Deputy Headteacher
Node 3
Category % n
Very satisfied 45.0 50
Satisfied 44.1 49
Neutral 9.0 10
Dissatisfied 1.8 2
Very dissatisfied 0.0 0
Total 13.7 111

The classification tree analysis in Fig 3.10 examines the moderating effect of responsibility and school type on staff satisfaction with extent of use. Assistant and deputy heads (the potential 'data-managers') report the highest levels of satisfaction with use (nearly 90% at 'very satisfied' or 'satisfied') whereas classroom teachers report the lowest levels of satisfaction (60% at 'very satisfied' or 'satisfied'). School type is not significant for either of these groups. Thus, in terms of satisfaction with extent of use, classroom teachers are more akin to their counterparts in other schools than they are to their more senior colleagues in the same school. A similar conclusion can be drawn for deputy and assistant heads.

School type produces significant levels of difference ($p<0.05$) in satisfaction only for heads and for middle managers. Those in high-use school types PP and MP report the highest levels of satisfaction (85.2% 'very satisfied' or 'satisfied') with those in CC schools slightly lower (79.9% 'very satisfied' or 'satisfied'). Those in PM, MM, CT and ON schools report the lowest levels of satisfaction (68.6% at 'very satisfied' or 'satisfied').

The following two interviewees illustrate how, for both middle and senior leaders, satisfaction with use of pupil performance data is tied to improving the outcomes and aspirations of pupils. The first comment refers to the use of pupil performance is linked to aspirations at the whole school level, while the second comment has tighter focus on the use of pupil level data to set aspirations via target setting and tracking:

> *"I find using pupil data in my teaching role very positive. I can see that as I am getting better at dealing with the data, the results are improving greatly. I started a couple of years ago and at that time the results were 1% above average, and last year it was 14% above average. So it has been hugely rewarding in that sense."*
>
> Head of Department, CC School

> *"As an assistant headteacher, I think it really allows me to encourage students to consider just how able they are. When I spent some time with this student and we went through all her data and we looked through all her Fischer, she could actually see visually that she was a really able student, and that she was going to get C grade in most things according to anyone who knew anything about her. Suddenly she felt confident and I find that amazing; the confidence that it can give to students. And she went straight off and signed up to do her resit module. That's something I couldn't have done 10 years ago and I think that's brilliant. That is absolutely very powerful."*
>
> Assistant Head and Data Manager, CT School

The questionnaire did not differentiate between those who expressed satisfaction because they feel their extent of use of was high or low. The correlation (Spearman's rho) between satisfaction and reported extent of use is 0.539 ($p<0.001$) suggesting that there is a significant positive association between greater use and satisfaction.

Figs 3.11 - 3.13 show an analysis of the association between satisfaction and extent of use, while adjusting for the moderating effect of level of responsibility. This shows some fine grain detail in the relationship between the two sets of responses. The results show a positive correlation between extent of use and reported satisfaction with use. It is only the groups of staff who seldom use data (at classroom level and for middle managers and heads) who express high levels of satisfaction with low levels of use.

At least some of this clash between extent of use and satisfaction with use may stem from the perception that time spent on data detracts from other crucial elements of teaching. A number of interviewees made this point. Each of the following comments, made by participants across the range of positions of positions of responsibility, refer to general use of a wide range of data types:

> *"But it takes away from the teaching. It would be better if students received a more rounded education. Now it is all about results and performance."*
>
> Head of Department (science), CC school

> *"I kind of disagree that we should be spending so much time analysing it in every single direction, in order to look at underachievement or overachievement. You're spending a lot of time looking at the data and not enough time in the corridor checking what the children are doing on a day-to day basis. But there we are: that's just me being a little bit cynical."*
>
> Deputy headteacher (and Data Manager), PP School

> *"It's time consuming…. There's a lot of data to go through. I don't know whether there is a novelty value in having all this stuff. I suppose we will get to a point where you actually become flooded with it. And I have had a conversation with one of the [Local] Authority data managers who said there is a tendency: because you have got it, use it all."*
>
> School-wide pastoral leader (and SENCO), CC School

> *"That's the only major negative aspect of it I can see. Sometimes it's easy to become too focused on the numbers and forget about the student themselves. My school loves it; absolutely adores it. … Still we have issues occasionally with the school being too data-focused and not taking everything into account; not taking a holistic view of what's going on."*
>
> Classroom teacher (and Union Rep), CC School

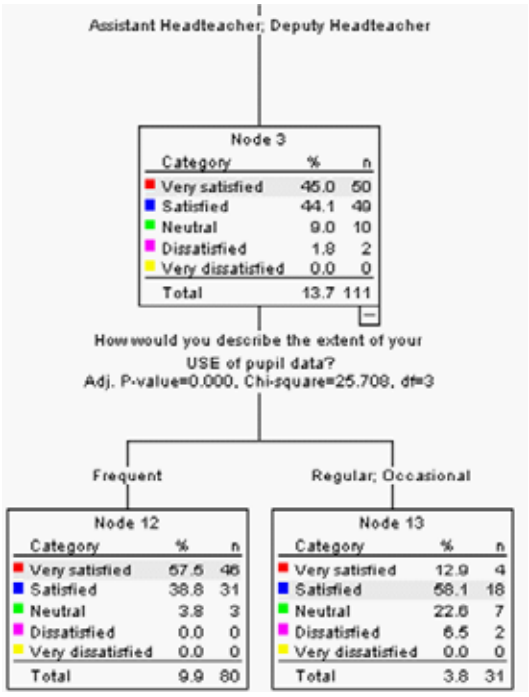


Fig 3.11

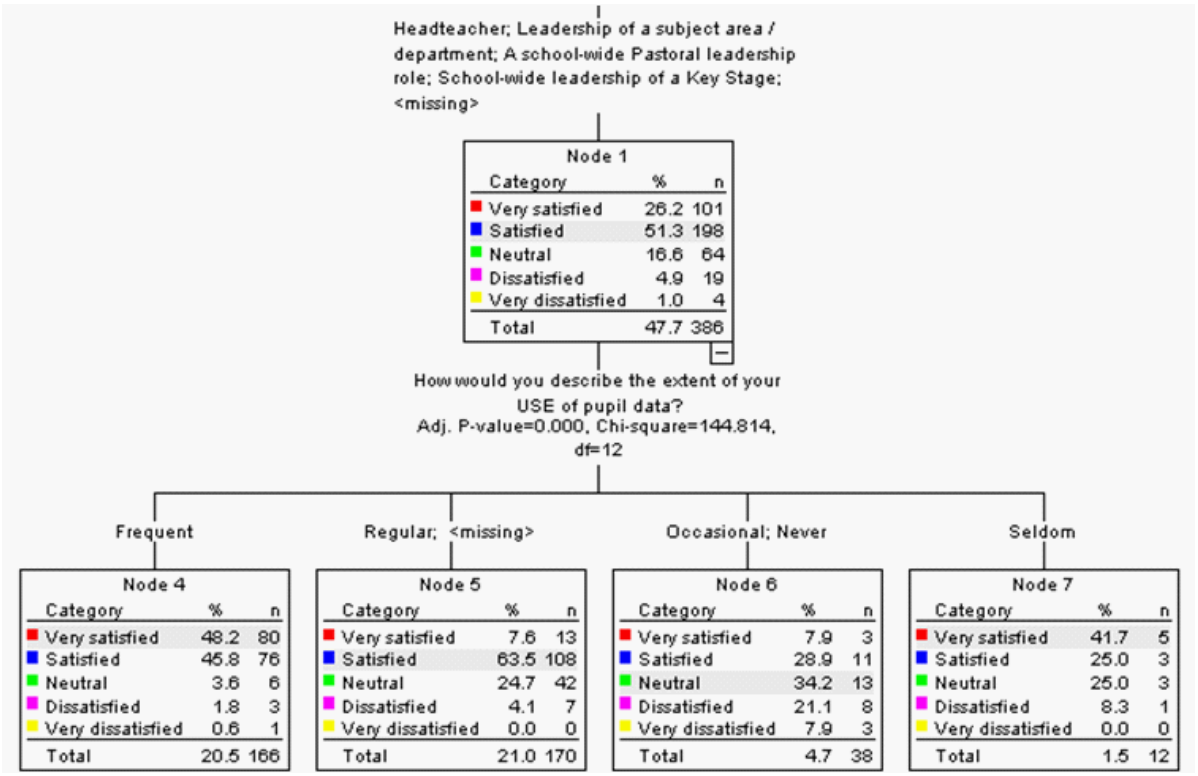


Fig 3.12

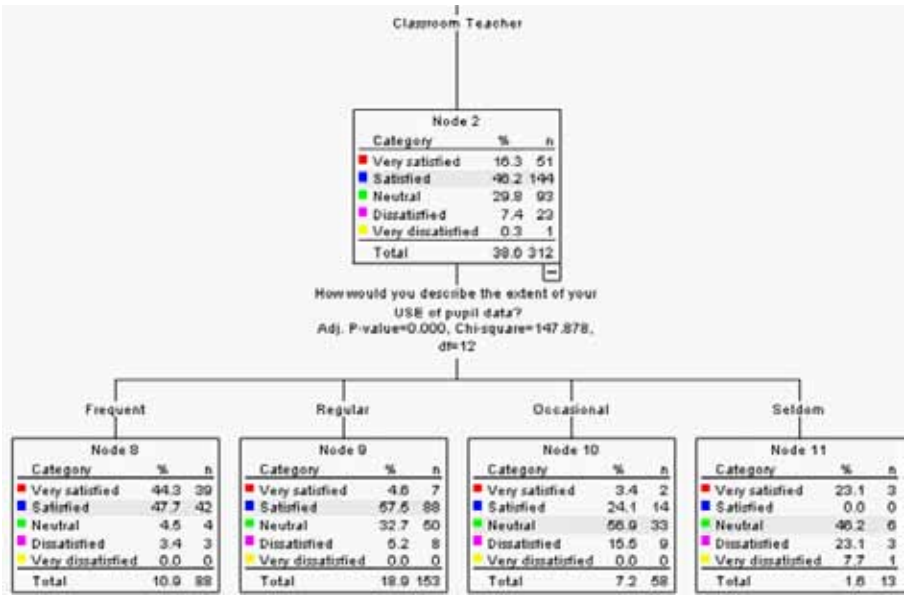


Fig 3.13

Even those with data manager roles express frustration with the breadth and scale of the data required and potential conflicts of purpose, particularly when the feeling is that school-level analyses by external agencies are given precedence over more fine-grained, pupil-level analyses. The following comment is particularly relevant from a data manger in a school with a flat or negative trend in its school-level raw attainment data:

> *"I cannot see how every single year, year-on-year we can constantly exceed our targets. It's nonsensical and it takes you away from the pupil level data, which should be what we're all about. I find it very distracting when you have to do that. When you have got to have SIP visits and have the data ready for that and you have got to do all of these things which take you away from what you want to do, which is get the students the best grades they can possibly get. The problem is that you have no choice. You feel very much that things are imposed, and that's against your better judgment and your professional knowledge and your knowledge of the students. But yes, it's the imposition of 'you must provide this data', and you do it, but it's not necessarily what you would want to do."*
>
> Assistant head (and data manager), CT school

One classroom teacher interviewee made a personal link between extent of use and satisfaction which derives from being able to demonstrate a return on the time invested:

"I have no problem with using data; data is fine, why not? It actually proves that we are doing something. I can prove everything now. You know, for a hardworking teacher, data is good because I can prove where I have spent my time. You can see it."

Classroom teacher (maths), CC school

Confidence in skills to access, utilise and interpret data

88% report being confident about their skills in accessing, utilising and interpreting pupil performance data. There is no significant difference between school types, though CC schools appear slightly less confident (82%).

Classroom teachers and heads of department are on average slightly less confident about their skills to access/utilise/interpret data than respondents in other responsibility categories. Technology/Engineering teachers are the least confident about their data skills (see Fig 3.14); maths and science teachers the most confident.

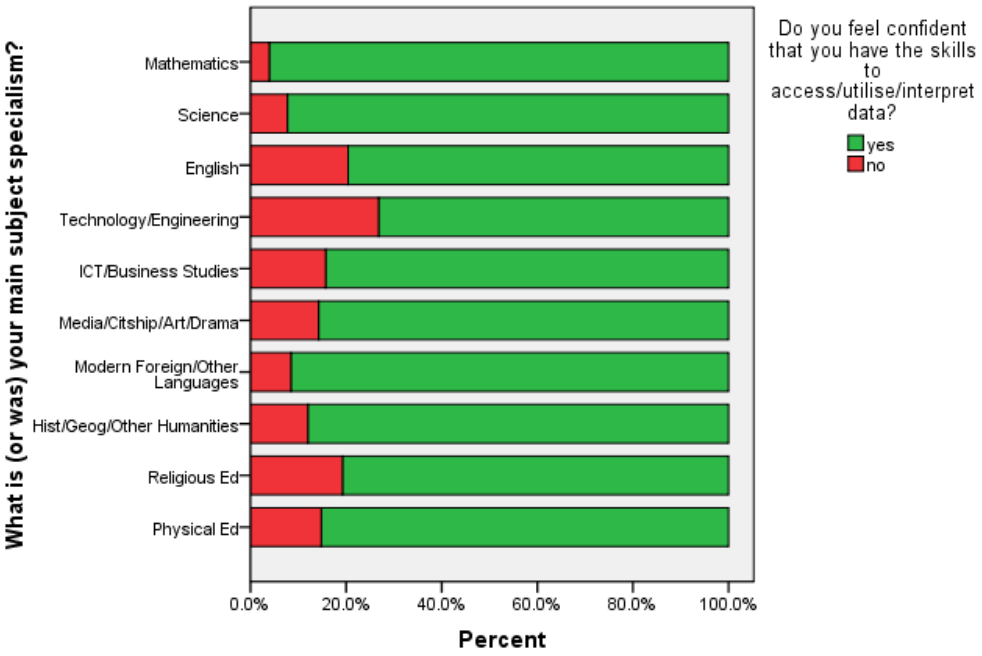


Fig 3.14

There is a significant difference in skills confidence depending on length of service in current school and age: those in current post less than 10 years and those in current post longer than 25 years are least confident, which generally equates to the age range 30-45.

There is no significant difference in skills confidence across gender or part-time/full-time categories.

For those who lack confidence in their own skills, it is clear that there are issues relating to:

- Technical / software aspects of processing and interpretation. There were repeated cries for 'someone to show me'.
- Among those who have skills but lack confidence, there were frequent calls for more and better refresher in-service training.
- Lack of time to develop better data skills. It is widely accepted that greater/better understanding increases the usefulness of data for target-setting.
- Concerns that the available data lacks application to individual pupils and that there are problems regarding the aggregation of data.
- The jargon and acronyms associated with the field.
- Lack of help for those using RAISEOnline and SIMS.
- Lack of training generally in the interpretation of data, particularly VA/CVA.
- Linking data with aptitude, intervention and classroom practice.
- Lack of familiarity with what is available so that informed choices can be made as to the utility value of the various data sources.
- The tension between measures and metrics being too crude on the one hand and too complex on the other.
- Concerns about school size and subject-specific factors.

And in terms of how teachers would like their skills developed and improved, respondents suggested:

- More after-school / twilight sessions.
- More one-to-one help.
- There is a wide preference for school-specific, in-school and subject-specific training, but if need be, training in local centres for the more generic aspects of data usage.
- NQTs are struggling to get on-board and to keep up, so perhaps data utilisation should form a larger part of ITE / PGCE courses.
- There is little resistance to data within the professions, but there is a widespread perception that teachers lack opportunity to avail of training / updating.

- There should be regular in-school forums to establish priorities and update staff once skills are acquired.
- There should be regular opportunities to dry-run / practise data techniques.
- There were appeals to policy makers to 'stop moving the goalposts'.
- There should be a check that interpretations are correct and a greater use of worked examples in training.

The issue of 'moving goalposts' was captured succinctly by the following interviewee, who refers to data designed for both school level target setting and whole school evaluation:

> *"Negatively, it's incredibly time-consuming, and I find it difficult when you have data sets, for example FFT, when it's constantly changing or adapting, and when you can't anticipate what that change is going to be. For example CVA: when you can't calculate something because they are going to change their calculation year-on-year, that can be incredibly frustrating."*
>
> Assistant head (and data manager), CT School

Another interviewee described the way teachers respond to such a moving target:

> *"If the government changes the criteria, we adapt. It's Complete Adaptation. And therefore, when the government changes something, they probably know what schools will do."*
>
> Classroom teacher (mathematics), PP School

Using pupil performance data to inform teaching and/or school or department management

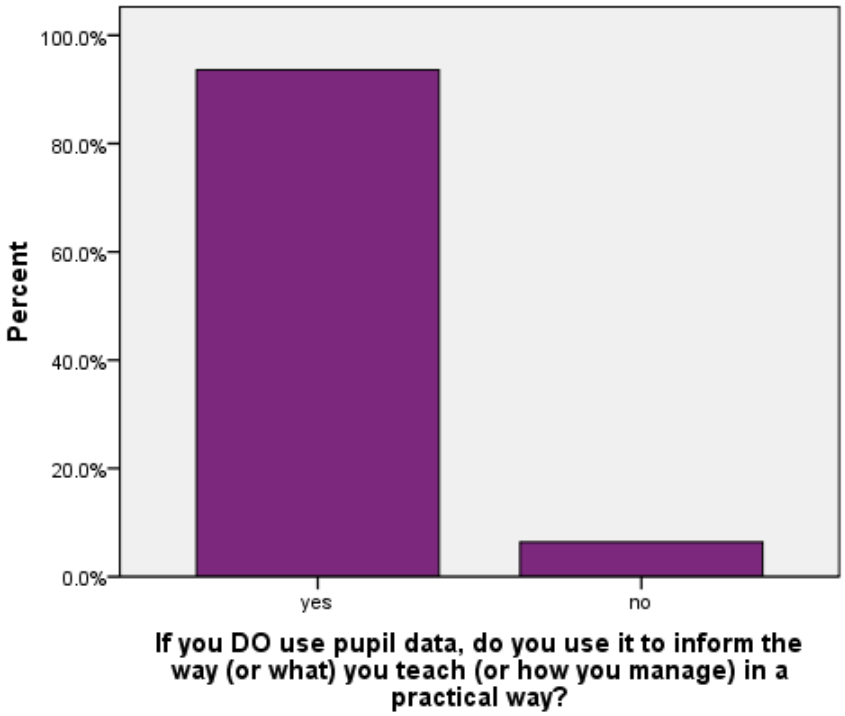


Fig. 3.15

95% of staff report using pupil performance data to inform practice (see Fig 3.15). It seems very significant that such a large number are using data in a practical way to inform teaching and management.

PM and CT schools use data least to inform teaching in a practical way, and assistant heads, heads and Key Stage leaders use it (in practical ways) most widely.

There is no significant difference between subject specialisms in terms of teachers using data to inform teaching, but teachers with the longest teaching careers and older teachers generally have a higher percentage who do not use pupil performance data to inform how/what they teach.

Figure 3.16 below shows the spread of what staff do with pupil performance data. The most popular uses are pupil-focused, rather than teacher- focused or accountability-focused: to evaluate pupil performance and to set targets for pupils. About 50% use data to evaluate own teaching and a lower percentage (42%) use it to set targets for own teaching. Just under 40% use it to evaluate subject area and just under 30% to evaluate the teaching of colleagues.

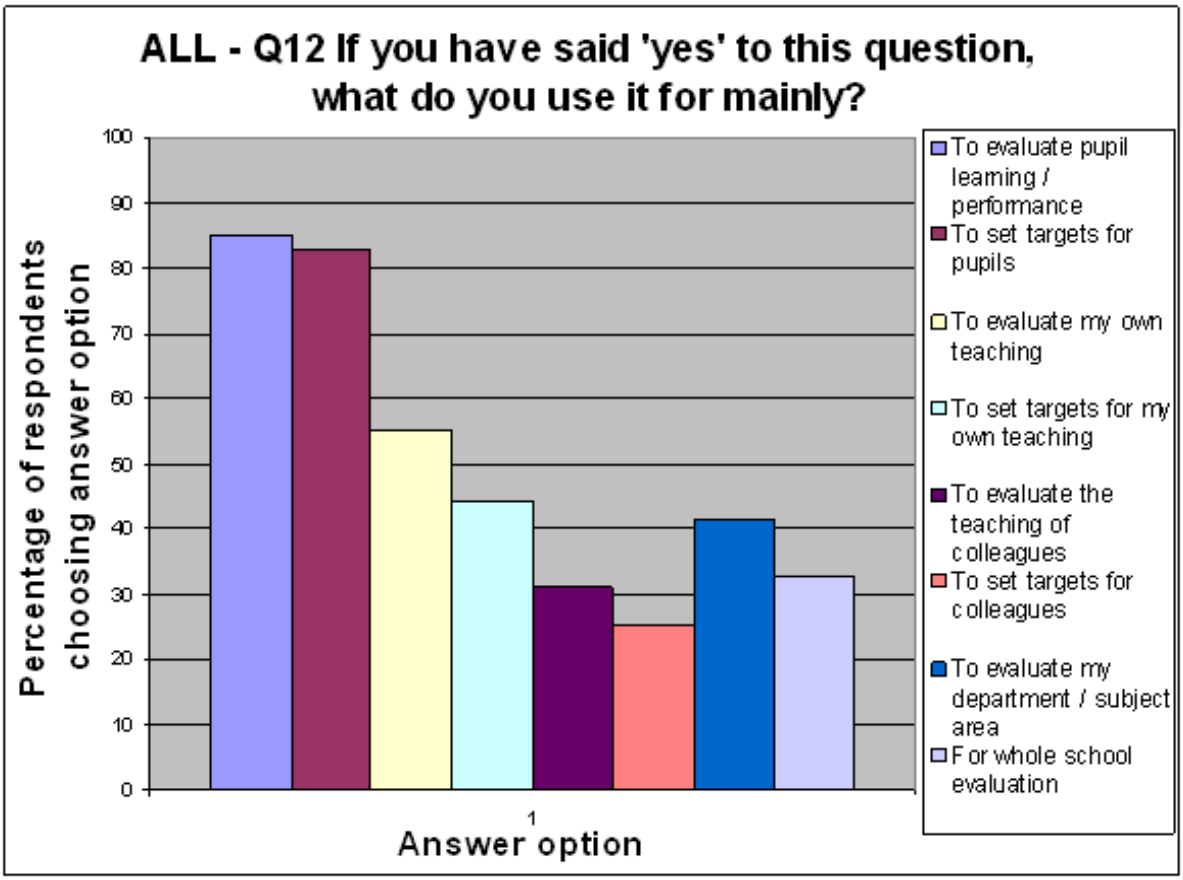


Fig. 3.16

If use of data is examined in relation to school type (see Fig 3.17 below), a similar response pattern is seen across the sample. The percentage of respondents using pupil performance data in order to evaluate pupil learning in MM schools is slightly higher than in other school types; a larger proportion of respondents in ON and MM schools report using data to set targets for pupils; a much lower percentage of respondents in MP schools (39%) report using data to evaluate own teaching (in PP, MM, CT and ON schools this is around 60%). In MM schools there is a much higher percentage (60%) of respondents reporting that they use pupil performance data to set targets for own teaching. In ON schools, pupil performance data are more often reported to be used to set targets for colleagues (42%) than in other schools (20-30%), and in PP schools using data to evaluate own subject area is more often indicated as a use.

The response pattern for the use of pupil data for whole school evaluation is varied: MP and ON schools have the highest percentage at approximately 50%; CT schools have the lowest at 25%.

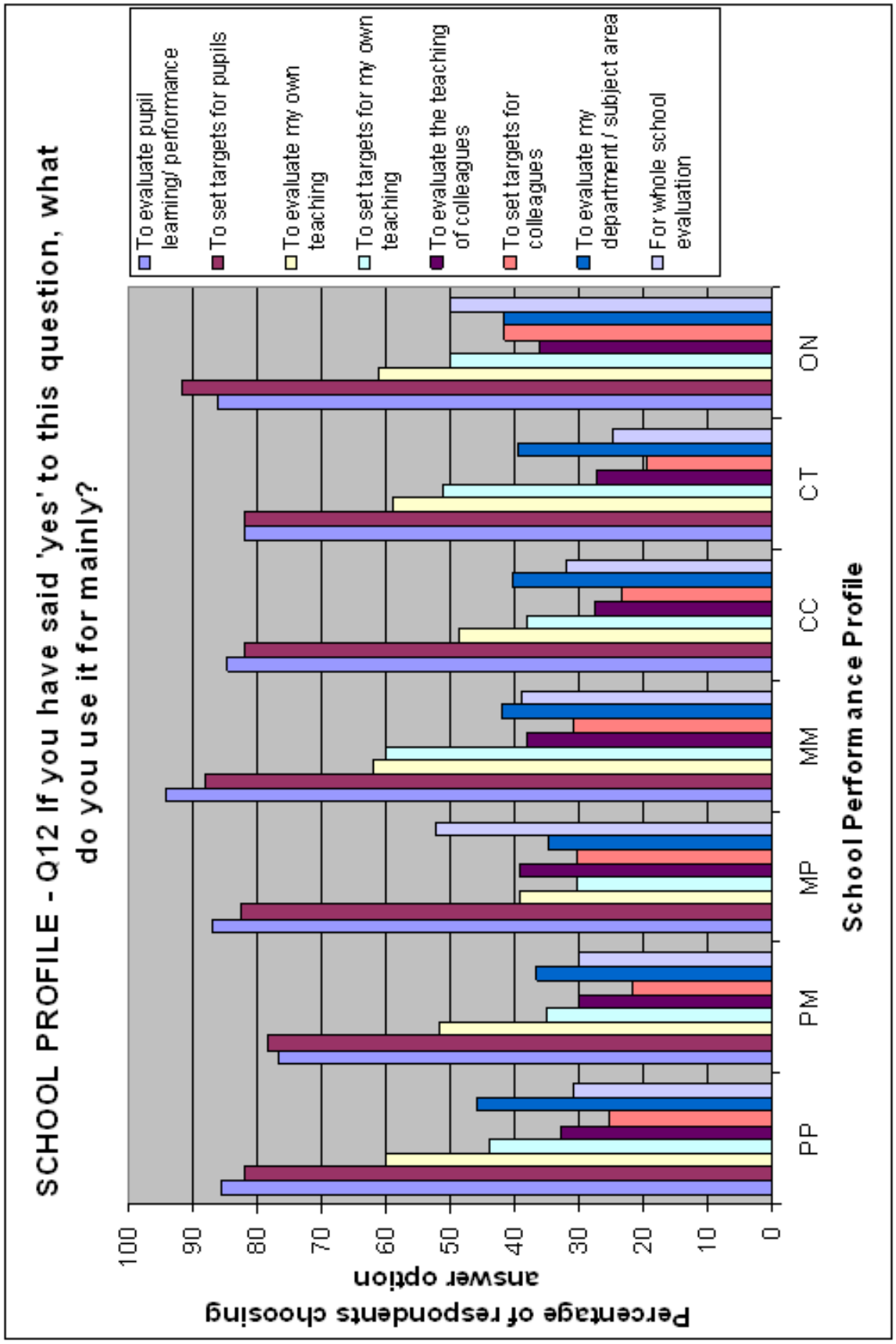

SCHOOL PROFILE - Q12 If you have said 'yes' to this question, what do you use it for mainly?
To evaluate pupil learning/ performance
To set targets for pupils
To evaluate my own teaching
To set targets for my own teaching
To evaluate the teaching of colleagues
To set targets for colleagues
To evaluate my department / subject area
For whole school evaluation
Percentage of respondents choosing answer option
0
10
20
30
40
50
60
70
80
90
100
PP
PM
MP
MM
CC
CT
ON
School Performance Profile

Fig 3.17

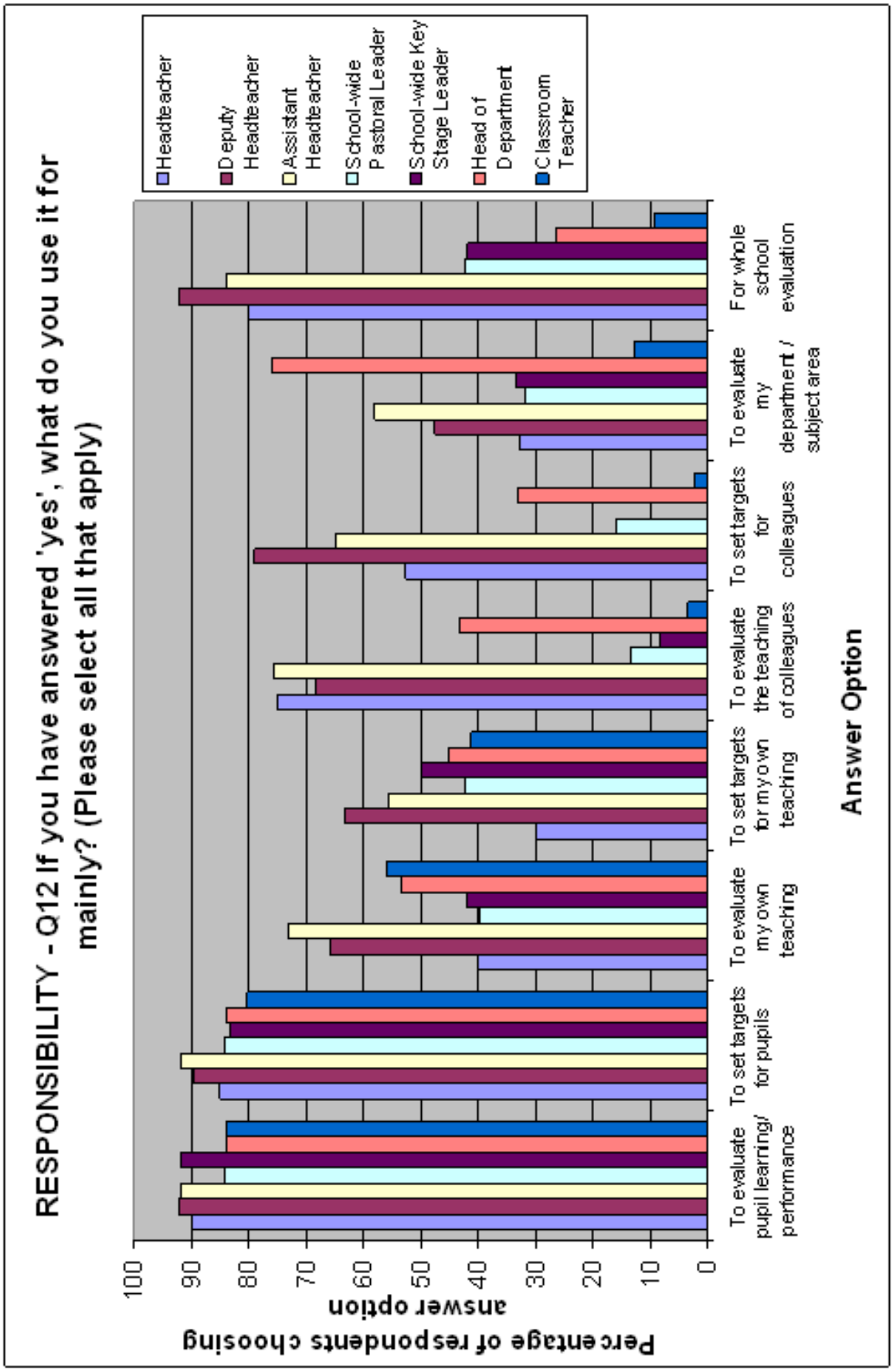

RESPONSIBILITY - Q12 If you have answered 'yes', what do you use it for mainly? (Please select all that apply)
Headteacher
Deputy Headteacher
Assistant Headteacher
School-wide Pastoral Leader
School-wide Key Stage Leader
Head of Department
Classroom Teacher
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
To evaluate pupil learning/ performance
To set targets for pupils
To evaluate my own teaching
To set targets for my own teaching
To evaluate the teaching of colleagues
To set targets for colleagues
To evaluate my department / subject area
For whole school evaluation
Answer Option

Fig 3.18

If use of data is examined in relation to level of responsibility in school (see Fig 3.18 above), the response patterns are quite varied. At all responsibility levels, large percentages of respondents report that they use data to evaluate pupil learning and performance, and to set targets for pupils (80-93%).

> *"Data does have a positive effect on student's learning for the exam; a very positive effect. Because the target is to have good results and better results… there are good things in it, because you can identify people who are just cruising, and they could do better and you know that they could, so you can identify them easier. We are focusing on identifying those children who need extra time and extra resources to achieve the targets, school targets."*
>
> Classroom teacher (mathematics), PP School

> *"I think using pupil data in teaching is very positive if I can access it immediately with students, because when they're aware of it. As long as it's shared with students, I find it very powerful."*
>
> Assistant Head (and Data Manager), CT School

> *"You are honing down on kids who are not making the same levels of progress as the others, so those are your target groups and those are the ones you're going to work with, those are the ones you're going to go the extra mile with the differentiation."*
>
> School wide pastoral leader (and SENCO), CC School

Using a range of evaluation and tracking data, at the pupil and pupil group level, to evaluate own teaching and to set targets for own teaching is reported in larger percentages by deputies and assistant heads; possibly a skill that they possess to a larger extent because of their frequently reported school-wide involvement with data analysis and interpretation, which they then can then apply to their own practice.

> *"You become much more effective, don't you, and the awareness of where the kids are is much more acute. There is no guess work - there is no room for guess work - in there now because you've got the data… It pinpoints exactly where the kids are. And I mean, you can then go and see what the kid's doing; you know what they are doing in that subject that they are not doing in this one. What's the problem? Why is it happening? It's those sorts of conversations that you begin to have. It is transforming. Everything is moving forward and the data is, if you like, underpinning all that. There is a high expectation that you do something positive with it, and that if you sort of find a trend that is not positive, that your actions are immediate."*
>
> School wide pastoral leader (and SENCO), CC School

Using a similar range of pupil and pupil group level data to evaluate the teaching of colleagues and to set targets for colleagues is (unsurprisingly) reported much more by those with a senior leadership / management role, and department leaders use data for these reasons much more often than classroom teachers.

"I'll target all of the other borderlines and look at people who are below target or below FFT(D) and look at them in terms of what can be done in terms of modular resits or redoing coursework or the rest of it. And also when it comes to analysing results, looking at how individual classes have performed against how others have performed in the school; how individual teachers have been performing and whether they need any help."

Head of Department (science), CC School

"I do agree very strongly with regular monitoring, testing and comparing against targets. I do agree that we need to look at it class wise and we need to look at it by teacher as well. Because there are teachers who are consistently overachieving with particular groups of students, then we need to look at what they are doing so that we can spread it wider. And if there are teachers for whom groups of pupils consistently underachieve then we need to make sure we put the support in place to make sure that that doesn't happen. So it is a performance-management tool for staff as well."

School-wide pastoral leader (and former assistant head), MM School

"It allows me to monitor the effectiveness of a team of staff to see how different teaching styles impact on results. And if we identify that one practitioner is stronger on a certain topic or area, then we often group-teach or team-teach to share that good practice."

Head of Department, PP School

Department leaders also (unsurprisingly) report much more often that they use data to evaluate own subject area (77%), although one might wonder why this percentage is not even higher. Less than 47% of deputies and 58% of assistant heads report using data for this reason. The following comments illustrate the usefulness of pupil and group level data in tracking the progress of students and identifying areas of potential strength and weakness. The first of the two comments refers to question level analysis data, which is available via RAISEonline and from schools' own tracking data.

"Data allows me to identify which topics have been more understood than others, particularly down to questions within topics."

Head of Department, PP School

"In terms of being a SENCO, we're actually just looking now because … you can see hotspots occurring in subject areas. I am just now looking at SEN planning so what we now build into it is learning observations, learning conversations, looking at vulnerable groups in line with Ofsted; looking at groups of children, what they're getting, what their diet is."

School-wide pastoral leader (and SENCO), CC School

Again unsurprisingly, senior leaders use data most for whole school evaluation compared to the other responsibility groups, though it is worth reiterating that many respondents would like to learn more about analysing / interpreting / understanding data at a school-wide level.

Generally, there was a similar data usage response pattern across all subjects and across length of teaching career, though there was a significantly lower use of pupil performance data to set own teaching targets among respondents with 1-5 years teaching experience and older teachers showed more use of pupil performance data for setting targets for colleagues (probably because they are more likely to hold positions of responsibility).

Those respondents who indicated that they were using pupil data to inform teaching (and/or management) further indicated that they were using the data in a variety of ways that included:

- To share targets and current working levels with pupils and parents.
- To motivate pupils.
- To identify and evaluate groups for interventions or make plans for underachieving pupils, pupils with English as an Additional Language, pupils with special needs, gifted and talented pupils, and pupils from different ethnic backgrounds.
- To track pupils and write student references.
- To compare information on pupil progress in different subjects.
- To select mixed ability groups and/or make 'strategic' seating arrangements within teaching groups.
- To gauge how to run lessons and to differentiate within lessons.
- To track attendance and punctuality and to establish good practice.
- To identify aspects of courses with which pupils struggle (or find easy).

How teachers rate their own understanding of pupil performance data

Teachers generally rate their understanding of pupil attainment data as good. About 75% rate it good or very good, and only a very small percentage (5%) rate it poor or very poor (see Fig 3.19).

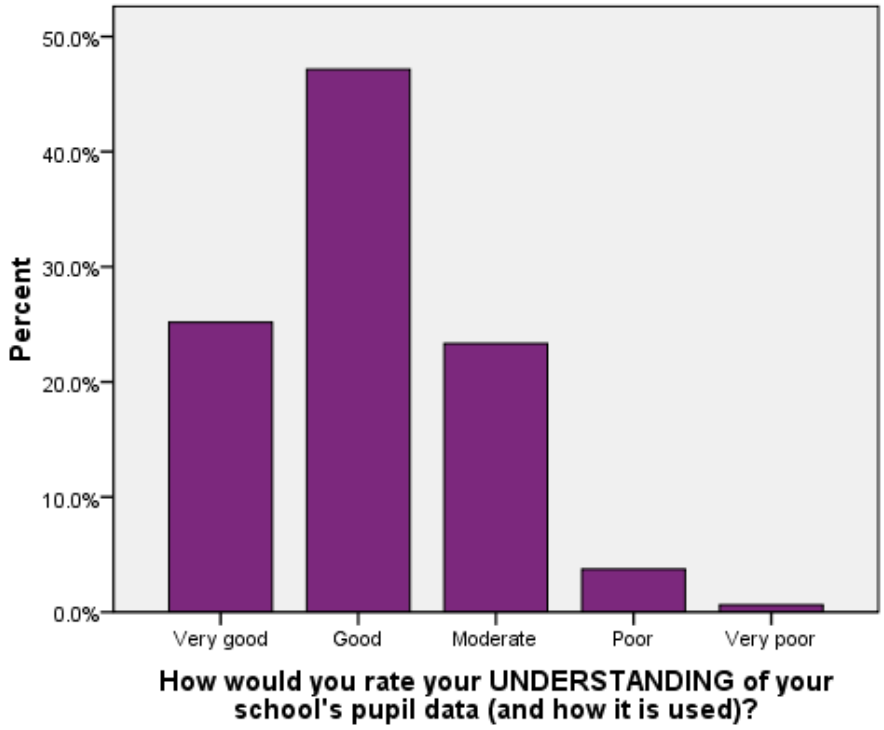


Fig 3.19

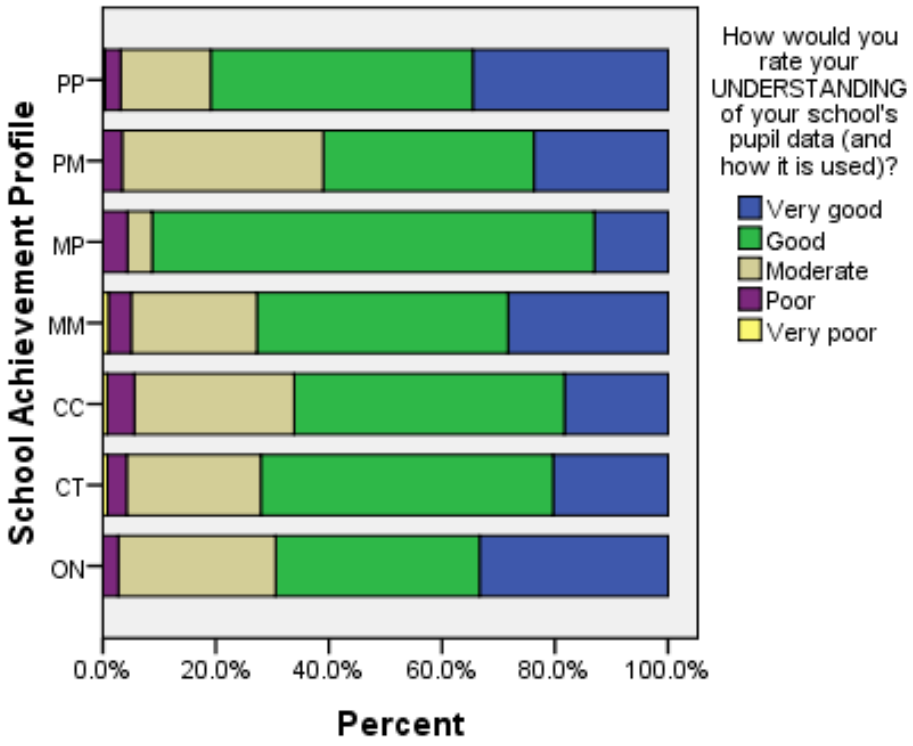


Fig 3.20

When we look at how level of understanding varies across school type, we see that staff in PM and CC schools rate their understanding somewhat lower than the others (see Fig 3.20). In other school types, the story is mixed: MP schools, for example, have only 7% claim a 'very good' understanding, but this is compensated for by the 83% who say their understanding is 'good'[21]. Many PP and ON school respondents (approximately 35%) report a very good understanding, but in all categories, there is a small percentage who acknowledge a 'poor' or 'very poor' understanding of pupil performance data (up to 7%).

21 However, the MP sample was small.

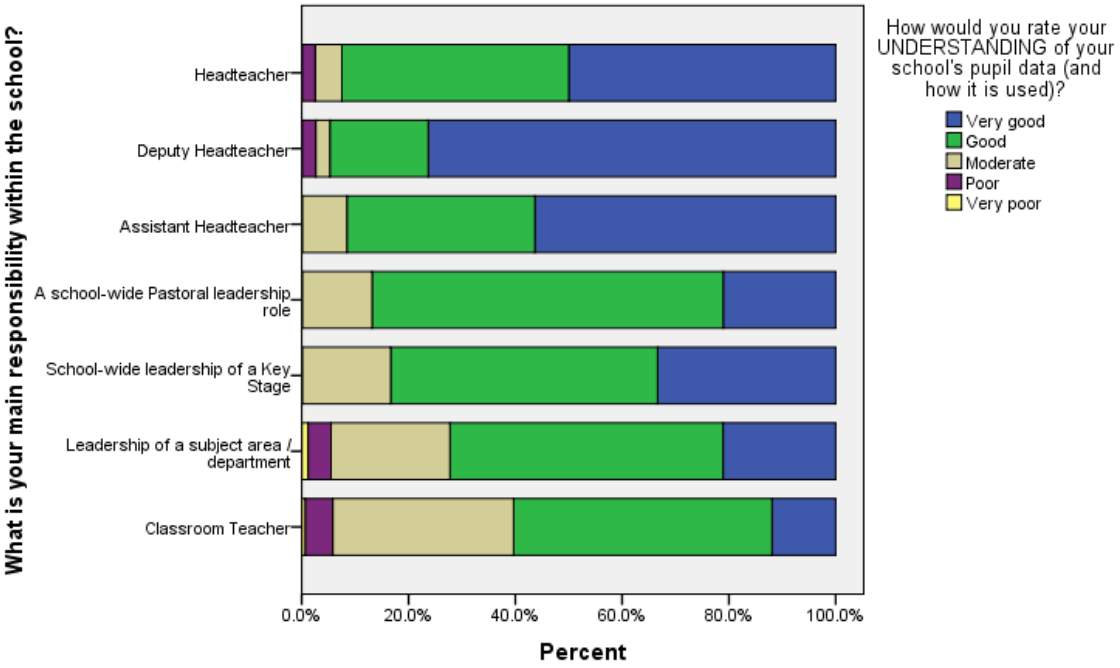


Fig 3.21

There are significant differences between levels of understanding across the range of responsibility in schools (see Fig 3.21). Essentially, self-rating of understanding - which is usually and most naturally done relative to one's knowledge of the understanding of others – increases with role seniority, although there is a reversal between deputies and heads (and a dip for pastoral heads). This may be explained by the fact that deputies are most often the 'gatekeepers' of pupil performance data; those charged in the first instance with using it on behalf of the school. 60% of classroom teachers and 73% of heads of department report a 'good' or 'very good' level of understanding. This rises to around 90% for senior management. 4% of heads and deputies describe their understanding of pupil performance data as 'poor'.

There is no significant variation in reported understanding between male and female teachers, or between full-time and part-time staff. And there were no significant differences across the subject range after adjusting for level of responsibility. This is an important finding, worthy of further research, as a number of interviewees seem to perpetuate stereotypes based on the subject background of colleagues. The first response below is in the 'technicist' category (Saunders, 2000; see Fig 1.1).

> *"We can track our children easier as mathematicians than say history because of the nature of our subjects. Also, because we are not afraid of data. Most other teachers are actually anxious about the whole thing because they don't actually understand all the numbers. And yet, they have the same targets, so this is why I said the fact that we are mathematicians makes it slightly different. We are more comfortable with it. So I am not bothered. I would be more bothered if we were assessed more in a described way! Numbers are better for me. I think they are more objective."*
>
> Classroom teacher (mathematics), PP School

Other responses refer to issues of working with numerical data 22:[22]

> *"If you speak to science and maths teachers they have always been, because of the nature of their subjects probably, a little bit better at doing data analysis and identifying an intervention."*
>
> Head of Department (science), CC School

> *"I'm an English teacher and the thought of using data 10 years ago was horrific because my brain switches of with numbers, but the school has had such a positive attitude to it and has shown me the difference it can make and the impact it can have and makes it easy for me to access it, and I'm able to do so."*
>
> Advanced Skills teacher (English), PM School

The interviewees provide an insight into the complexity of the association between subject specialism and perceived data literacy, especially where teachers take a more provisional rather than literal approach data (Saunders 2000):

> *"I don't know whether teachers in other subjects like science and maths feel that standardised tests give a more accurate picture, but in English, even a test of verbal reasoning doesn't take you very far, because you need a bit of hard graft as well - how clever the child is, is a very small part of the story because they are going to need to be willing to apply themselves and be willing to draft and redraft their writing and that is not measured by the tests."*
>
> Classroom teacher (English), CC School

Fig 3.22 shows self-rated understanding against length of time teaching. What is striking is that generally, the longer the teaching career, the greater is the claim to very good understanding, though the overall 'good' / 'very good' level is fairly constant across the age range. Interestingly, teachers with 1-5 years of experience have the lowest reported levels of understanding of pupil performance data when taking 'very good' and 'good' together. Perhaps this reflects poor data analysis content in PGCE courses, though there is little evidence (nationally or anecdotally) that things have changed in this respect over the last year or two. Additionally, younger age groups (20-25 and 26-35) report significant lower levels of understanding.

22 It is conceivable that the respondents to our invitation to participate in this survey were more likely to be those with higher levels of interest in data and corresponding data literacy and thus are not representative of the range of data literacy amongst teachers.

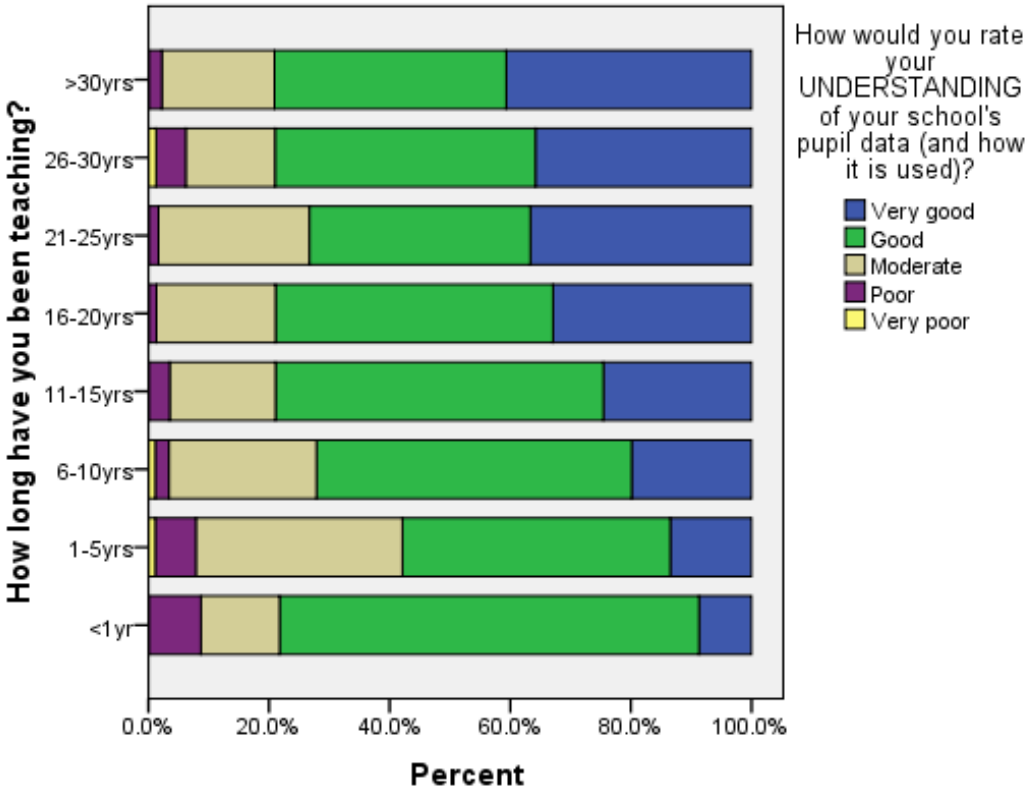


Fig 3.22

Some interviewees felt this relatively strong association between length of service and understanding of data could be broken by some targeted training, and support for trainee teachers and newly qualified teachers (NQTs):

> "One of the situations that we get regularly is new teachers struggling to understand (a) what the data is for and (b) what the data is telling them. That can be big issue because sometimes [school leaders] just expect teachers to handle the numbers thrown at them whereas they're not always sure what the data is telling them. It's a lack of training not just in the school but also from a PGCE point of view. Obviously the main thing in the PGCE is getting you into the classroom and getting you teaching, but they need to teach you about all the aspects and data is one of the bigger ones now. This should be approached at a much earlier point of the training. It's fine if you have got an NQT who has got enough courage to ask, but what you find every now and then is that NQTs keep quiet about it because they don't want to bother anyone and it seems that everyone else knows what they're doing. So they just try and pretend and that can result in horrible situations for everyone, NQTs included."
>
> Classroom teacher (also Union Rep), CC School

"I don't think we are supporting staff with training quickly enough with groups for whom it's not working … I feel that more training is needed for that and also that it should be part of teacher training. Because it isn't, either at PGCE or at NQT, there is no sort of additional standards in it at all."

School wide pastoral leader, MM School

When looking at how long respondents have been teaching at their current school, a different response pattern can be seen. Teachers at their current school between 11-25 years and above 30 years report higher levels of understanding of pupil performance data, perhaps because more of these respondents occupy senior leadership posts in which (as we have seen) much greater understanding of pupil data is reported.

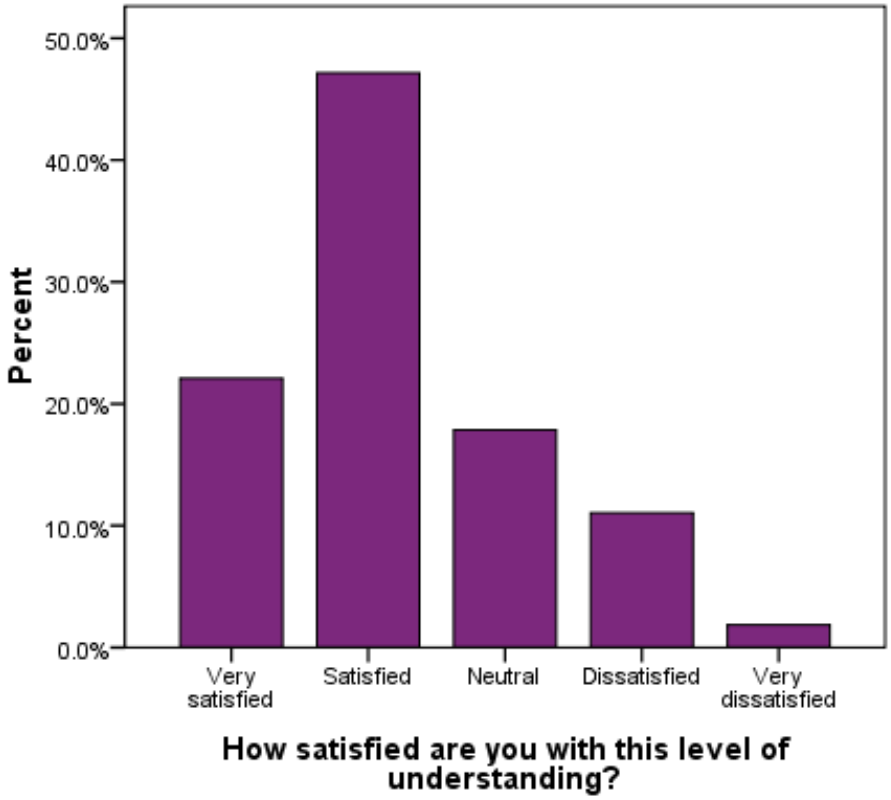


Fig 3.23

Interestingly, staff satisfaction with level of understanding across school type (see Fig 3.23) follows very much the same pattern as level of understanding (see Fig 3.19). The school categories in which higher (and lower) reported levels of understanding are observed also report the same higher (and lower) levels of satisfaction with understanding. Except for MP schools, approximately 15-20% of respondents are 'dissatisfied' or 'very dissatisfied' with their level of understanding.

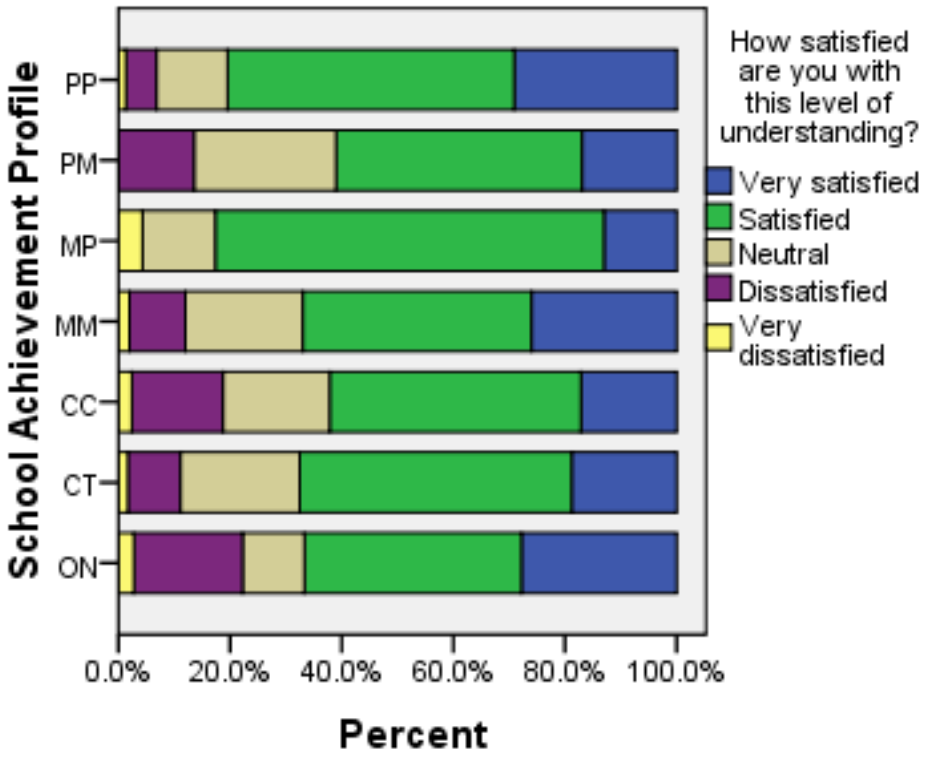


Fig 3.24

Levels of satisfaction with understanding across the responsibility range within schools also follows the same pattern as levels of understanding. All categories contain a percentage of respondents (7-9% of senior leaders, 13% of subject leaders and 18% of classroom teachers) who are 'dissatisfied' or 'very dissatisfied' with level of understanding (see Fig 3.25). Key Stage leaders report very high levels of dissatisfaction; classroom teachers report significantly lower levels of understanding and the highest percentage of very dissatisfied respondents.

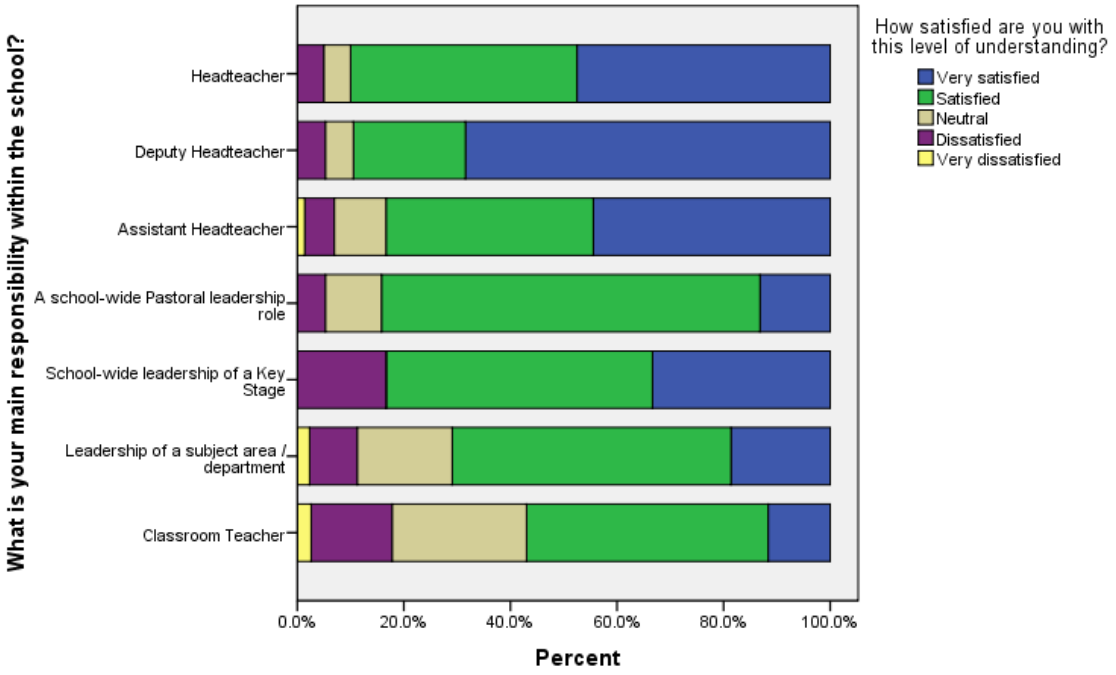


Fig 3.25

There are no significant differences in levels of satisfaction with understanding across the subject range, or between genders or full-time / part-time categories.

Satisfaction with levels of understanding across length of time teaching and age follows the same pattern as level of understanding. The following comment, referring to data used for both target setting and evaluation purposes, is a plea for greater understanding of the provisional rather than literal nature of data (Saunders 2000), from all stakeholders within and outside the school. It ends with a positive reflection on the way such understanding can develop within a school, even one with a challenging data profile:

> *"I just wish that there was a bit more understanding about what the data actually shows, and the limitations of the data as well. Because there is more to a child than simply his test results and I think with RAISE and FFT and all the rest of it, we need to be taking that into account. And that's not to make excuses for underperformance or anything, but it's to contextualise what happens. We do have FFT and RAISEOnline and all the rest of the stuff, but I think our practice is 'developing' rather than 'good'. Teachers are issued with targets for every student that they teach in every subject. We are now getting more sound about the way we set targets and I think there is a much wider understanding amongst the staff about how targets are set and what those actually mean."*
>
> School-wide pastoral leader (and former assistant headteacher), MM School

Examining the association between teacher satisfaction with understanding and the frequency of training received

When considering the level of understanding reported by staff, the relationship with frequency of training during the last five years becomes more nuanced. The association between understanding of pupil performance data and frequency of training is moderated by the level of responsibility held, as can be observed in the classification tree analysis in Fig 3.26. Senior leaders divide into three significantly different groups ($p<0.001$). Those reporting annual or more frequent training were associated with the greatest level of understanding (73.2% at 'very good'; 96.4% at 'very good' or 'good'). Those senior leaders reporting less frequently than annual training gave the next highest level of reported understanding (50.8% at 'very good'; 93.2% at 'very good' or 'good') and those reporting never having received any training during the last five years reporting the lowest levels of understanding (0% at 'very good'; 60% at 'very good' or 'good').

A similar pattern was observed among middle managers and those with other whole-school responsibilities. For this group of staff, annual or more frequent training was associated with the greatest reported understanding by participants (32.8% at 'very good'; 80.1% 'very good' or 'good'). Less frequent than annual training was associated with the next highest level of reported understanding (18.1% at 'very good'; 76.2% 'very good' or 'good') and those reporting never having received any training during the last five years reporting the lowest levels of understanding (7.4% 'very good'; 53.7% 'very good' or 'good').

For classroom teachers only two significantly different groups emerged. Those reporting annual or more frequent training also had the highest levels of reported understanding (14.7% very good; 78.0% very good or good) while those claiming to have received less frequent than annual training or never during the last five years reported the lowest levels of understanding (10.4% very good; 50.7% very good or good).

When examining the association between teacher satisfaction with level of understanding and frequency of training, we return to a simpler similar pattern with teachers at each level of responsibility dividing into two significantly different groups (Figure 3.27). For classroom teachers the key appears to be receiving training on at least an annual basis to improve satisfaction with level of understanding, whereas for teachers with middle or senior leadership positions any frequency of training makes a significant impact on levels of satisfaction.

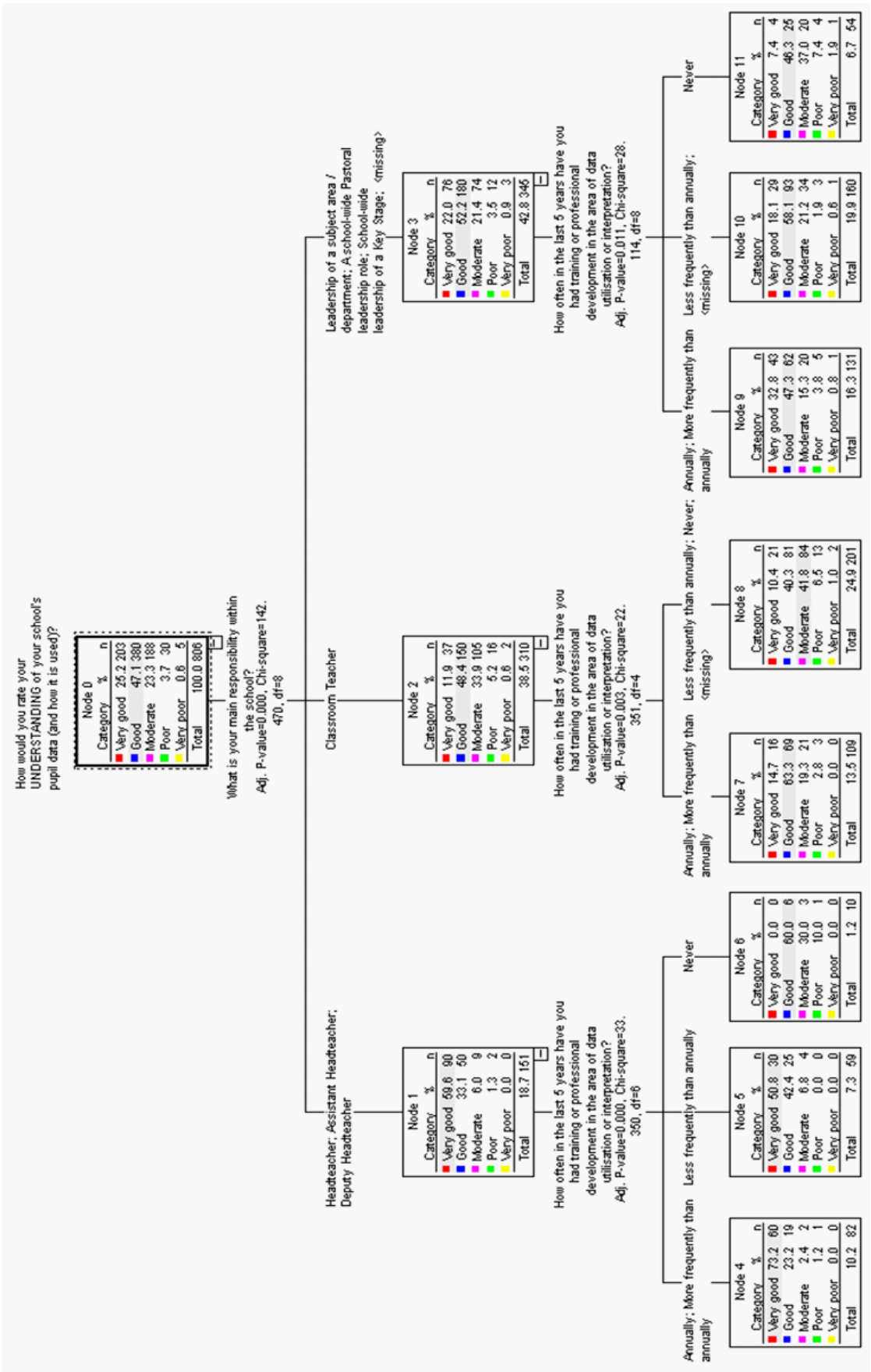

How would you rate your UNDERSTANDING of your school's pupil data (and how it is used)?
Node 0
Category % n
Very good 25.2 203
Good 47.1 380
Moderate 23.3 188
Poor 3.7 30
Very poor 0.6 5
Total 100.0 806
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=142.470, df=8
Headteacher; Assistant Headteacher; Deputy Headteacher
Classroom Teacher
Leadership of a subject area / department; A school-wide Pastoral leadership role; School-wide leadership of a Key Stage; <missing>
Node 1
Category % n
Very good 59.6 90
Good 33.1 50
Moderate 6.0 9
Poor 1.3 2
Very poor 0.0 0
Total 18.7 151
Node 2
Category % n
Very good 11.9 37
Good 48.4 150
Moderate 33.9 105
Poor 5.2 16
Very poor 0.6 2
Total 38.5 310
Node 3
Category % n
Very good 22.0 76
Good 52.2 180
Moderate 21.4 74
Poor 3.5 12
Very poor 0.9 3
Total 42.8 345
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.000, Chi-square=33.350, df=6
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.003, Chi-square=22.351, df=4
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.011, Chi-square=28.114, df=8
Annually; More frequently than annually
Less frequently than annually
Never
Annually; More frequently than annually
Less frequently than annually; Never
Annually; More frequently than annually
Less frequently than annually; <missing>
Never
Node 4
Category % n
Very good 73.2 60
Good 23.2 19
Moderate 2.4 2
Poor 1.2 1
Very poor 0.0 0
Total 10.2 82
Node 5
Category % n
Very good 50.8 30
Good 42.4 25
Moderate 6.8 4
Poor 0.0 0
Very poor 0.0 0
Total 7.3 59
Node 6
Category % n
Very good 0.0 0
Good 60.0 6
Moderate 30.0 3
Poor 10.0 1
Very poor 0.0 0
Total 1.2 10
Node 7
Category % n
Very good 14.7 16
Good 63.3 69
Moderate 19.3 21
Poor 2.8 3
Very poor 0.0 0
Total 13.5 109
Node 8
Category % n
Very good 10.4 21
Good 40.3 81
Moderate 41.8 84
Poor 6.5 13
Very poor 1.0 2
Total 24.9 201
Node 9
Category % n
Very good 32.8 43
Good 47.3 62
Moderate 15.3 20
Poor 3.8 5
Very poor 0.8 1
Total 16.3 131
Node 10
Category % n
Very good 18.1 29
Good 58.1 93
Moderate 21.2 34
Poor 1.9 3
Very poor 0.6 1
Total 19.9 160
Node 11
Category % n
Very good 7.4 4
Good 46.3 25
Moderate 37.0 20
Poor 7.4 4
Very poor 1.9 1
Total 6.7 54

Fig 3.26

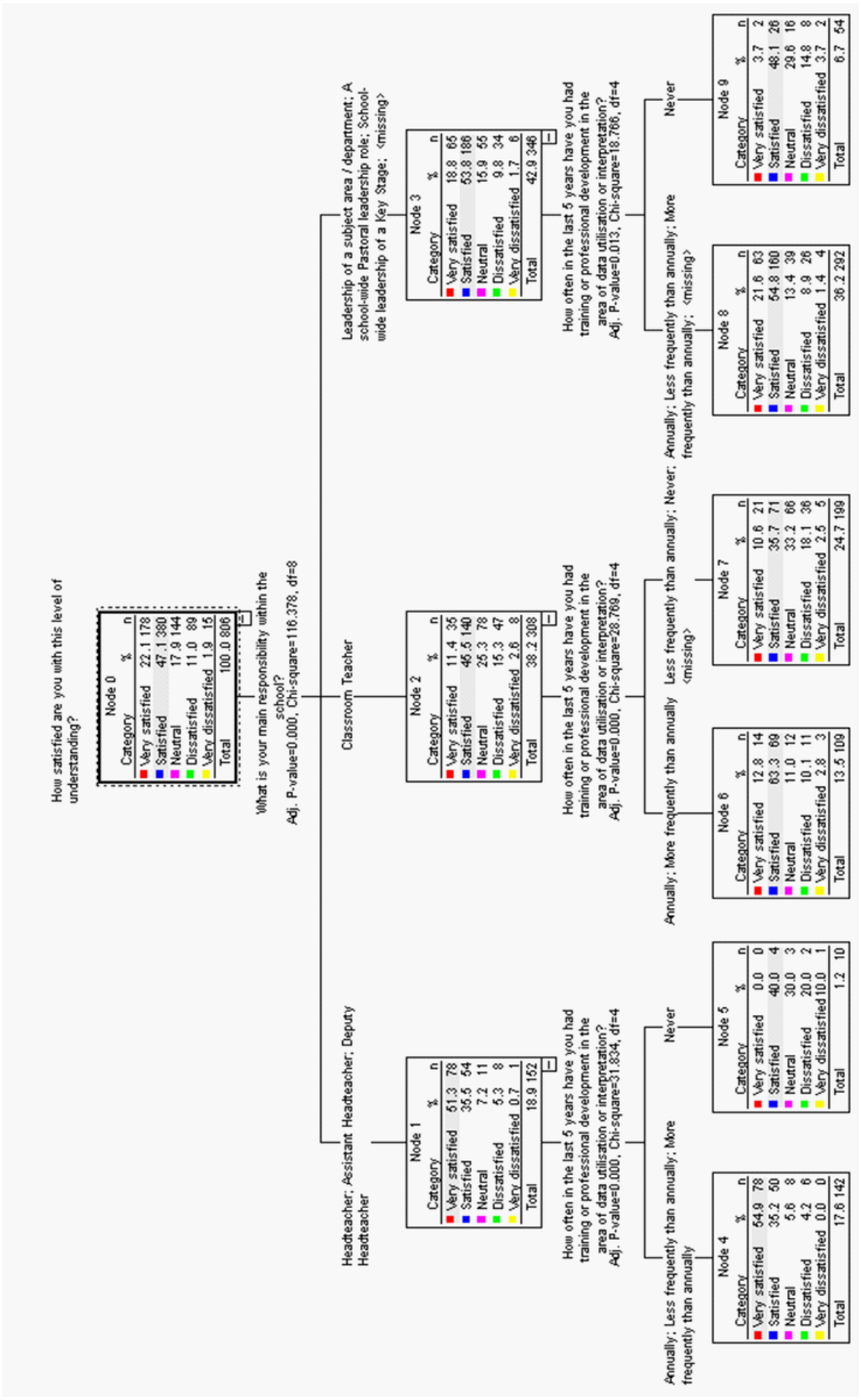

How satisfied are you with this level of understanding?
Node 0
Category % n
Very satisfied 22.1 178
Satisfied 47.1 380
Neutral 17.9 144
Dissatisfied 11.0 89
Very dissatisfied 1.9 15
Total 100.0 806
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=116.378, df=8
Headteacher; Assistant Headteacher; Deputy Headteacher
Node 1
Category % n
Very satisfied 51.3 78
Satisfied 35.5 54
Neutral 7.2 11
Dissatisfied 5.3 8
Very dissatisfied 0.7 1
Total 18.9 152
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.000, Chi-square=31.834, df=4
Annually; Less frequently than annually; More frequently than annually
Node 4
Category % n
Very satisfied 54.9 78
Satisfied 35.2 50
Neutral 5.6 8
Dissatisfied 4.2 6
Very dissatisfied 0.0 0
Total 17.6 142
Never
Node 5
Category % n
Very satisfied 0.0 0
Satisfied 40.0 4
Neutral 30.0 3
Dissatisfied 20.0 2
Very dissatisfied 10.0 1
Total 1.2 10
Classroom Teacher
Node 2
Category % n
Very satisfied 11.4 35
Satisfied 45.5 140
Neutral 25.3 78
Dissatisfied 15.3 47
Very dissatisfied 2.6 8
Total 38.2 308
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.000, Chi-square=28.769, df=4
Annually; More frequently than annually
Node 6
Category % n
Very satisfied 12.8 14
Satisfied 63.3 69
Neutral 11.0 12
Dissatisfied 10.1 11
Very dissatisfied 2.8 3
Total 13.5 109
Less frequently than annually; Never; <missing>
Node 7
Category % n
Very satisfied 10.6 21
Satisfied 35.7 71
Neutral 33.2 66
Dissatisfied 18.1 36
Very dissatisfied 2.5 5
Total 24.7 199
Leadership of a subject area / department; A school-wide Pastoral leadership role; School-wide leadership of a Key Stage; <missing>
Node 3
Category % n
Very satisfied 18.8 65
Satisfied 53.8 186
Neutral 15.9 55
Dissatisfied 9.8 34
Very dissatisfied 1.7 6
Total 42.9 348
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.013, Chi-square=18.766, df=4
Annually; Less frequently than annually; More frequently than annually; <missing>
Node 8
Category % n
Very satisfied 21.6 63
Satisfied 54.8 160
Neutral 13.4 39
Dissatisfied 8.9 26
Very dissatisfied 1.4 4
Total 36.2 292
Never
Node 9
Category % n
Very satisfied 3.7 2
Satisfied 48.1 26
Neutral 29.6 16
Dissatisfied 14.8 8
Very dissatisfied 3.7 2
Total 6.7 54

Fig 3.27

When school type was added as an additional moderator on the impact of training, the picture changes somewhat. It can be seen from Fig 3.28a, in line with the results reported above, significantly higher levels ($p<0.02$) of understanding were reported by participants from PP schools (80.9% very good or good) and MP schools (91.3% reporting a very good or good level). Staff in other school types report much lower levels of understanding (a mean of 68.2% at very good or good). Further research might serve to elicit whether or not the common link between these schools (in which teachers report higher levels of understanding) is the fact that they have significantly high CVA scores.

For many teachers understanding complex statistical measures such as CVA requires considerable effort to get beyond a 'black box' approach and to take ownership of the information in order to appreciate what contribution it can make to professional practice. This was described cogently by one of the interviewees:

> *"I know that somebody in my department has been sent on a training, so I don't think the school is deliberately keeping this stuff secret, but I think first of all it is quite hard work for teachers to be informed about the statistics, and how they are created. And then the other thing is: do we really have any influence or are these things put on us from really the highest level? So that is a frustration really."*
>
> Classroom teacher (English), CC School

In PP schools, staff is divided into three groups by level of responsibility: classroom teachers report the lowest level of understanding of data (70.7% very good or good); departmental and pastoral leaders with a higher reported level of understanding (81.5% very good or good); and senior leaders and those with a whole-school responsibility for a Key Stage with the highest reported level of understanding (98.9% very good or good). There were insufficient responses from teachers in MP schools to carry out further fine analysis. Having accounted for school type and level of responsibility, it would seem that the impact of training frequency during the previous five years becomes non-significant in PP schools.

One interviewee described how the interplay of training and providing access to data is crucial to developing a school-wide approach:

> *"And what I do now is that I actually train… we did a lot of training last year with Heads of Department and Heads of Year who have now trained Year Tutors…and I think it is really important that we try to get absolutely every member of staff to be aware of how powerful the data can be, and work with students on it. So yes, we've done a lot of training and we've spent a lot of time, but really it's getting the data out there. There is no point in the data sitting on my desk; it's got to be out with the students, that's really where were at. So we are really trying to develop a school-wide approach, getting everybody involved in it."*
>
> Assistant head (and data manager), CT School

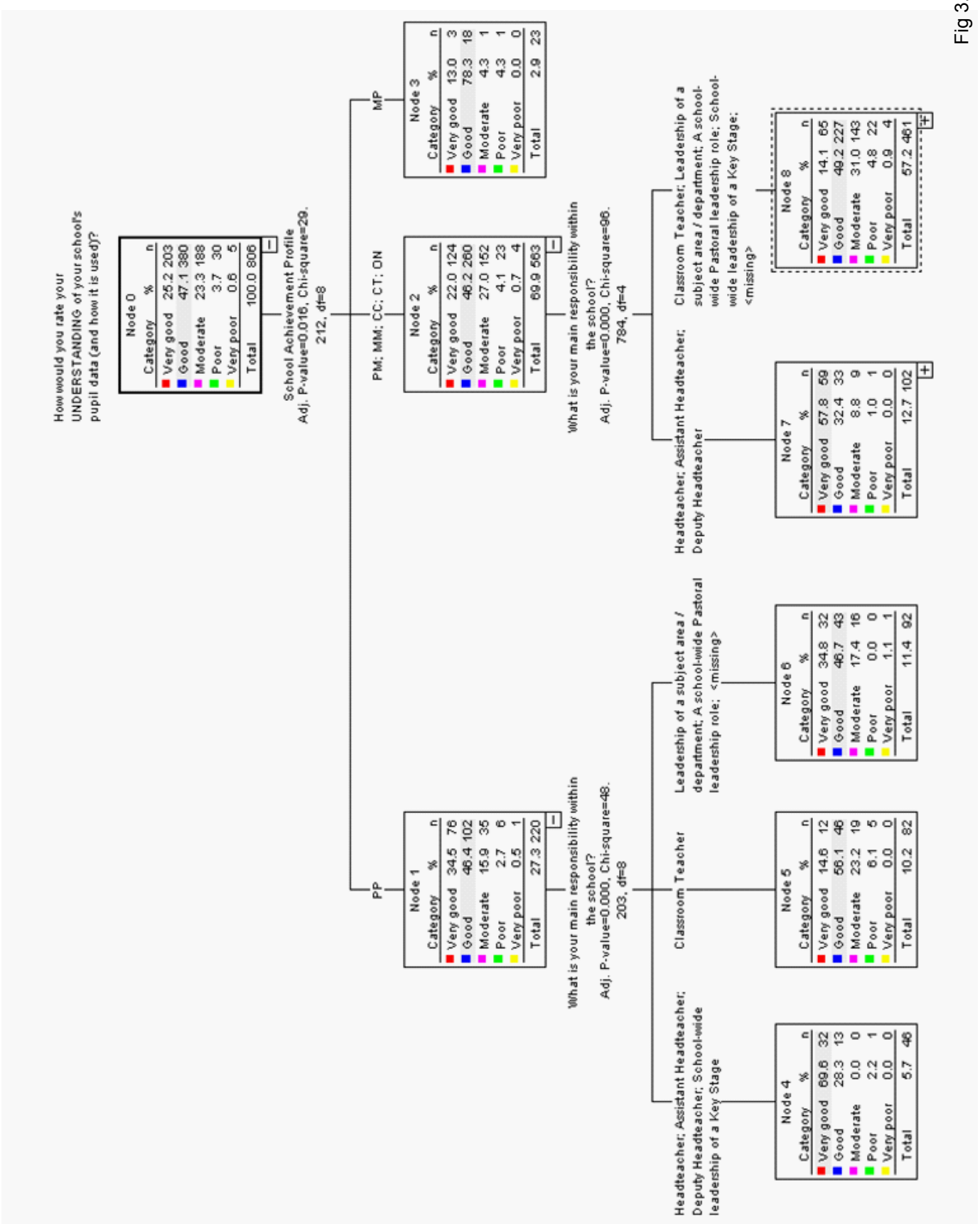

How would you rate your UNDERSTANDING of your school's pupil data (and how it is used)?
Node 0
Category % n
Very good 25.2 203
Good 47.1 380
Moderate 23.3 188
Poor 3.7 30
Very poor 0.6 5
Total 100.0 806
School Achievement Profile
Adj. P-value=0.016, Chi-square=29.212, df=8
PP
Node 1
Category % n
Very good 34.5 76
Good 46.4 102
Moderate 15.9 35
Poor 2.7 6
Very poor 0.5 1
Total 27.3 220
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=48.203, df=8
Headteacher; Assistant Headteacher; Deputy Headteacher; School-wide leadership of a Key Stage
Node 4
Category % n
Very good 69.6 32
Good 28.3 13
Moderate 0.0 0
Poor 2.2 1
Very poor 0.0 0
Total 5.7 46
Classroom Teacher
Node 5
Category % n
Very good 14.6 12
Good 56.1 46
Moderate 23.2 19
Poor 6.1 5
Very poor 0.0 0
Total 10.2 82
Leadership of a subject area / department; A school-wide Pastoral leadership role; <missing>
Node 6
Category % n
Very good 34.8 32
Good 46.7 43
Moderate 17.4 16
Poor 0.0 0
Very poor 1.1 1
Total 11.4 92
PM; MM; CC; CT; ON
Node 2
Category % n
Very good 22.0 124
Good 46.2 260
Moderate 27.0 152
Poor 4.1 23
Very poor 0.7 4
Total 69.9 563
What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=96.784, df=4
Headteacher; Assistant Headteacher; Deputy Headteacher
Node 7
Category % n
Very good 57.8 59
Good 32.4 33
Moderate 8.8 9
Poor 1.0 1
Very poor 0.0 0
Total 12.7 102
Classroom Teacher; Leadership of a subject area / department; A school-wide Pastoral leadership role; School-wide leadership of a Key Stage; <missing>
Node 8
Category % n
Very good 14.1 65
Good 49.2 227
Moderate 31.0 143
Poor 4.8 22
Very poor 0.9 4
Total 57.2 461
MP
Node 3
Category % n
Very good 13.0 3
Good 78.3 18
Moderate 4.3 1
Poor 4.3 1
Very poor 0.0 0
Total 2.9 23

Fig 3.28a

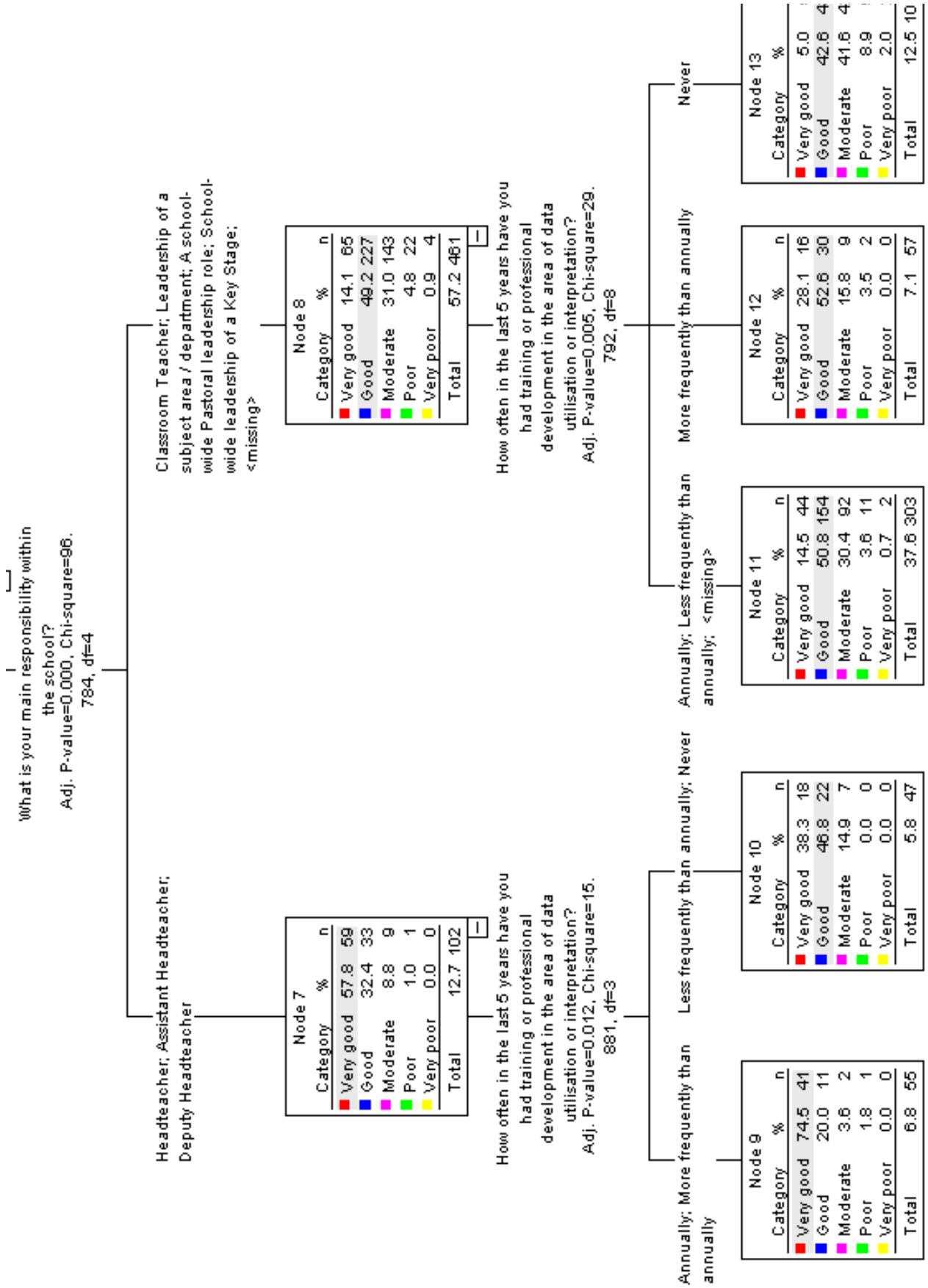

What is your main responsibility within the school?
Adj. P-value=0.000, Chi-square=96.784, df=4
Headteacher; Assistant Headteacher; Deputy Headteacher
Classroom Teacher; Leadership of a subject area / department; A school-wide Pastoral leadership role; School-wide leadership of a Key Stage; <missing>
Node 8
Category % n
Very good 14.1 65
Good 49.2 227
Moderate 31.0 143
Poor 4.8 22
Very poor 0.9 4
Total 57.2 461
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.005, Chi-square=29.792, df=8
Node 7
Category % n
Very good 57.8 59
Good 32.4 33
Moderate 8.8 9
Poor 1.0 1
Very poor 0.0 0
Total 12.7 102
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.012, Chi-square=15.881, df=3
Annually; More frequently than annually
Less frequently than annually; Never
Annually; Less frequently than annually; <missing>
More frequently than annually
Never
Node 9
Category % n
Very good 74.5 41
Good 20.0 11
Moderate 3.6 2
Poor 1.8 1
Very poor 0.0 0
Total 6.8 55
Node 10
Category % n
Very good 38.3 18
Good 46.8 22
Moderate 14.9 7
Poor 0.0 0
Very poor 0.0 0
Total 5.8 47
Node 11
Category % n
Very good 14.5 44
Good 50.8 154
Moderate 30.4 92
Poor 3.6 11
Very poor 0.7 2
Total 37.6 303
Node 12
Category % n
Very good 28.1 16
Good 52.6 30
Moderate 15.8 9
Poor 3.5 2
Very poor 0.0 0
Total 7.1 57
Node 13
Category % n
Very good 5.0
Good 42.6 4
Moderate 41.6 4
Poor 8.9
Very poor 2.0
Total 12.5 10

Fig 3.28b

Teachers in the other five school types subdivide into only two groups based on level of understanding; namely, those in senior leadership positions reporting the highest level of understanding (90.2% very good or good) and all other teachers reporting much lower levels of understanding (a mean of 63.3% at very good or good). Having accounted for school type and level of responsibility, the impact of training frequency within the last five years remains significant ($p<0.02$) (Fig 3.28b).

For senior leaders the key appears to be receiving training on an annual or more frequent basis. 94.5% of senior leaders in this group reported levels of understanding at 'good' or 'very good' compared with 85.1% receiving training less frequently than annually or never.

For all other teachers more frequent than annual training was associated with the highest reported levels of understanding (80.7% very good or good), followed by annual or less frequent than annual (65.3% very good or good) and those that never received training in the last five years reporting the lowest levels of understanding (47.6% very good or good).

Training and professional development in relation to data utilisation and interpretation

Fig 3.29

Overall, about 40% of respondents have received professional development (CPD) in the area of data utilisation / interpretation at least annually over the course of the last five years (see Fig 3.29). For another 40%, this has been less frequently than annually and 18% of respondents claim to never have had any such training. Relative to other survey feedback and given the high volume of CPD in schools generally, this is not a positive picture.

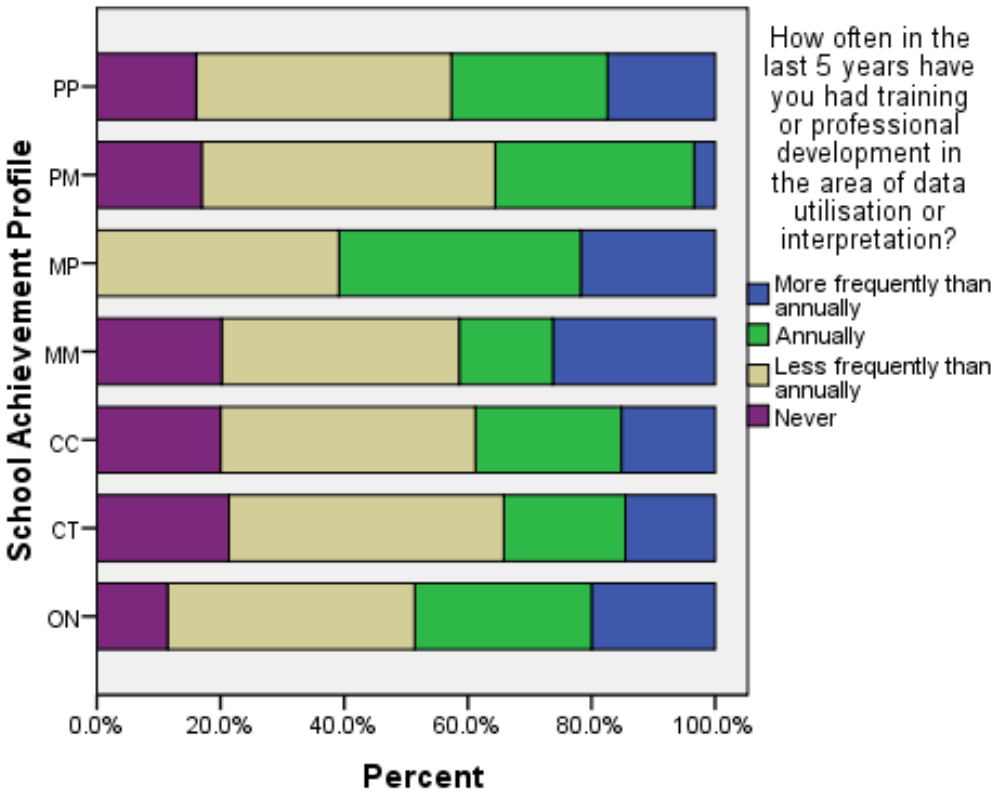


Fig 3.30

Fig 3.30 shows the spread of CPD across school types. Staff in MP schools indicate a more frequent pattern of training than staff in other schools with 60% rating this as annually or more frequently than annually. Interestingly, this matches the previously seen higher levels of use and understanding in MP schools and also their satisfaction with level of understanding. Since these schools have higher than average CVA values, it suggests that higher use, understanding and satisfaction may be linked to more frequent training.

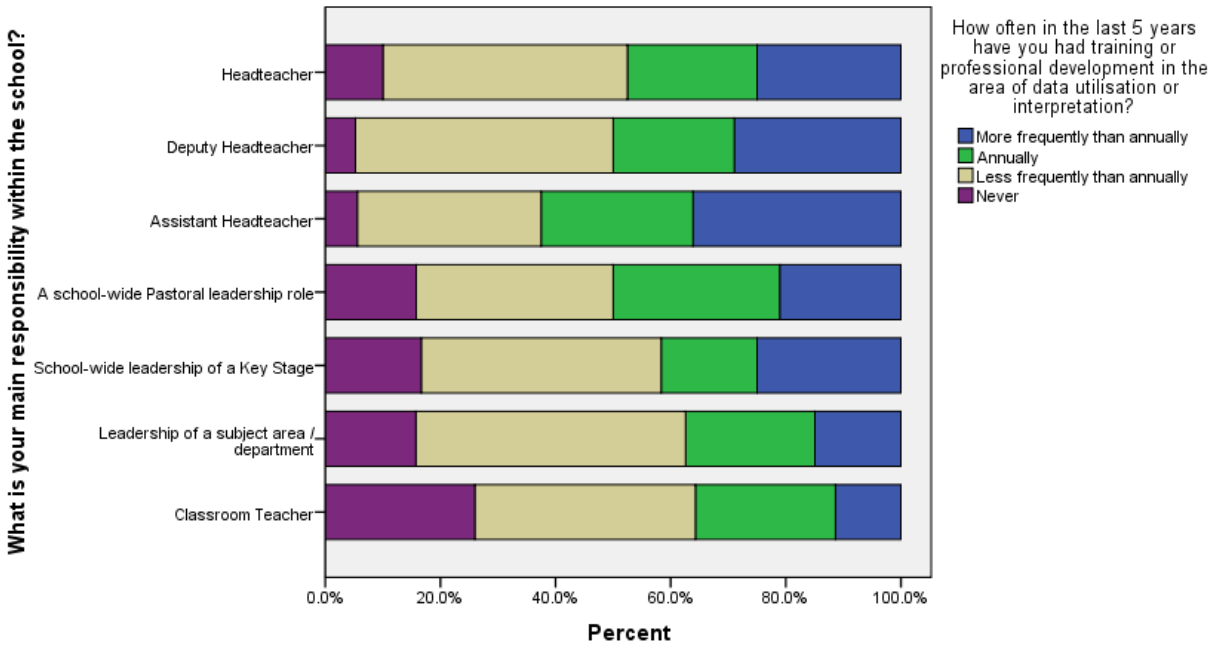


Fig 3.31

Generally, staff in senior roles report higher levels of most frequent CPD in the past five years, while classroom teachers and subject leaders / department heads report the lowest frequency of CPD and the highest levels of never having received training (see Fig 3.31). Assistant headteachers report the highest levels of training with more than 60% having received training annually or more frequently than annually.

Interestingly, 11% of heads, 8% of deputy and assistant heads, 18% of middle managers and 27% of teachers report not having had any training over the past five years; and between 31% and 44% of respondents across these categories have had training less frequently than annually.

There is no marked difference in CPD for data usage across gender, age, subject specialism, number of years teaching in current school or length of time teaching.[23] Perhaps unsurprisingly, part-time employees report receiving less training than their full-time colleagues, which follows the general pattern of CPD in any case.

23 Of course, teachers with less than one year teaching experience cannot report on anything other than annual patterns of training. They do report having received some 'data CPD', but 30% report never having received any training in the area of pupil performance data.

Examining the association between perceived confidence and frequency of training

The classification tree analysis in Fig 3.32 shows there is a significant association ($p<0.001$) between reported frequency of training and perceived confidence in accessing, utilising and interpreting data. There is a very clear drop in confidence by those who report never having received training during the last 5 years. From this analysis it would seem that there is a small gain to having training occur more frequently than annually, but no significant difference between annual and less frequent than annual training. Those participants not recording their frequency of training (logged as 'missing') had a profile of confidence similar to those that had reported never having received training during the last five years.

The association between perceived confidence and frequency of training observed in Fig 3.32 is potentially moderated by experience (in terms of length of service) and so this additional factor was incorporated into the analysis (Fig 3.33).

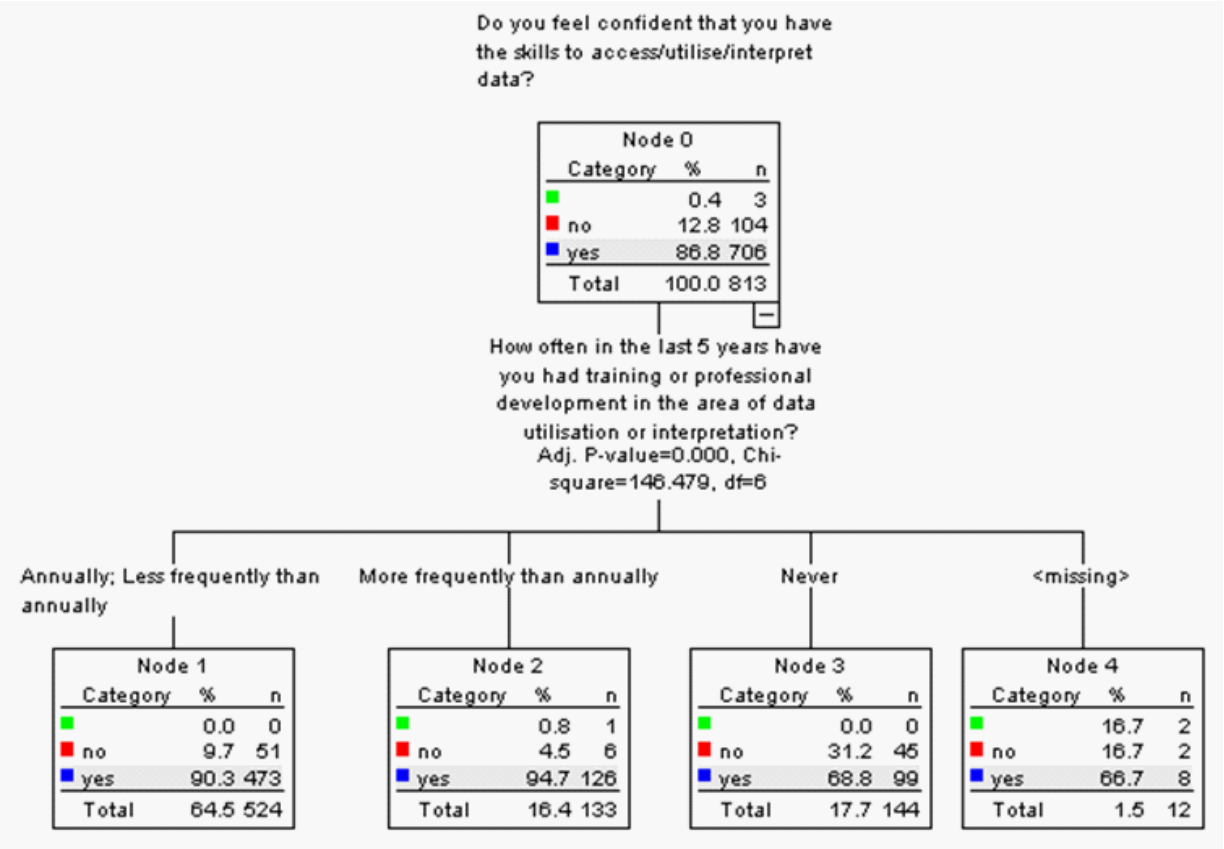


Fig 3.32

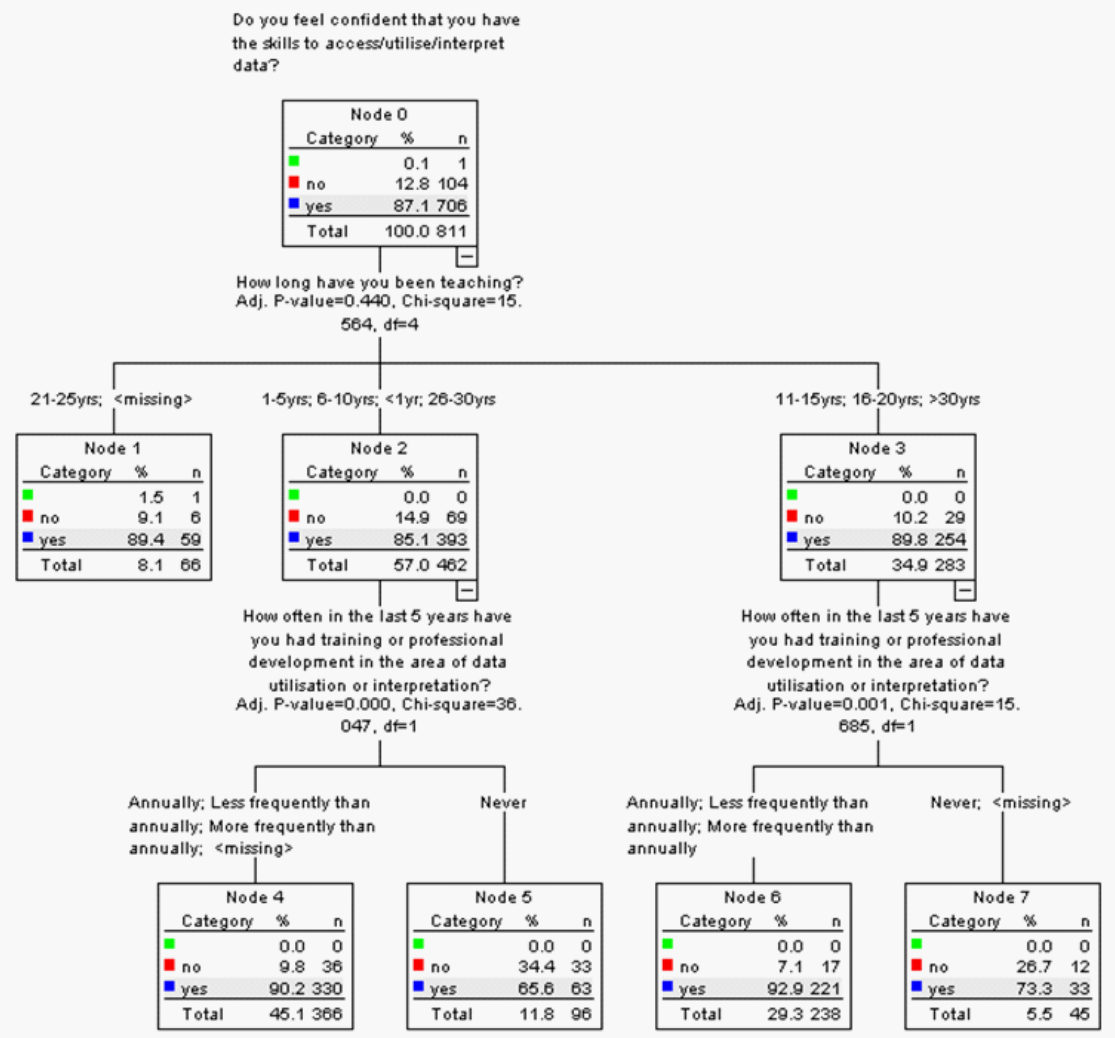


Fig 3.33

Although the association between length of service as a teacher and confidence in handling data is not itself significant (p>0.4) it seems that length of service is acting as a moderating variable for the impact of frequency of training on confidence, although this is to some extent confounded by position of responsibility. The analysis shows that the impact of recent training, however infrequent, is appreciable, regardless of experience. The impact of training is possibly slightly greater for those who are at an earlier stage in their teaching careers, although the difference is neither substantial nor consistent across the length of service range.

For classroom teachers only

When the analysis was restricted to those participants who were classroom teachers, there was no significant association between length of service and confidence in handling data.

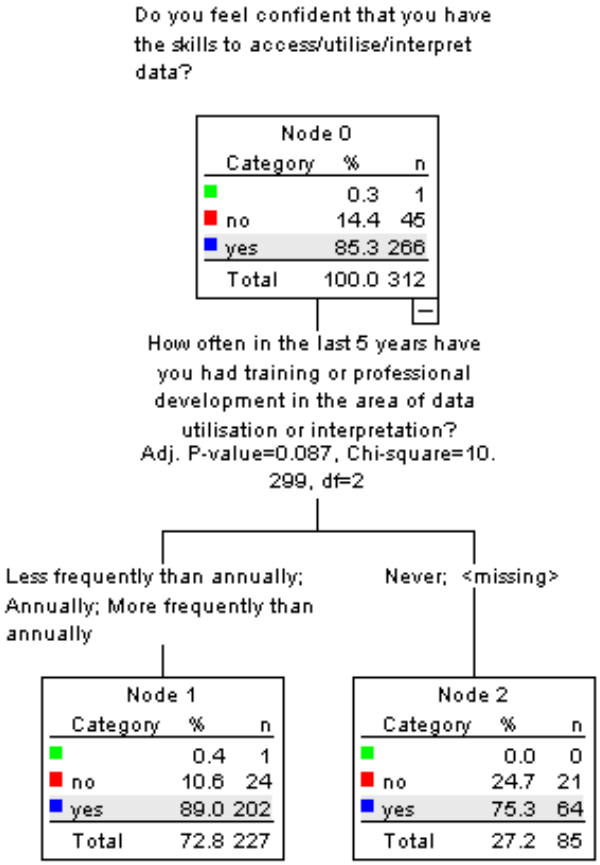


Fig 3.34

There was a difference in the association between confidence and frequency of training received during the last five years, although this difference is non-significant at the 95% level ($p>0.05$) but is significant at the 90 % level ($p<0.1$). It would suggest that for classroom teachers a way of raising confidence in data handling skills is to receive some form of training, however infrequent.

Middle leaders who are Heads of Department

The analysis shown in Fig 3.35 suggests that frequency of training for middle managers has a stronger association with the confidence expressed by participants in handling data. This is almost certainly due to the additional responsibilities expected of teachers in middle management roles like Head of Department.

Although the proportion of Heads of Department who report never having received training during the last 5 years was only 15% of the total, nearly half reported having no confidence in their skills to handle data.

A similar analysis for teachers with school-wide Key Stage or pastoral responsibilities (n=50) gives a non-significant association between frequency of training during the last five years and confidence.

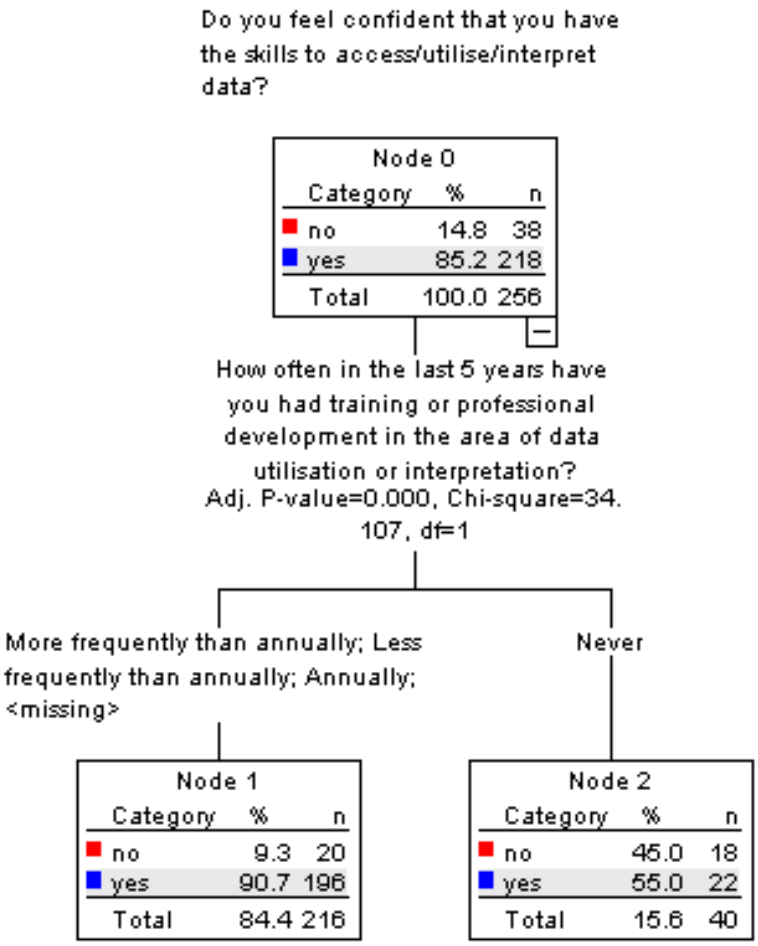

Do you feel confident that you have the skills to access/utilise/interpret data?
Node 0
Category % n
no 14.8 38
yes 85.2 218
Total 100.0 256
How often in the last 5 years have you had training or professional development in the area of data utilisation or interpretation?
Adj. P-value=0.000, Chi-square=34.107, df=1
More frequently than annually; Less frequently than annually; Annually; <missing>
Never
Node 1
Category % n
no 9.3 20
yes 90.7 196
Total 84.4 216
Node 2
Category % n
no 45.0 18
yes 55.0 22
Total 15.6 40

Fig 3.35

Senior leaders (heads, deputies and assistant heads)

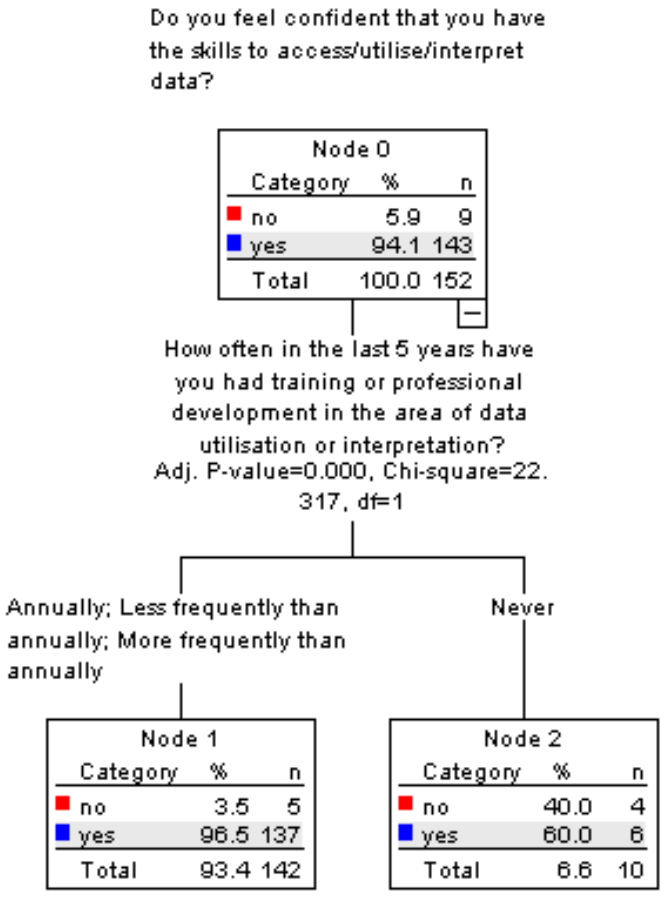


Fig 3.36

For this staff group, again significant differences in confidence to handle data are associated with having received recent training, however infrequent. While the proportion reporting never having received training during the last five years was only (approximately) 7% of the total, they also reported significantly lower confidence ($p<0.001$) in their ability to handle data. Senior leaders are more likely than teaching staff to be able to arrange their own CPD, so it is unclear why any members of this group, who report some of the highest levels of data use, should not be engaging in training. One reason may be that they consider the training they have received inappropriate or inadequate for their role. This feeling was expressed in the following comment from a senior leader, referring to data used for evaluation purposes at school and pupil level:

"I think it would be more helpful, if Ofsted is expecting us to have a handle on where we are with data, [to] give us more specific advice on what we are expected to follow-up on a day-to-day or weekly or monthly or termly basis. Because at the moment it is kind of guess-work."

Deputy head (and data-manager), PP school

Own sources of pupil performance data

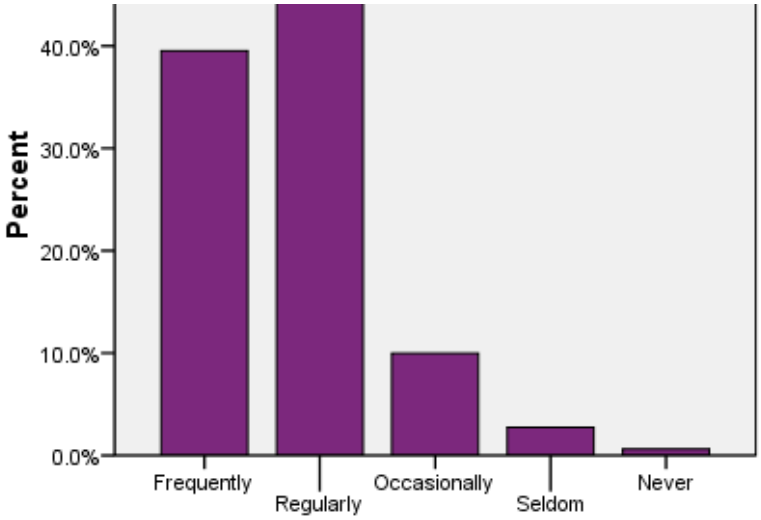
Generally, most respondents make regular or frequent use of their own pupil data (see Fig 3.37a & b), and half of all respondents find these sources more useful than 'external' pupil performance data. A further 47% find their own data as useful as external data, so that viewing own sources of data as more or equally useful is almost universal across the profession. This is a significant verdict on how teachers perceive the utility value of their own and 'official' data and is a clear challenge for policy makers; to raise levels of use and perception of 'official' data. Clearly class tests and continuous assessment still play the leading role in informing practice.

Staff at MP schools report a more frequent use of own pupil data, and MM schools the least frequent use. A larger percentage of teachers in MP and ON schools find own data 'more useful' than external sources, compared to other school types.

Senior management personnel, especially deputy heads, report a higher level of use (both 'frequent' and 'regular') of own data, although those with responsibility for a Key Stage have high levels of 'regular' use (and the highest levels of belief that own data is 'more useful'). Headteachers (possibly because deal more with external sources of pupil data than others) and school-wide pastoral personnel report the least frequent use.

Teachers of maths, science and languages make the greatest use of own pupil data compared to teachers of other subjects, and teachers of Media/Citizenship/Art/Drama and Physical Education the least.

Generally, the longer teachers are teaching, the more frequently and regularly they use their own pupil data, but curiously, the less they find own data 'more useful' than external data. The pattern is the same for length of time teaching in current school. This suggests that more experienced teachers use own data, but see it only as part of the picture as they get more familiar with alternative sources. Teachers with less experience, although they report making less use of own data, claim more often that they find own data more useful than external sources.


Percent
40.0%
30.0%
20.0%
10.0%
0.0%
Frequently
Regularly
Occasionally
Seldom
Never
How often do you make use of your OWN pupil data (eq from your class tests or continuous assessments)?

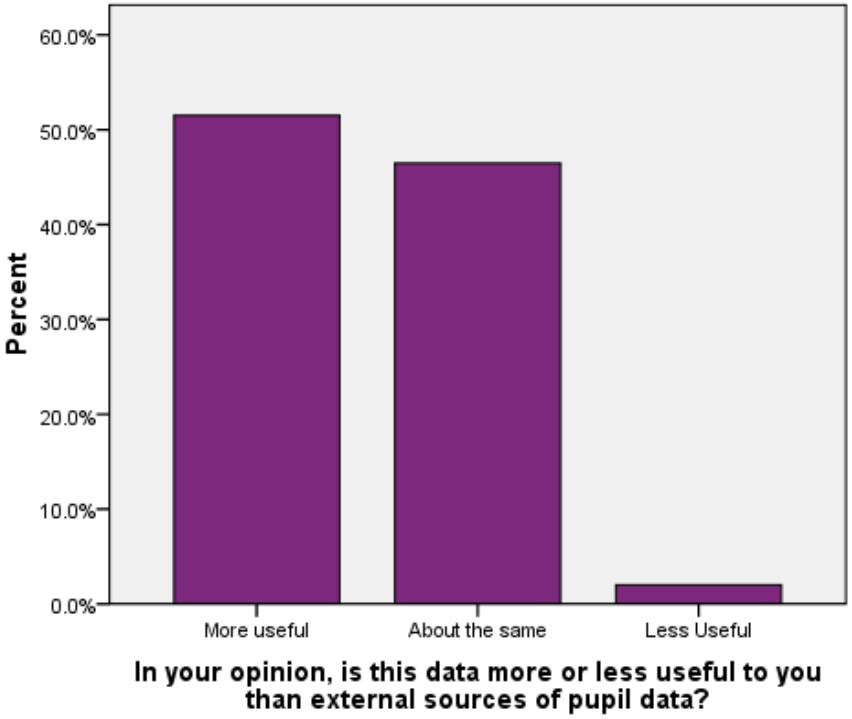

Percent
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
More useful
About the same
Less Useful
In your opinion, is this data more or less useful to you than external sources of pupil data?

Fig 3.37a & b

There is no marked difference in frequency of own data usage or the relative usefulness of that data across gender or full-time / part-time status.

Those respondents who indicated (in an open text box) that they are using own data also indicated that they are using it in a variety of ways for reasons which included:

- Own data is more specific to subject and areas within the subjects, particularly in relation to the teaching of languages, music and 'practical' subjects.
- Own data better takes into account student motivation and effort, and personal factors affecting student performance.
- External data is more about targets, whereas own pupil data gives more information about where the students are with regard to targets and makes it easier to track progress and to spot trends.
- Staff trust own data more than computer-generated data, believing that own data is more accurate and that targets set by external sources of data are often unrealistic and/or inconsistent.
- Own pupil data is more frequent, more immediate and up-to-date, more user-friendly and accessible, and easier to adapt and interpret.
- Many staff say that both types of data (own and external) are complementary, feeding into each other and that both have some value.
- External data does not take account of the level of effort pupils put in to their work.
- The removal of SATS national tests suggests to many that teachers' judgment is now (rightly, in their view) acknowledged as being of more value than external data, enabling teachers to plan and differentiate lessons effectively, and identify and plan learning for individual students.
- External sources of data are widely thought to have unrealistic targets.
- Own data tells teachers how pupils are performing against expectations, and whether pupils are working hard.
- External data might be able to predict grades, but it cannot tell teachers what areas to concentrate on.
- External data is thought to be better for monitoring whole departments - it provides an overview of what teachers can expect pupils to achieve - but own data collected through continuous assessment (e.g. monitoring progress in coursework) gives an idea of whether pupils are on track to meet targets.
- External data does not take into account cultural experience, behaviour or attitude to learning.
- Learners can use teachers' own data to develop their own targets and then measure progress against these at a later date.

- Own data is more useful for tracking purposes; external data is more useful for standardisation, wider comparison and setting expectations.
- There is a lack of confidence in the quality of KS2 SATS in primary schools, how they are delivered and how pupils are 'prepped' by some primary feeder schools, which creates unreliable starting points for external data sources.
- There is widespread dissatisfaction among non-core subject teachers that assessment in core subjects (maths, English and science) is used as a basis for predicting attainment in non-core subjects.
- Many teachers seem to have developed their own data processing techniques in (say) Excel, but report not being able to convince colleagues of their worth.
- Some teachers feel that external data, which can be used to compare against national trends, is more useful for high achieving schools.
- Teachers involved with SEN students generally find own data more useful.

The management, analysis and interpretation of data: who does what and who should do what in schools

Data management is mostly done by one senior colleague (59%) or by a number of senior colleagues (28%) (see Fig 3.38). It is not clear who is responsible for data management for 8% of respondents.

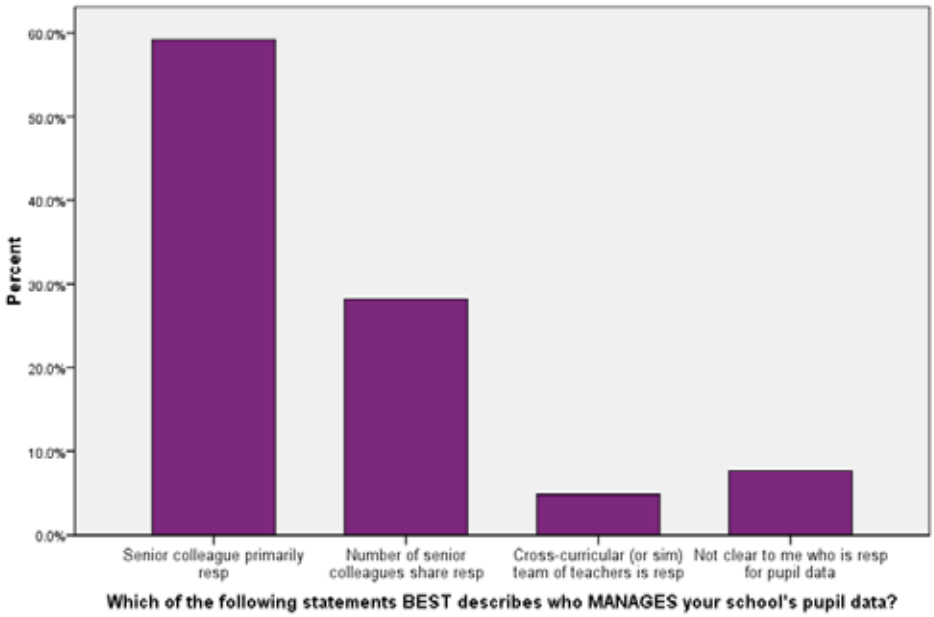


Fig 3.38

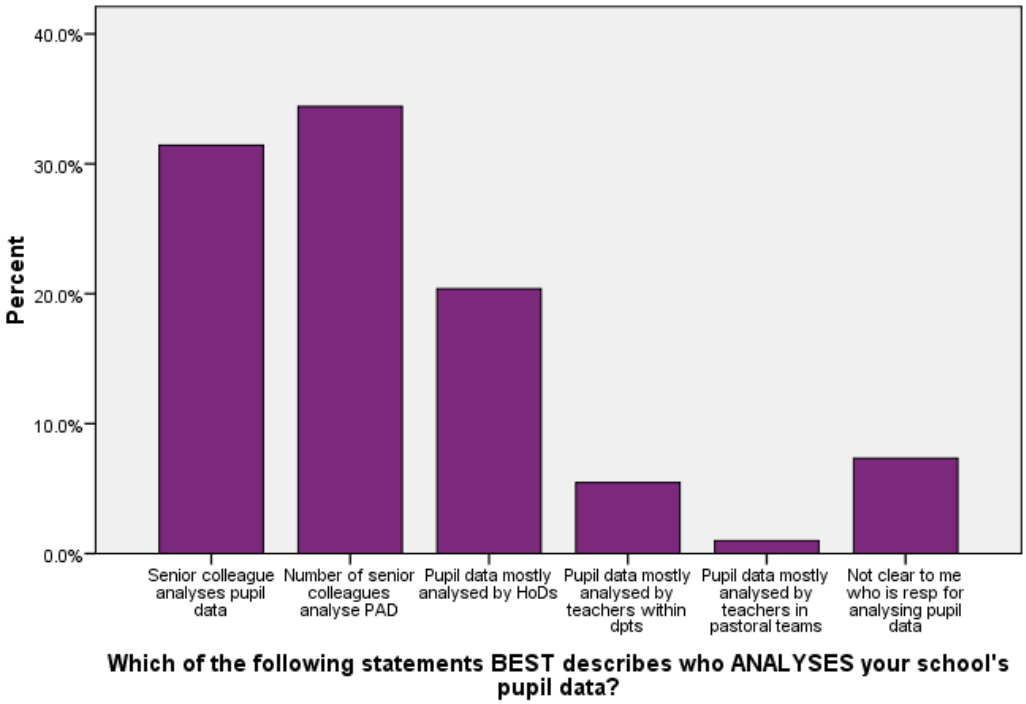


Fig 3.39

The analysis of data is a task more often delegated than the management of data (see Fig 3.39). More often, this is done by a senior colleague or by a number of senior colleagues (67%, which is 20% less than management of data) or by Heads of Department (21%). Only 5% of respondents report that their school's data is analysed by teachers within departments.

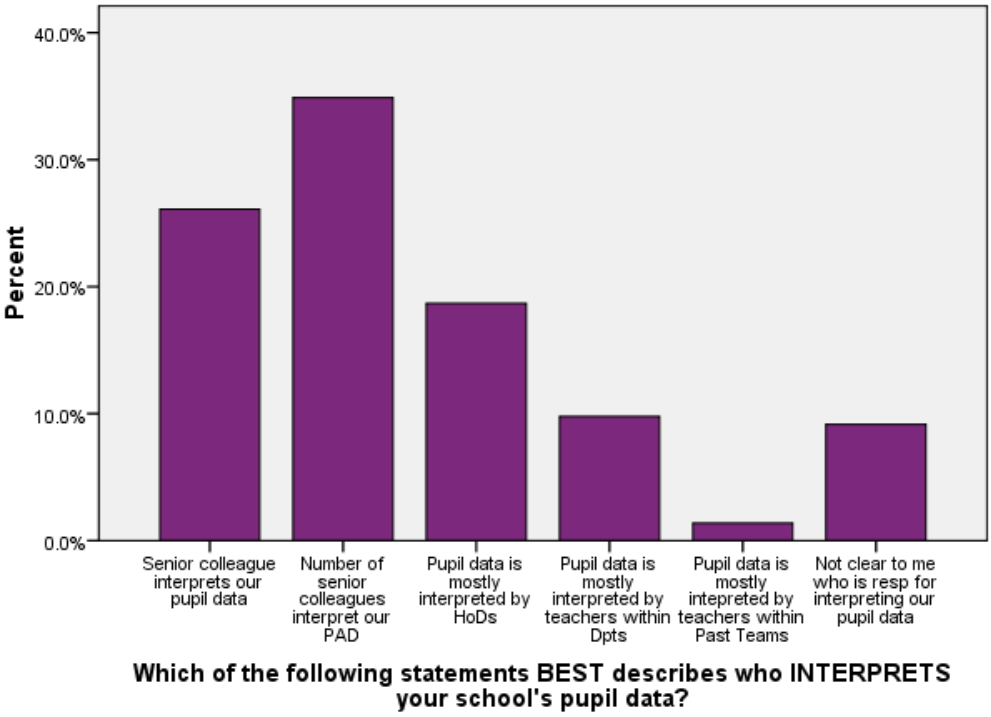


Fig 3.40

The pattern for the interpretation of pupil performance data is similar to that for 'analysis': 61% report data interpretation is carried out by a senior colleague or colleagues (Fig 3.40).

There are no significant differences in who manages pupil performance data across the different school types. In terms of who analysis data in schools, MP and CC schools report the lowest involvement of senior staff, though PM schools report the largest engagement of classroom teachers (see Fig 3.41). MP schools report the greatest engagement of heads of department.

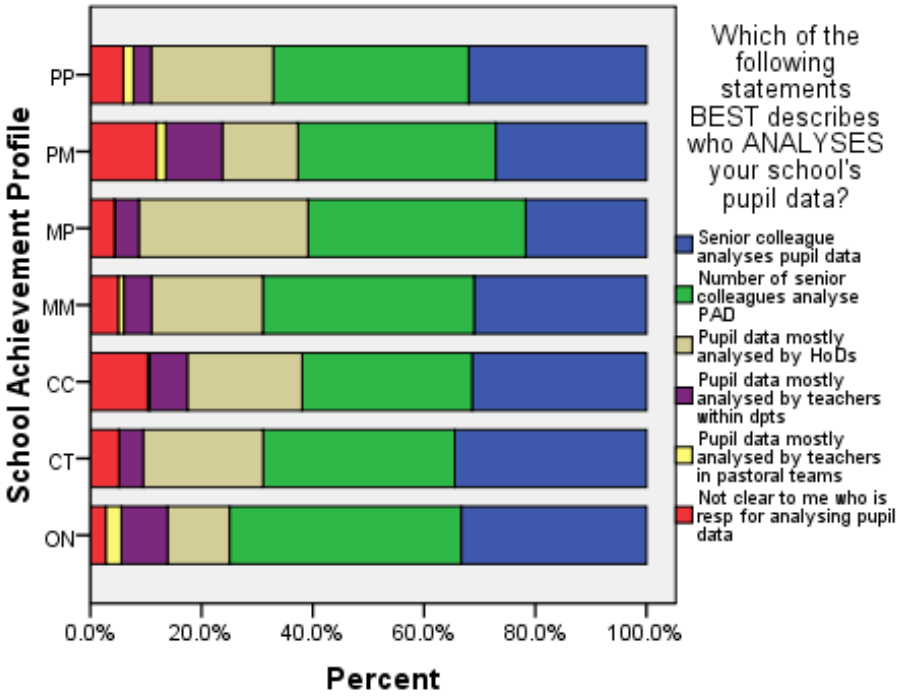


Fig 3.41

In ON schools, a significantly higher percentage of respondents report that data interpretation is done by classroom teachers (around 30%). Generally, more than twice the number of teachers are involved in data interpretation compared to data analysis across all school categories. In PP, PM and MP schools – the schools with the best raw results and/or CVA - data interpretation is most often carried out by a number of senior colleagues; whereas in MM, CC and CT schools, it is done by one senior colleague.

In all school type categories, teachers in pastoral teams seem to have little involvement with data analysis and interpretation, but there are exceptions, as this comment from a pastoral leader referring to the use of tracking data at the pupil level suggests:

> *"I'm one of the pastoral leaders. Yes, it does impact on this role. I'm in charge of a team of tutors and we monitor our tutees' attainment across all of their subjects and then we will put interventions in place depending on what is necessary."*
>
> School wide pastoral leader, MM School

Classroom teachers are more often unclear about who is responsible for data management, interpretation and analysis than respondents with higher levels of responsibilities. As much as 10% of Heads of Departments do not know who deals with data interpretation, but Heads of Departments more than any other category think classroom teachers are the ones who most often interpret their school pupil performance data and senior colleagues the ones who least often interpret it.

Those in pastoral roles have the greatest spread of who they think is responsible for data management, interpretation and analysis, and younger teachers are least clear about who is responsible.

There is no significant difference between subjects, part-time / full-time teachers or male / female in terms of who they think manages, interprets and analyses school data.

Fig 3.42 shows who respondents think should be responsible for data analysis in schools. The responses for who should be responsible for data interpretation were almost identical. The overall preferred approach - who should do it - is for Heads of Department to analyse and interpret (not shown in Fig) the data (45%) or a team of senior colleagues (39%). 36% of respondents felt that data should be analysed and interpreted (not shown) by classroom teachers. It is interesting that only a small percentage feel that data should be analysed and interpreted (not shown) by one senior colleague (17%) like a data manager or a deputy head.

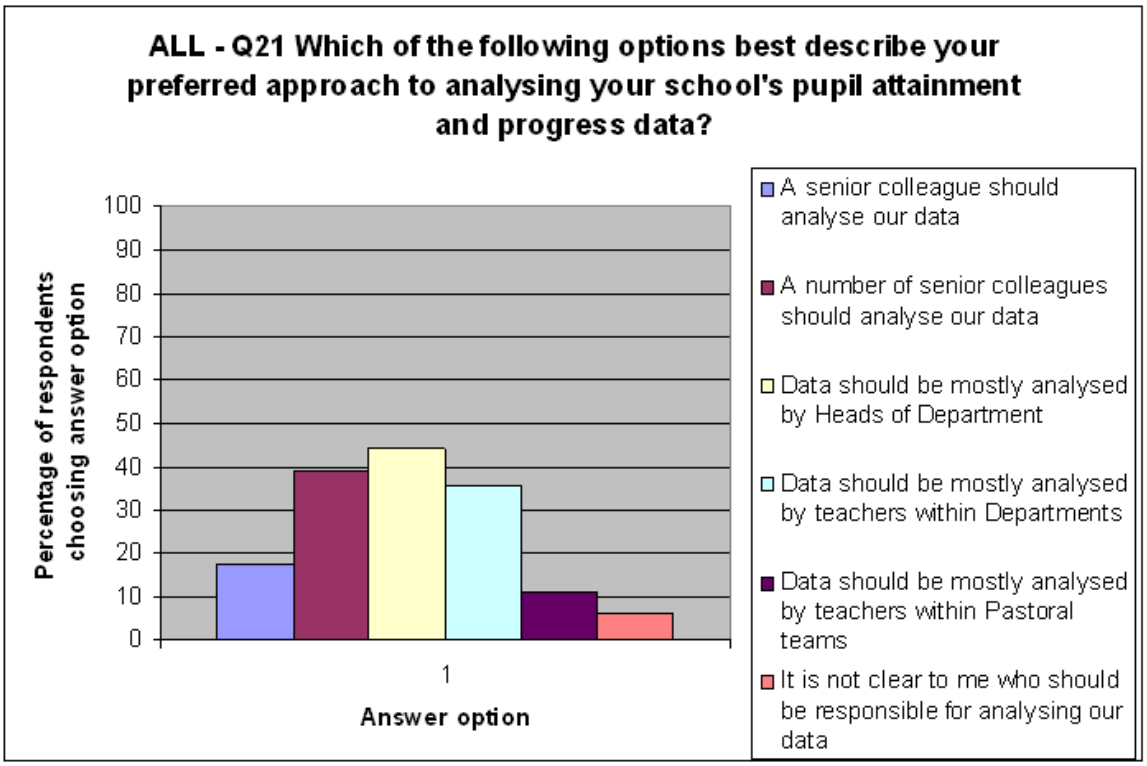


Fig 3.42

There are some differences between school types (Fig 3.43) in respect of who respondents think should analyse and interpret (not shown) pupil performance data. In most schools, the most preferred option is for Heads of Departments to analyse and interpret (not shown) data, but in MP schools the preferred approach is for a number of senior colleagues to carry out this task and ON schools prefer classroom teachers to do it. In MP schools, a senior colleague analysing and interpreting (not shown) school's pupil performance data is the preferred option.

There are no significant differences across the responsibility range, though a strong opinion exists among Key Stage managers that classroom teachers (in both department and pastoral groups) should be the ones primarily to analyse pupil performance data.

One of the interviewees was unequivocal about the level of challenge that a devolved approach to data analysis can present to some Heads of Department and pastoral leaders:

> *"At the moment, teachers and Heads of Department are given a lot of raw data, which is fine. And the people like me who are scientists or mathematicians and the like; for them it's not a problem, it's fine. But there are a lot of people in the school who aren't like that and would like to see much more of the analysis done centrally and then passed out to us to then deal with the teaching and learning consequences. I can do that; that's no problem. But the fact is that other people can't and are finding it difficult and then of course they are spending their time getting to grips with the data, rather than the actual information that the data holds. I have this thing that there is a big difference between data and information and I don't think we have entirely grasped that as a school."*
>
> School-wide pastoral leader, MM school

Another middle manager describes the investment required to establish appropriate systems for devolving pupil level tracking and evaluation data as bringing important returns in benefits to pupils:

> *"The use of databases across departments is not an actual school practice; you don't have to do it, you choose to do it. So at the moment that is not a school policy. The slight negative of setting up the system at the beginning is far outweighed by the benefit to pupils."*
>
> Head of Department, PP School

The preferred approach to data interpretation differs from the preferred approach to data analysis in the extent to which teachers are thought of as the group that should responsible. Generally, there is a greater expectation that teachers be responsible for data interpretation than data analysis. It is also striking that most 'responsibility categories' prefer that they themselves are responsible for interpreting their school's pupil performance data; more so than with data analysis. Most significantly perhaps, nearly half of all classroom teachers feel that it is teachers within departments who should be responsible. This comment, from a classroom teacher, refers to the way data designed to inform pupil and group level target setting may sometimes be passed down as a fait a complis; as if they were the targets themselves:

> *"If I was in charge I would make sure that [teachers] can actually understand what is going on, so that they would need training rather than just being told that these are your scores and you have to achieve. How do you achieve it really; that bit is missing."*
>
> Classroom teacher (mathematics), PP School

There are no significant differences in who should analyse or interpret data across the range of subjects or across the age / experience range, though NQTs have a strong preference for data analysis and interpretation to be done by classroom teachers. Fig 3.44 shows how views on data interpretation are spread across the range of subjects. It is noticeable how consistent is the view across subjects that heads of department and classroom teachers should be the ones responsible for the analysis of pupil data.

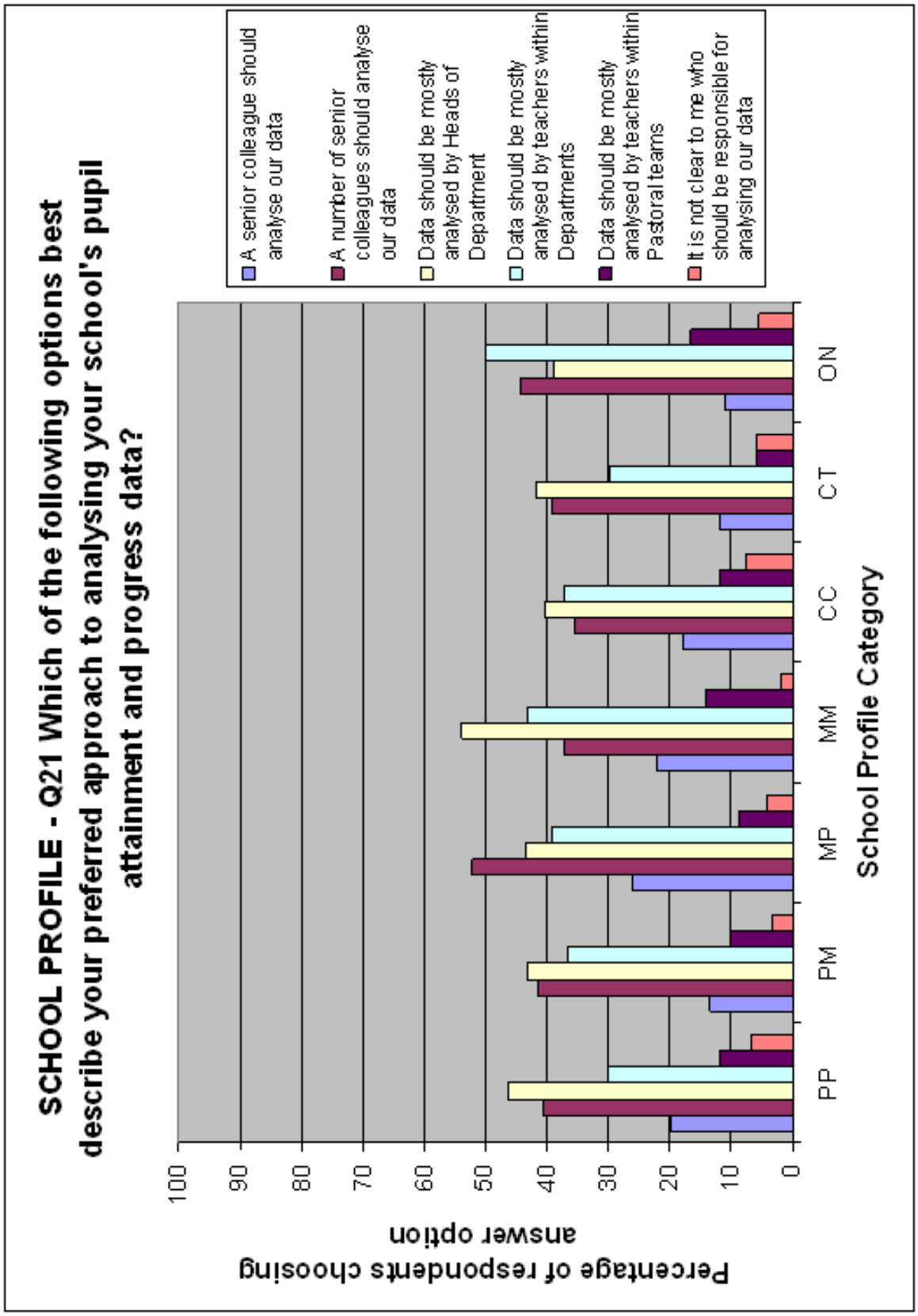

SCHOOL PROFILE - Q21 Which of the following options best describe your preferred approach to analysing your school's pupil attainment and progress data?
A senior colleague should analyse our data
A number of senior colleagues should analyse our data
Data should be mostly analysed by Heads of Department
Data should be mostly analysed by teachers within Departments
Data should be mostly analysed by teachers within Pastoral teams
It is not clear to me who should be responsible for analysing our data
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
PP
PM
MP
MM
CC
CT
ON
School Profile Category

Fig 3.43

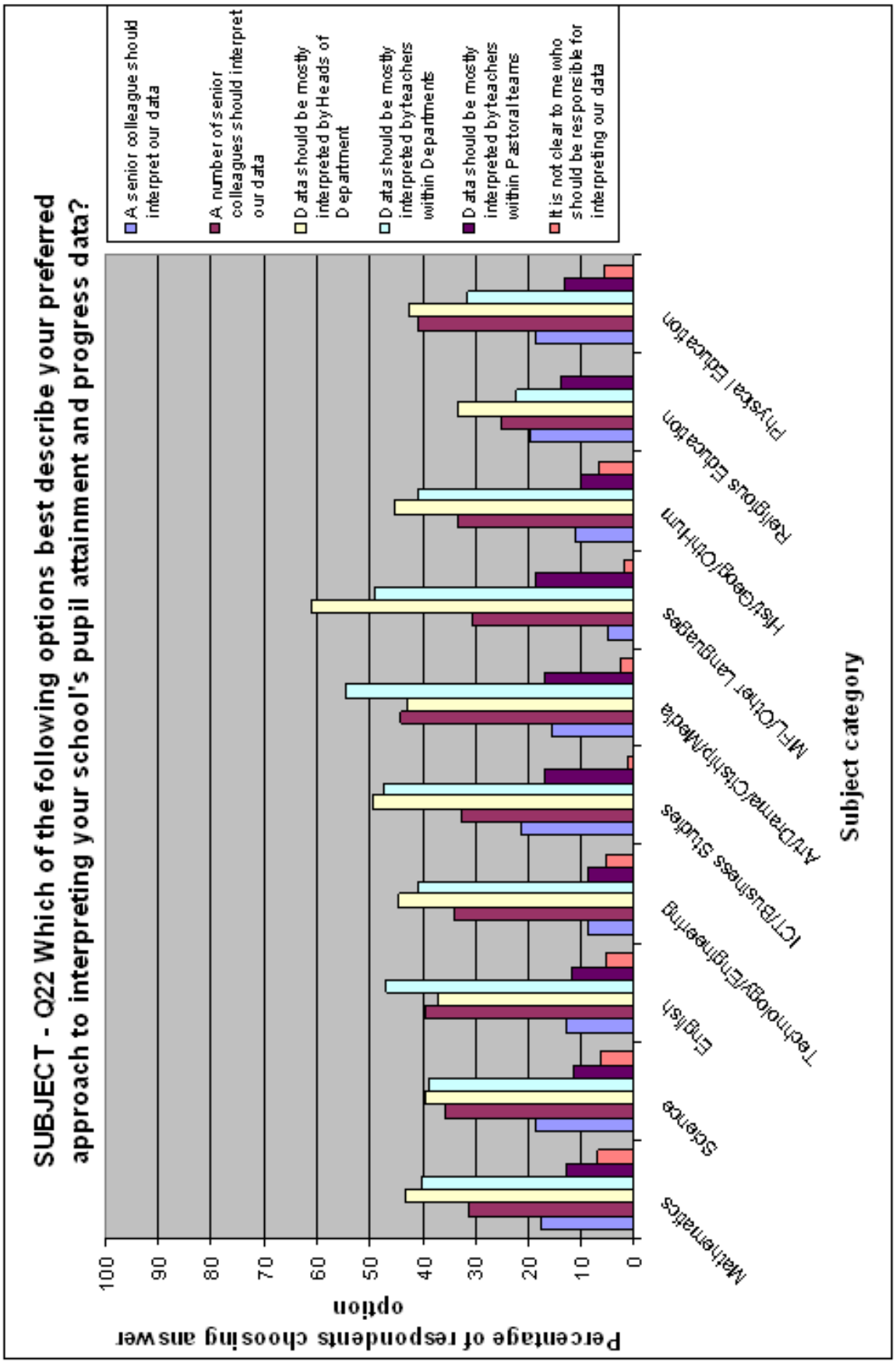

SUBJECT - Q22 Which of the following options best describe your preferred approach to interpreting your school's pupil attainment and progress data?
A senior colleague should interpret our data
A number of senior colleagues should interpret our data
Data should be mostly interpreted by Heads of Department
Data should be mostly interpreted by teachers within Departments
Data should be mostly interpreted by teachers within Pastoral teams
It is not clear to me who should be responsible for interpreting our data
Percentage of respondents choosing answer option
0
10
20
30
40
50
60
70
80
90
100
Mathematics
Science
English
Technology/Engineering
ICT/Business Studies
Arts/Drama/Citizenship/Media
MFL/Other Languages
Hist/Geog/Other
Religious Education
Physical Education
Subject category

Fig 3.44

Availability of pupil performance data

As Fig 3.45 illustrates, data is readily in schools. Almost 60% of staff can access pupil performance data and carry out own analyses and interpretation (Fig 3.46). For another 23% this is possible but only in their own subject area. 17% of respondents indicate that pupil performance data is accessible to staff with a management position in the school or is given to others (by management) pre-interpreted.

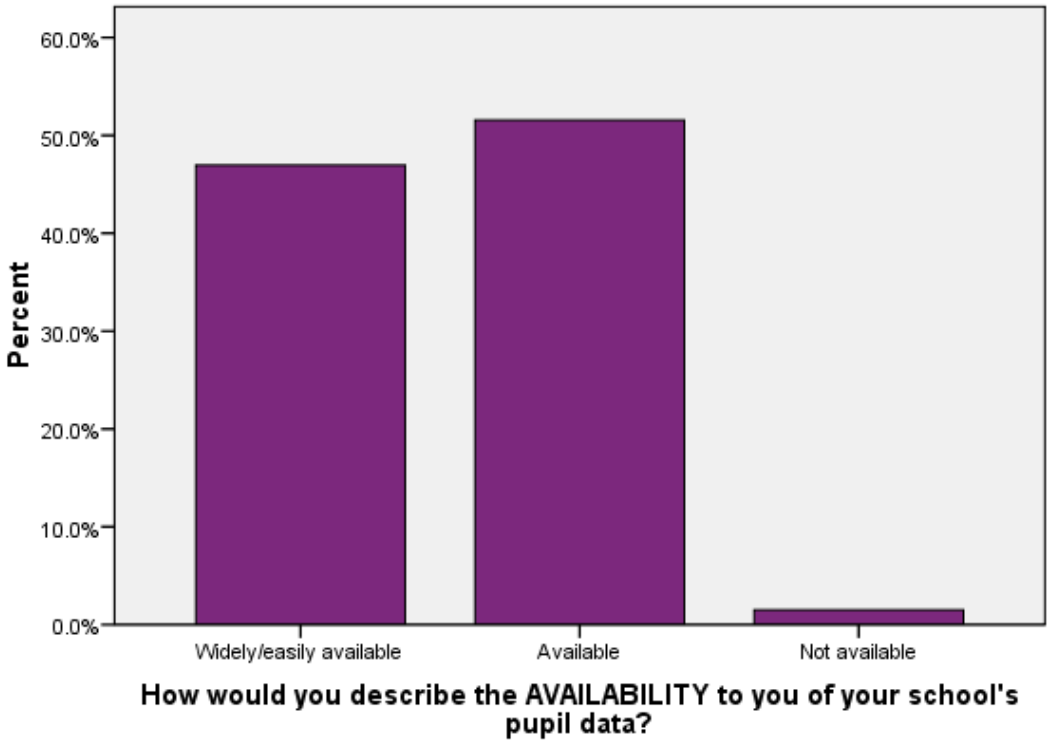


Fig 3.45

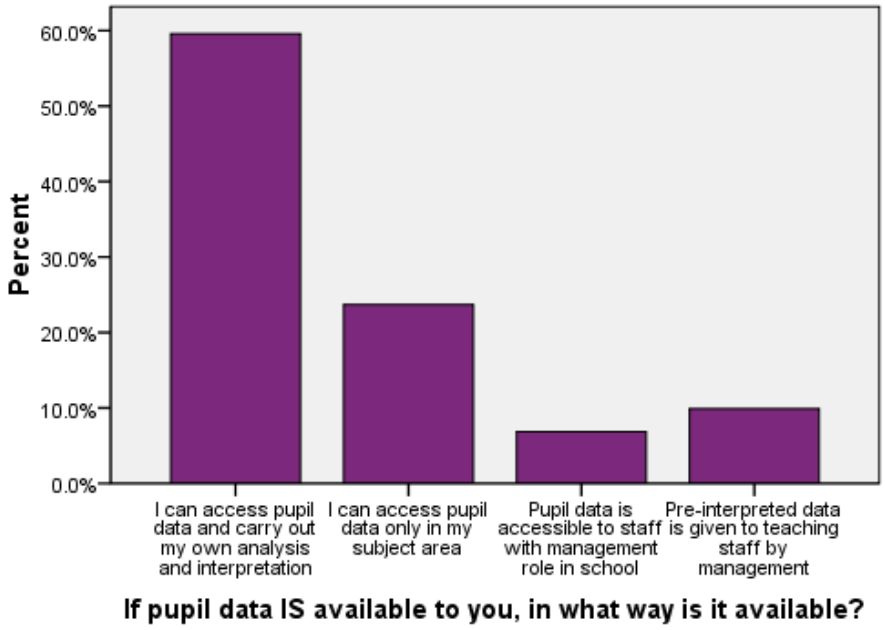


Fig 3.46

In terms of school type, data is least widely available in CC schools and 'not available' (to the small extent that this is the case) only in PM, MM, CC and CT schools. Overall, as we have seen in Fig 3.46, approximately 60% of teachers can access pupil performance data and carry out their own analysis and interpretation. Fig 3.47 shows that in MP and ON schools a much larger percentage indicate that they can do this. It is least often the case in CC schools. All school types have pre-interpreted data given to teachers.

One teacher expressed frustration with this top-down, pre-interpreted approach, particularly with pupil estimates data designed to inform individual and group level target setting:

> *"The headteacher, God bless him, is very… well, he likes to hold on to these things, you know. He likes to give you stuff without telling you why. He likes his secrets. So data is one of his things. That's what he does. So sometimes it's difficult to find out where all the data has come from; what the background is. So he is giving me a figure that a kid is to get by the end of the year. Well, where have you got that from? What have you included and what have you not?"*
>
> Classroom teacher (and union rep), CC school

Another interviewee described some of the practical ways in which the data-culture in school had changed to facilitate a more devolved approach:

> *"I've now suggested this year that we actually put the information onto flash drives so that instead of constantly producing paper copies for people we can actually hand things out to heads of department. The whole approach has been centred around spreading the data out; sharing the data so that people are aware of it. It previously used to be held by one person who would tell you the one fact you needed to know; you know, the one target you were aiming for as a department."*

Assistant head (and data manager), CT School

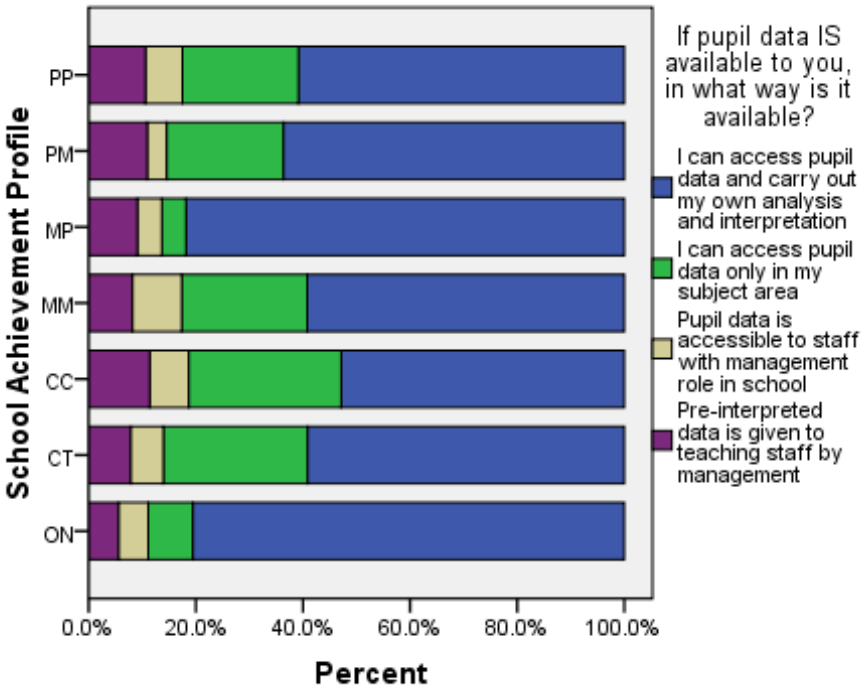


Fig 3.47

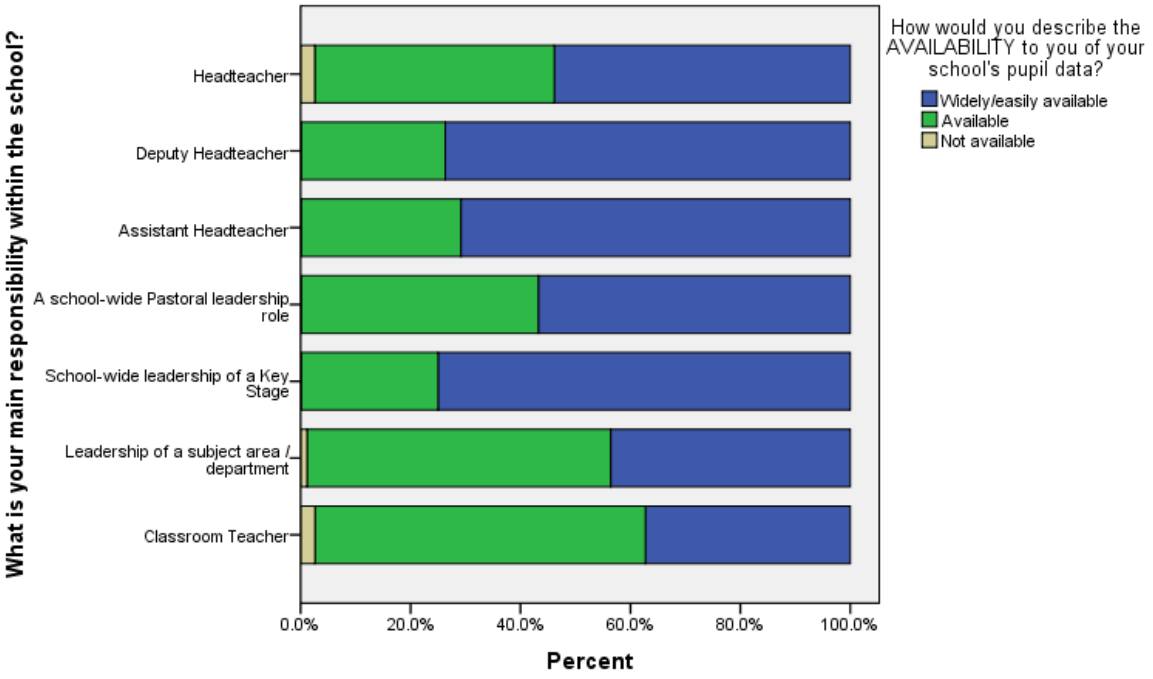


Fig 3.48

Data is least widely available to classroom teachers and heads of department, and most widely available to deputies, assistant heads and KS managers (Fig 3.48). Generally, the more senior the role, the more the incumbent can access and carry out own analysis and interpretation (Fig 3.49). Pupil performance data is most widely available - in terms of access, analysis and interpretation - to deputies (89%) and assistant heads (79%). Classroom teachers and headteachers (approx 10% each) – perhaps unsurprisingly, but for different reasons - are given pre-interpreted data more than other categories. Again, classroom teachers (37%) and heads of department (27%) are the categories most likely to be able to access only own subject data, although access to a wider data set would enable classroom teachers and Heads of Department to compare the progress of pupils in their subject with that achieved by the same pupils in other subject areas, thus bringing additional insights that can be gleaned through this type of internal comparison. Access to data in this way may be especially important in the light of findings from a wide range of international school effectiveness research studies, conducted over recent decades, which has shown that, even after adjusting for prior attainment and a wider range of contextual factors, most of the variation in pupil outcomes lies within schools rather than between schools.[24]

24 For a recent overview of insights gained from school effectiveness research, see Sammons (2007).

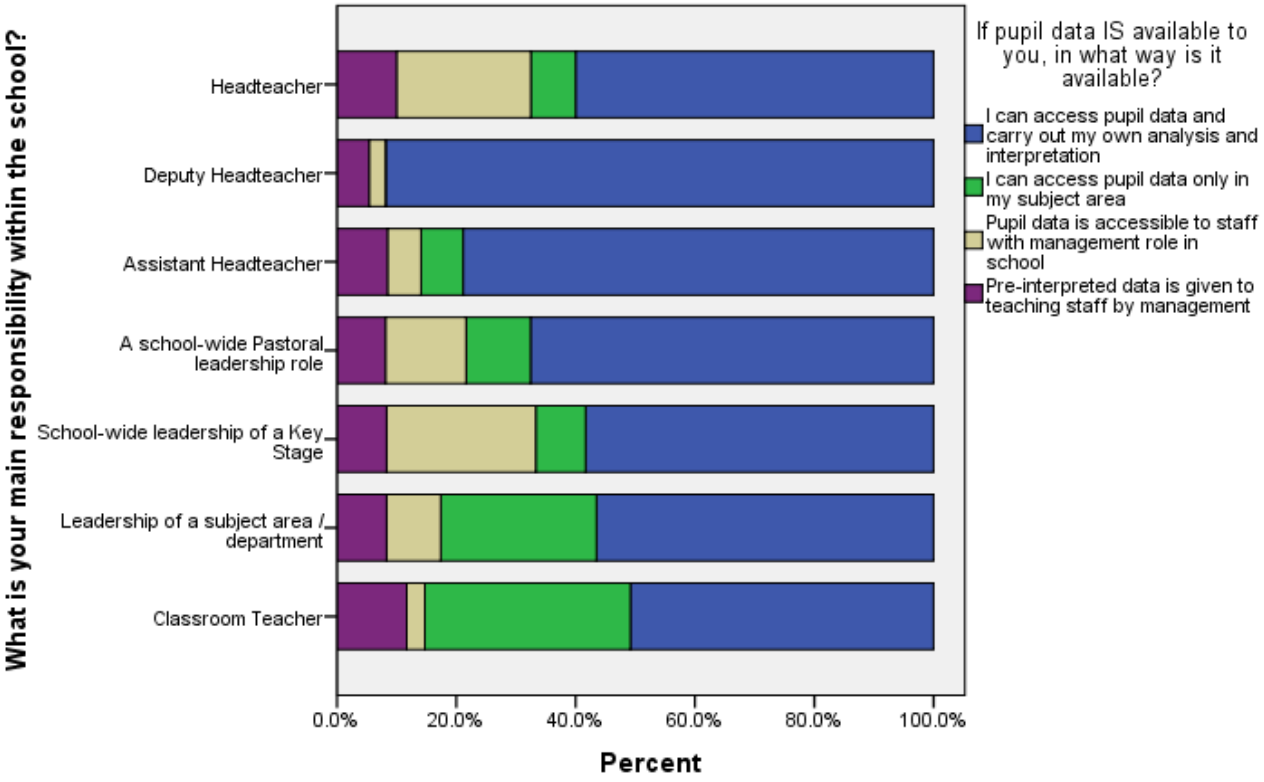


Fig 3.49

There is no significant difference across the subject range with regard to availability of pupil performance data and the manner in which it is available (own analysis and interpretation; in own subject area; pre-interpreted; etc), but it is least widely available and mostly in pre-interpreted format to teachers of Religious Studies.

Data is reported as being more widely available to teachers with longer teaching careers (Fig 3.50), but there are no major differences in the way data is available to respondents with different length teaching careers.

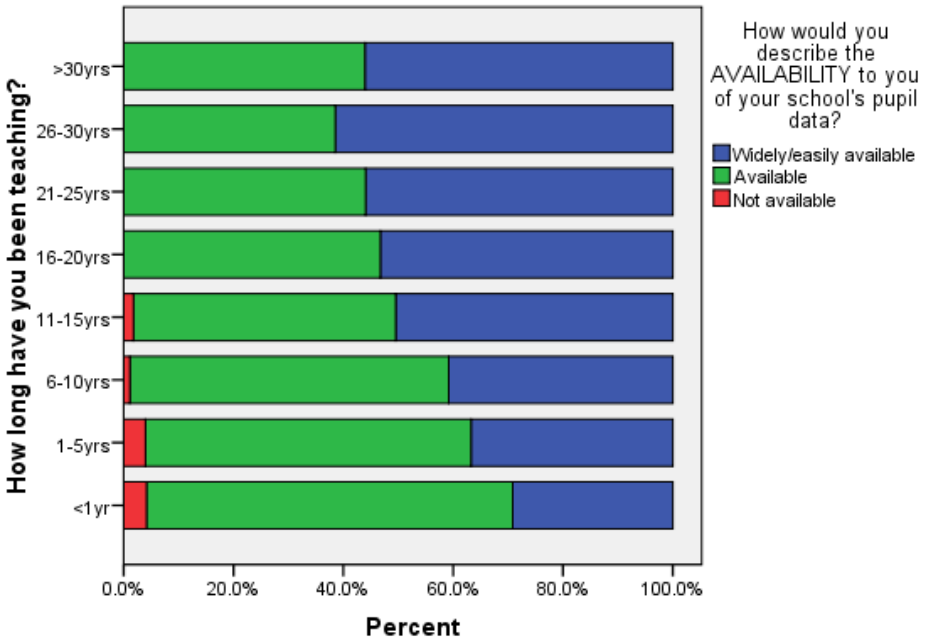


Fig 3.50

Gender, age, length of time in post and part-time/full-time status have no significant relationship with data availability or the way in which it is made availability.

Access to RAISEOnline

Only 27% of respondents have access to data via RAISEOnline; 73% do not. Staff in MP schools have greatest access, which coincides with MP schools also reporting the greatest use of pupil performance data, the best understanding of pupil performance data and the most frequent training in the area of data utilisation and interpretation. Generally, with the exception of pastoral leaders, more senior roles in schools have greater access to RAISEOnline so that there appears (not for the first time in these results) a hierarchy of access to data (see Fig 3.51). The lack of access (95% have none) to this most common 'external' source of pupil performance data among classroom teachers is extreme.[25]

25 Those staff responding with "No" are likely to be a mix of those who have no personal access to RASIEonline and those for whom access may be available but they are unaware of it.

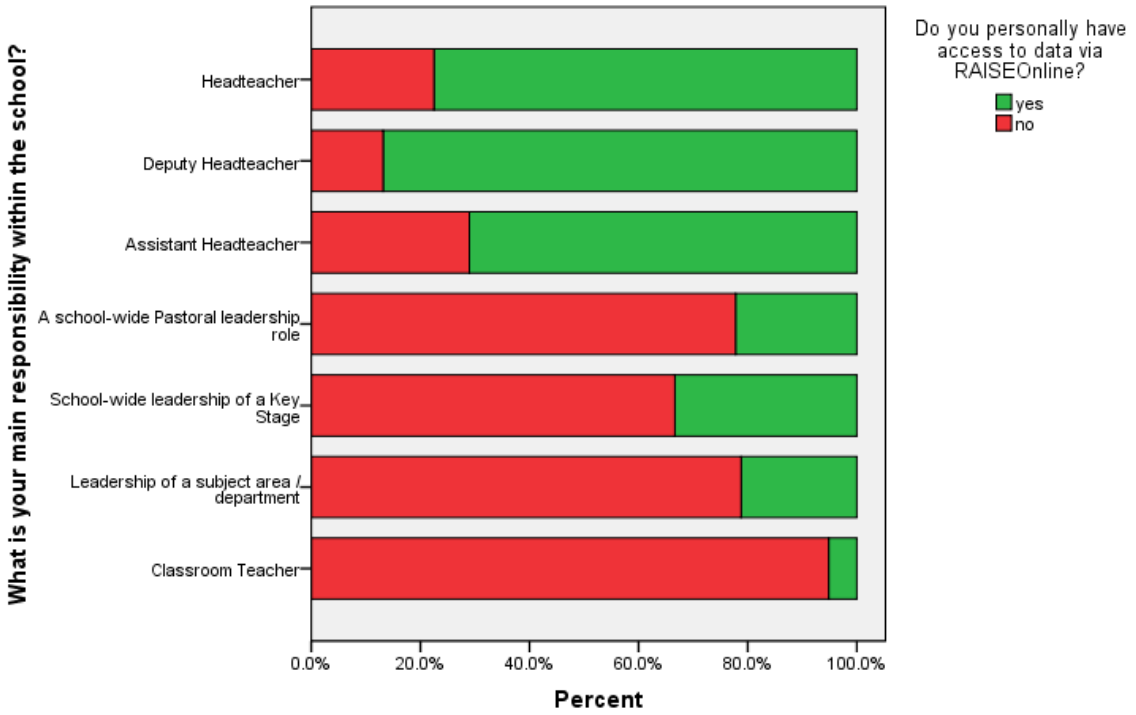


Fig 3.51

Ofsted and the DCSF, who are responsible for the production of the data and reports available in RAISEonline, consider it the responsibility of schools to provide access for teaching staff as the following guidance makes clear:

> *"Access details have been sent to the Headteacher of all maintained Primary and Secondary schools. Ofsted/DCSF have provided schools with an Administrator account which allows them to create further users for their school. Please contact the headteacher for your school to identify who has been assigned the RAISEonline administrator role. The creation of additional accounts is the responsibility of the school and Ofsted/DCSF will not be able to respond to direct requests for access."* [26]

There is no significant difference across the subject range, most likely because only 5% of subject teachers have access anyway.

Generally, access increases with length of time teaching (see Fig 3.52), possibly because many experienced teachers occupy leadership posts. It is a pattern mirrored by length of time teaching in current school and 'age' (not shown). Perhaps for the same reason, male staff have greater access to RAISEOnline than female staff (not shown) - twice as much, in fact - and full-time staff more than part-time staff (not shown).

26 Source: https://www.raiseonline.org/helpLoggingIn.aspx (accessed on 03.12.09)

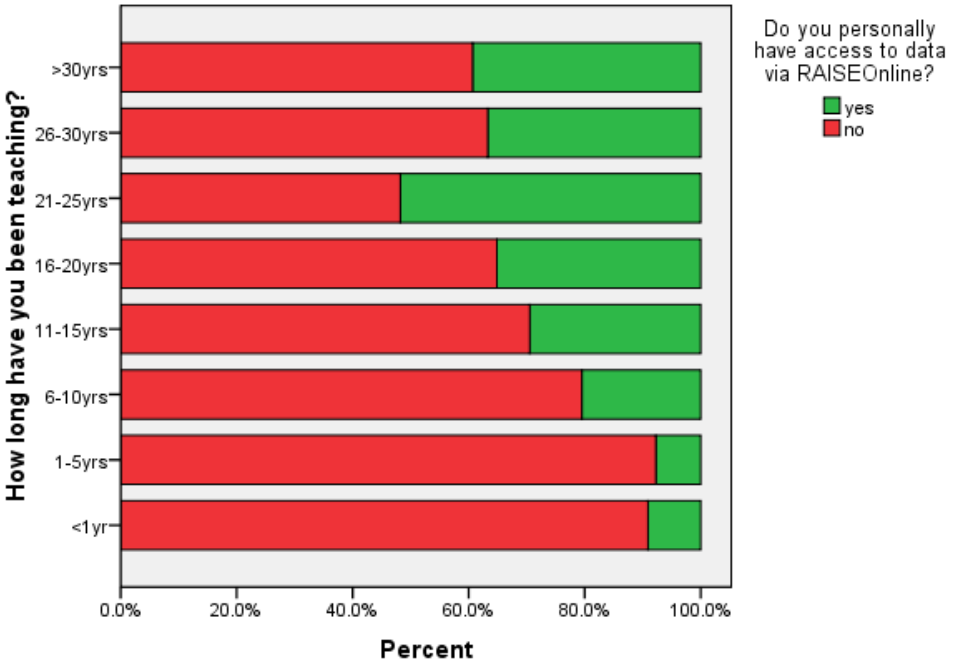


Fig 3.52

Rationale for collecting pupil performance data

Respondents were asked to choose what they felt were the current reasons for collecting pupil performance data, and in a supplementary question, what they felt should be the reasons for collecting it. Fig 3.53 shows the range of responses

We can see that the first two reasons ('to assist schools in the process of self-evaluation and 'to enable pupils to make better academic progress') are chosen most often by respondents as current reasons for collecting pupil performance data (with 74 and 73% choosing them respectively). Nearly 65% chose 'to enable teachers to be more effective' and approximately 50% 'to identify the relative performance of different groups of students within the school'. These four reasons could be considered reasons internal to the school.

58% think it is done 'to hold schools accountable to the public', 59% 'to hold teachers professionally accountable', 48% 'to enable authorities and/or the media to rank schools based on performance' and only 30% of respondents think that data is currently collected 'to enable parents to choose the best school for their children'. These four reasons are all external to the school.

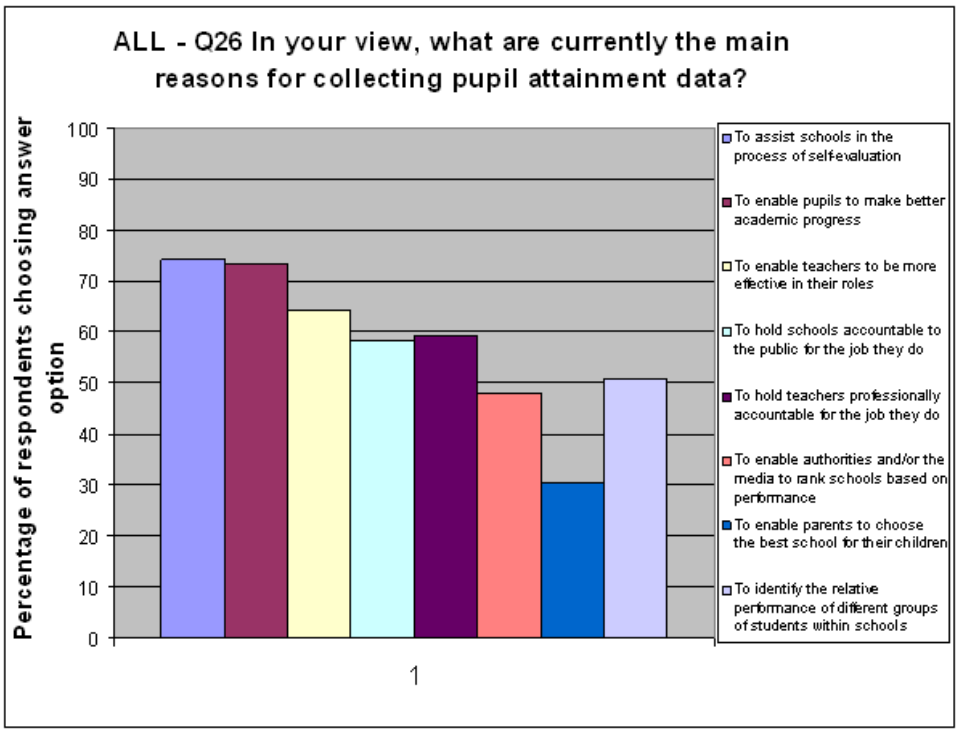


Fig 3.53

Fig 3.54 breaks this down by school type. There is little to differentiate the schools except that MM schools more often indicate that the primary existing reason for collecting pupil performance data is 'to identify the relative performance of different students within the school', and MP schools least often that the purpose is 'to enable parents to choose the best school'.

There is no significant difference across the range of subject specialisms (see Fig 3.55), though modern languages and PE have the highest answering 'to assist schools in self-evaluation'. Of the core subjects, science teachers have selected 'external' reasons for collecting pupil performance data less frequently than most other subject groups.

There is no significant relationship between reasons chosen for (what respondents believe are the) current reasons for collecting data and length of time teaching, though the response pattern for NQTs stands out somewhat: they more often feel that the purpose is 'to assist schools in the process of self-evaluation' and 'to enable parents to choose the best school for their children'.

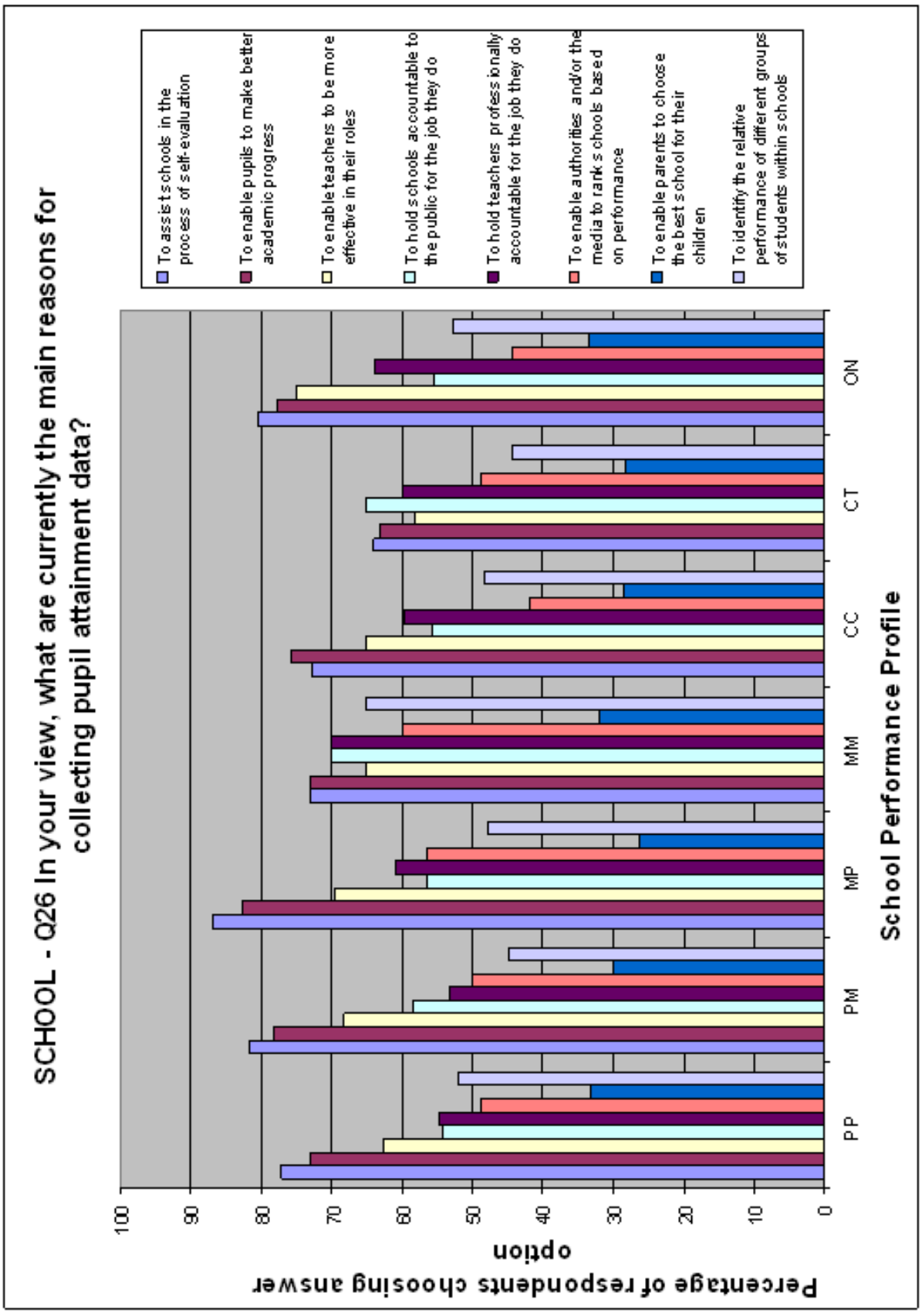

SCHOOL - Q26 In your view, what are currently the main reasons for collecting pupil attainment data?
School Performance Profile
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
PP
PM
MP
MM
CC
CT
ON
To assist schools in the process of self-evaluation
To enable pupils to make better academic progress
To enable teachers to be more effective in their roles
To hold schools accountable to the public for the job they do
To hold teachers professionally accountable for the job they do
To enable authorities and/or the media to rank schools based on performance
To enable parents to choose the best school for their children
To identify the relative performance of different groups of students within schools

Fig 3.54

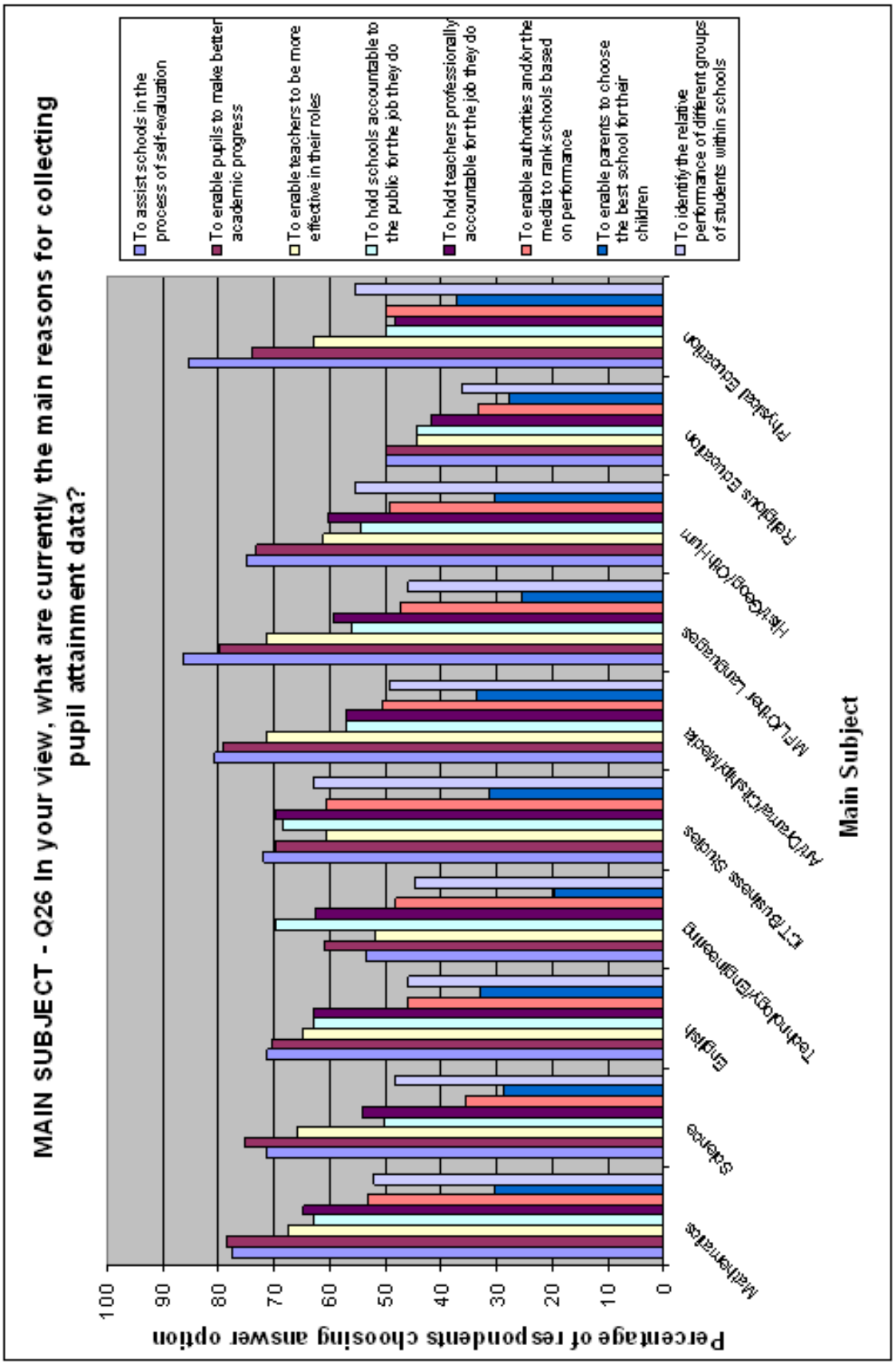

MAIN SUBJECT - Q26 In your view, what are currently the main reasons for collecting pupil attainment data?
To assist schools in the process of self-evaluation
To enable pupils to make better academic progress
To enable teachers to be more effective in their roles
To hold schools accountable to the public for the job they do
To hold teachers professionally accountable for the job they do
To enable authorities and/or the media to rank schools based on performance
To enable parents to choose the best school for their children
To identify the relative performance of different groups of students within schools
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
Mathematics
Science
English
Technology/Engineering
ICT/Business Studies
Arts/Drama/Creative/Music/Media
MFL/Other Languages
History/Geography/Humanities
Religious Education
Physical Education
Main Subject

Fig 3.55

Deputies, assistant heads and Key Stage leaders also stand out somewhat (see Fig 3.56). 100% of deputy heads feel that pupil performance data is collected 'to assist schools in the process of self-evaluation'. Of Key Stage leaders, 100% think that it is done 'to enable students to make better progress'. Senior managers much more often chose 'to identify the relative performance of different groups of students within schools' as a current reason for collecting the data. Classroom teachers and heads of department, on the other hand, more often feel that 'ranking schools according to performance' is the main reason for collecting pupil performance data.

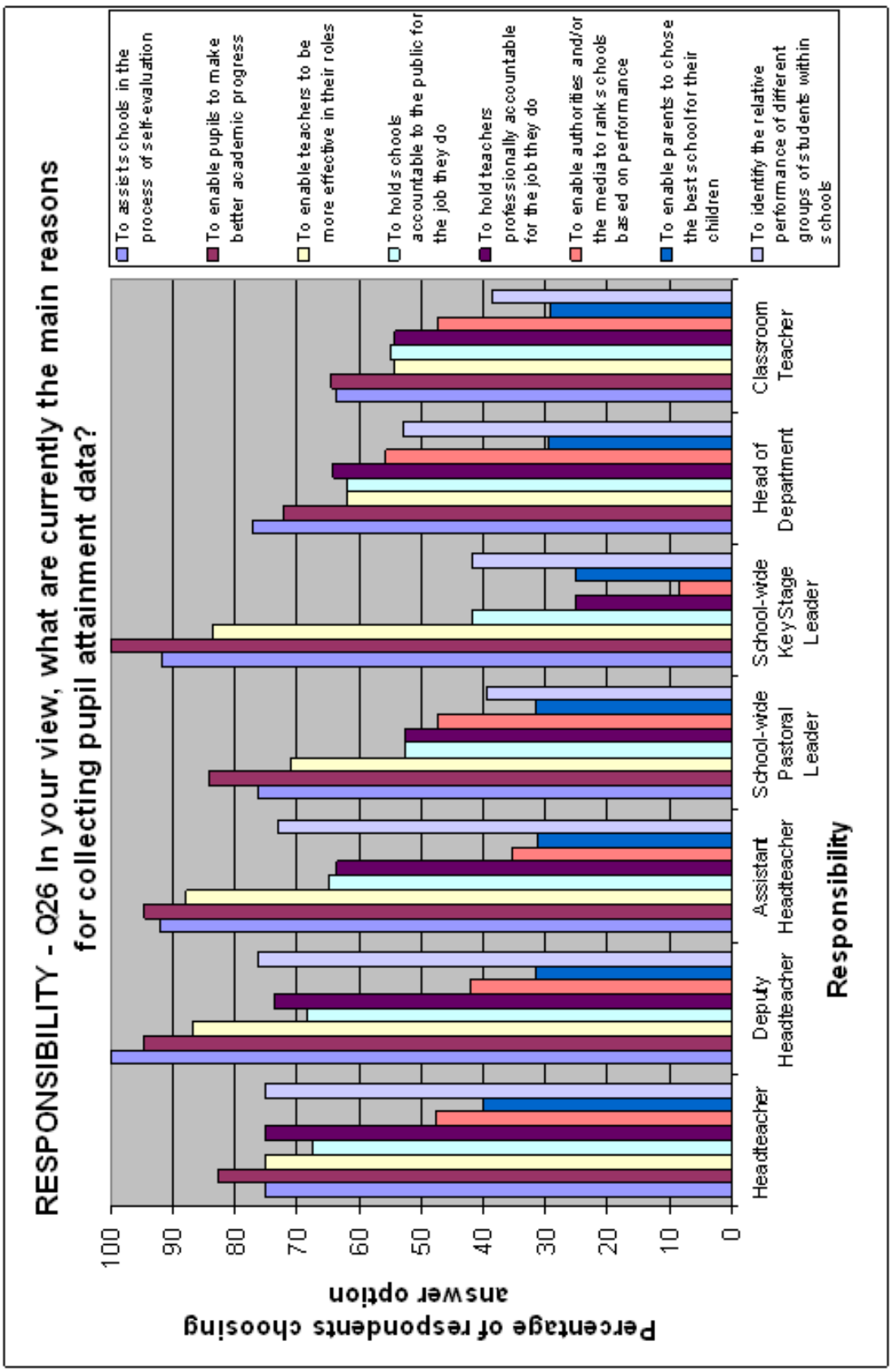

RESPONSIBILITY - Q26 In your view, what are currently the main reasons for collecting pupil attainment data?
To assists chools in the process of self-evaluation
To enable pupils to make better academic progress
To enable teachers to be more effective in their roles
To hold schools accountable to the public for the job they do
To hold teachers professionally accountable for the job they do
To enable authorities and/or the media to rank schools based on performance
To enable parents to chose the best school for their children
To identify the relative performance of different groups of students within schools
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
Headteacher
Deputy Headteacher
Assistant Headteacher
School-wide Pastoral Leader
School-wide KeyStage Leader
Head of Department
Classroom Teacher
Responsibility

Fig 3.56

There is considerable negative feeling about current reasons for collecting pupil performance data: 'to tick a box' and 'to satisfy Ofsted and statisticians'; to be 'used as a stick to beat teachers and schools'; to set 'ever-increasing targets' and encourage 'absurd competition' between schools; 'because the government doesn't trust teachers to be professional'; and 'anyway parents don't understand or use it correctly in choosing the best school for their children'. One teacher commented (on the questionnaire) that it 'enables parents to labour under the delusion that they can choose the best school for their children'. These views were expressed many times by a wide cross-section of respondents. Others considered that official / external pupil performance data lacks reliability (teachers often 'enter the same grade as last time') and that pupils ('especially the less well-off ones') are disadvantaged by the process. Many respondents consider that over-reliance on performance data detracts from other more important issues in education - 'turning schools into factories in a forlorn attempt to measure the immeasurable' - and that pupil performance data is not being used to influence teaching enough.

One of the interviewees described the potential consequences to pupils of 'game playing', especially referring to data used to inform target setting:

> *"I don't think the children end up being better mathematicians because their grades are better. They just know the techniques, and obviously techniques are easily forgotten. So data helps to achieve the school target. We all play this game, but I think the children will end up, and they do end up, not being as good mathematicians as they could have been. I actually think that ten years ago, my students were better mathematicians, when we didn't use so much data."*
>
> Classroom teacher (mathematics), PP School

Others suggested, in a more self-critical way, that teachers play games with data and that the system rewards such behaviour. Teachers say that they 'are a compliant profession', but reluctantly / cynically so in the case of data usage because there are fundamental issues that are left unclear and unresolved. One senior leader described this in sharp political relief, referring particularly to school level evaluation data:

> *"You do feel that it is very much a political game and you're having to put a spin on your data and use it to show the school in the best light, and really sometimes to me that works against trying to find where you need to develop your capacity to improve."*
>
> Assistant head (and data manager), CT School

However, most teachers have positive reasons for collecting pupil performance data, which were exemplified in responses gathered in the telephone interviews:

> *"If we didn't have to [collect data] it would give us a bit more time, but for the majority of students - I'd say probably for about 70% of students - it's vital. It's really important information and they pay attention to it."*
>
> Classroom teacher (and Union Rep), CC School

One respondent applied the National Challenge floor target, normally applied at the school level, to individual pupils in a description of the merits of using data to track the progress of groups of pupils:

> *"We are constantly re-evaluating according to what the results are. And of course, you've got these national challenge kids, so they're using the data to track those kids and keep them and put interventions in for them, so there's a huge impact on identification and action."*

School wide pastoral leader (and SENCO), CC School

The heuristic approach (see Fig 1.1) to using data to inform target setting with pupils was described in detail by the same senior leader as:

> *"In terms of prior attainment data I find CATS and SATS both very useful; certainly CATS more useful than SATS. Also, I use internally set targets as well and I try to use those to set aspirational challenges for my students. I actually think that the Fischer data is very useful in setting a baseline, and obviously there's your own marking that you do, so there's your own setting of targets and trying to get students to build upon their levels as they make progress through their levels towards GCSE. In general, I find it very helpful."*

Assistant head (and data manager), CT School

Where teachers are critical, they are pragmatic rather than resentful, as the following comments referring, to evaluation data, illustrate:

> *'I do not need external reward to make me feel good or bad about how well I am doing. I can evaluate this for myself and data gathering assists this process'. [Online comment]*

> *'I do not think data is currently being used to hold teachers professionally accountable, but it seems likely to be the inevitable consequence of data use. I think this would be a negative way forward, creating the same problems as seen in the health service'. [Online comment]*

Not all teachers view the use of data to hold teachers to account in quite such negative terms:

> *"I think data can be used to put pressure on teachers, but not deliberately. It is used to show where value-added is happening and where it isn't happening. And that is unavoidable when you're looking at data, so I think certain teachers do feel under pressure but I am not sure that that is a bad thing. I think it is a positive thing because if using data is flagging up where a teacher is consistently getting negative value-added, then that teacher needs to be aware of it, rather than just ignoring it and pretending that things are OK when they're not."*

Advanced Skills Teacher (English), PM School

'Data is important but needs to be presented in a meaningful way and level playing fields need to be understood'. [Online comment]

'If data is analysed by someone who views it in the light of everything else we know about a child, it can be very useful'. [Online comment]

The point about the need to view pupil performance data in the wider context of the child – the provisional approach to data (Fig 1.1) - was widely echoed in the telephone interviews:

"Attainment data is one more piece of information about a child. It doesn't tell you everything and you need to remember that you are talking about a human being as well, rather than numbers. But the numbers are another useful piece of information about that child; particularly at the start of the year when perhaps you don't know the kids as well."

School wide pastoral leader, MM School

55% of respondents accept the reasons for collecting pupil performance data as a necessary feature of their lives as educators; 19% feel it is desirable; 17% feel irritated and resentful. Only 4% feel rewarded (see Fig 3.57). Teachers in ON schools feel the least irritated and the most positive about pupil performance data (see Fig 3.58) with 11% feeling rewarded and 29% regarding it as desirable. Possible reasons for this rather counter-intuitive finding were given by one of the interviewees from a National Challenge school, which suggests that school level evaluation data can influence the way data is used to track progress and inform target setting at the individual pupil level:

"We're a challenge school, so obviously the pressure is on as far as the 5A-C GCSEs including English and maths is concerned, so that has influenced hugely the way that we use target data. Before that happened, it was very ad hoc and some departments used it well and some did not. It is now much more consistent across the school. We are tracking kids much more closely now."*

School wide pastoral leader, MM School

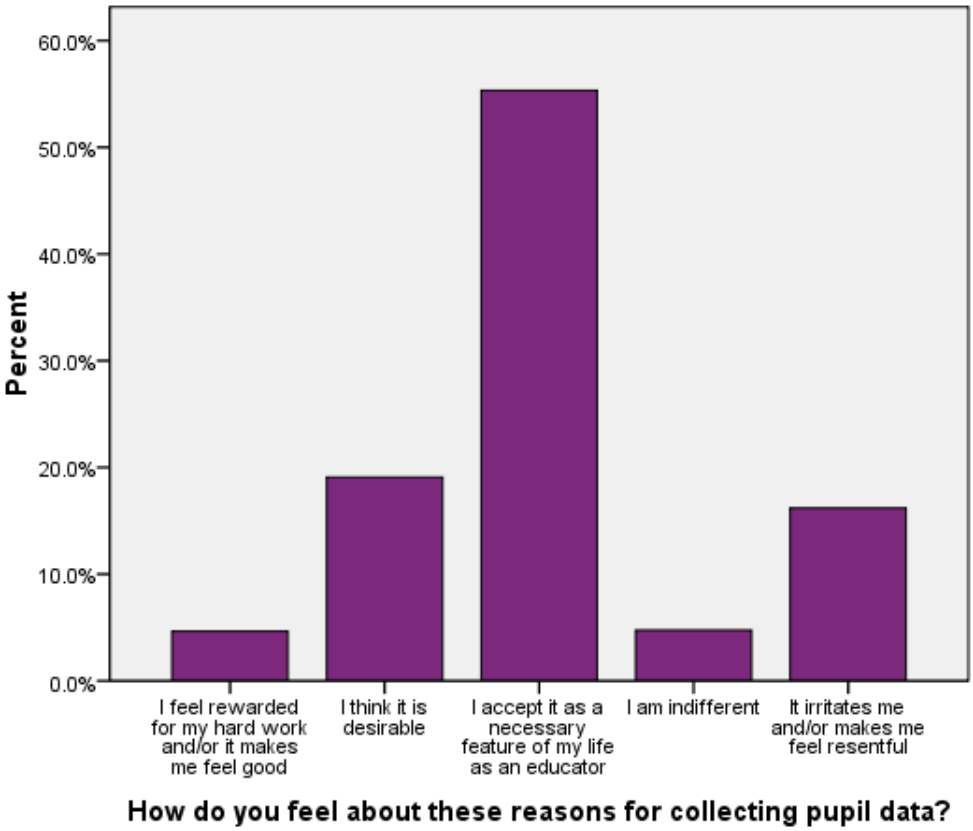


Fig 3.57

One of the telephone interviewees summed up something of the pragmatic view, especially of school level evaluation data, as follows:

> *"I think all schools are data-driven now. They have to be because of the government and their own targets, and … the fact that the LEA comes and says you have to set your targets and challenges, and then you're always working to those the government sets the LEA."*
>
> School-wide pastoral leader (and SENCO), CC School

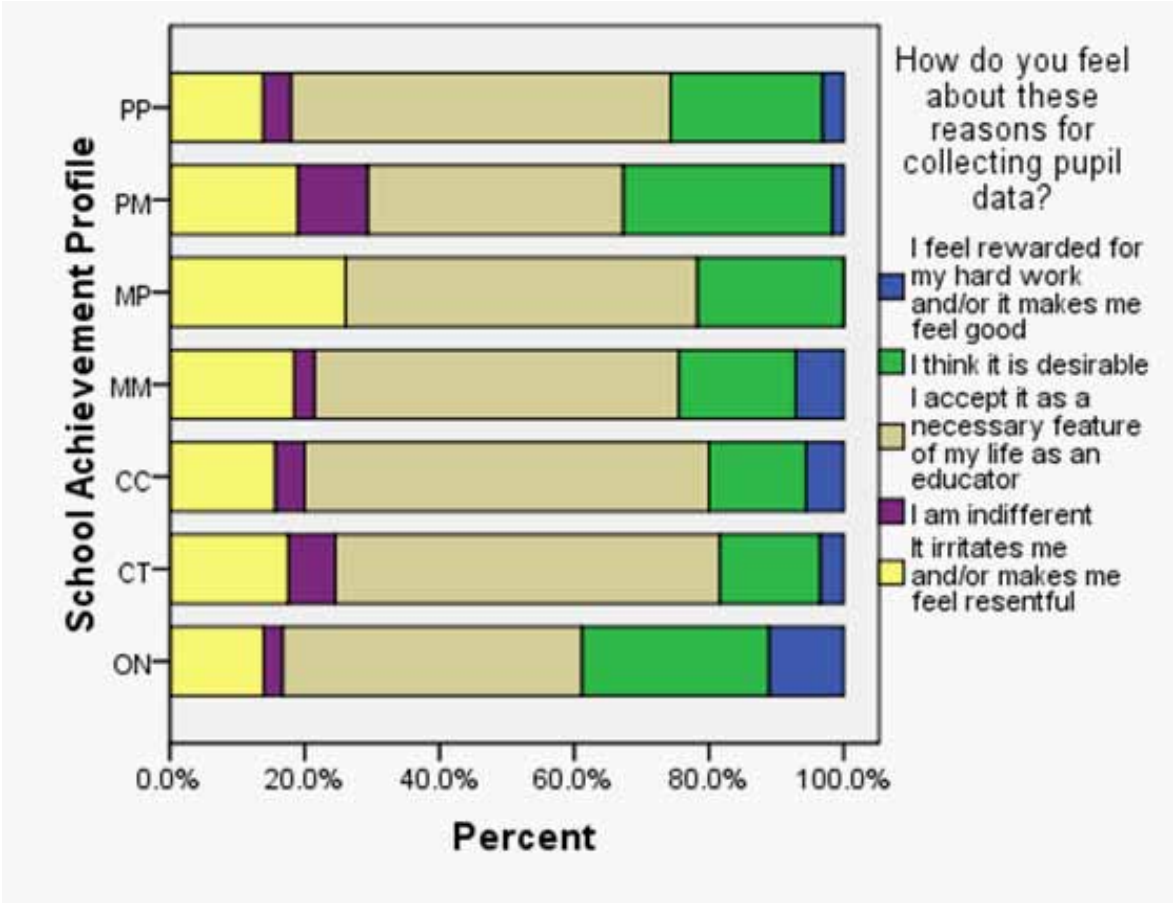


Fig 3.58

27% of respondents in MP schools are resentful / irritated and none feel rewarded or good about the reasons for collecting pupil performance data. Whether or not this is related to high levels of data use identified in these schools is hard to judge, not least due to the low response of teachers from these schools.

The distribution across the responsibility grades is shown on Fig 3.59.

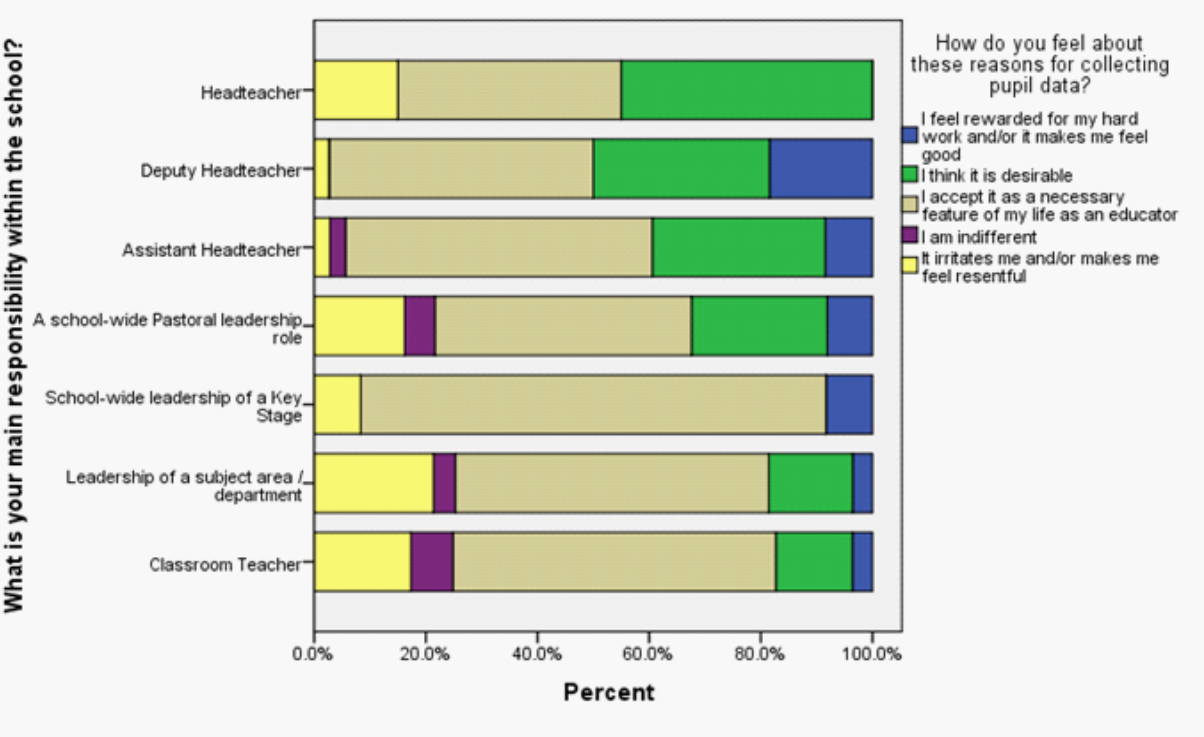


Fig 3.59

Significantly, none of the responding heads reports feeling rewarded by reasons for collecting pupil performance data, but 45% think it is desirable and about 16% claim to feel irritated and resentful (Fig 3.59). Deputies and assistant heads report the lowest levels of irritation and feel most often rewarded. Among classroom teachers, 8% are indifferent.

There are only minor differences between subjects regarding the reasons for collecting pupil performance data and how they feel about those reasons. Teachers with more experience more generally accept it as a necessary feature of professional life, with NQTs feeling least irritated.

There are no differences across gender or part-time / full-time categories.

Younger teachers (20-25) report feeling significantly more irritated / resentful about the reasons for data collection than older teachers - twice as much - and only half as many think it desirable.

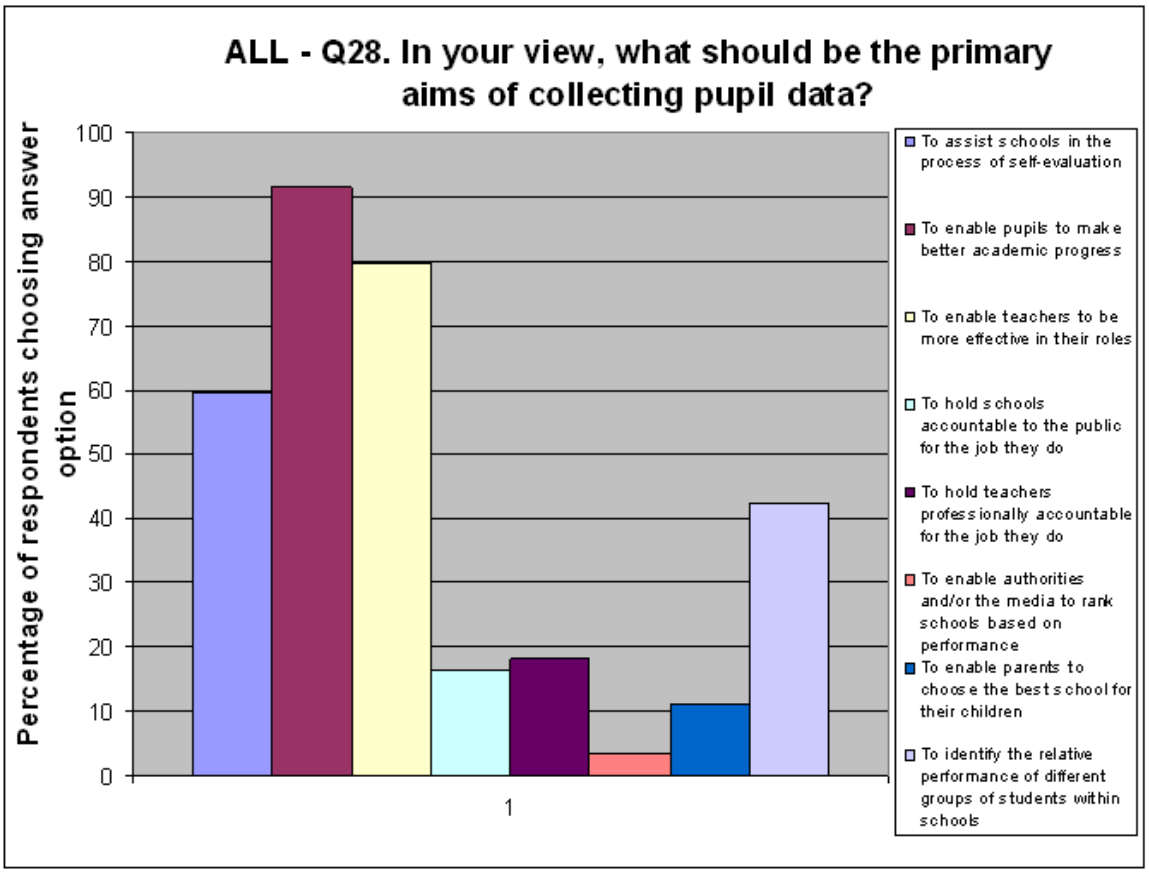


Fig 3.60

When asked what the reasons for pupil performance data collection and utilisation should be (offering the same answer options as previously), the responses (see Fig 3.60) were markedly different to those in Fig 3.37. There is clearly a huge difference between what respondents think are the existing reasons for collecting pupil performance data and what they think should be the reasons for collecting it. More than 90% feel that pupil performance data should be collected primarily 'to enable pupils to make better academic progress' (up 20% on what they think is the existing reason); about 80% think that it should be primarily to 'enable teachers to be more effective' (up about 15%).

All the other five answers selected for what should be the reason for data collection (Fig 3.60) are significantly down on what respondents thought were existing reasons (Fig 3.53), most noticeably with the four 'external' reasons (to hold schools accountable; to hold teachers accountable; to rank schools according to performance; to enable parents to choose the best school). What is quite clear is that teachers and school managers think the current reason why pupil performance data is collected is 'external' (i.e. for accountability and public use), but they think it should be about 'internal' use (i.e. for self-evaluation, and pupil and teacher improvement).

Telephone interviewees highlighted further the frustration teachers experience with what they perceive as inappropriate use of data regarding external accountability; what might be termed examples of 'unintelligent accountability' on the part of external agencies such as Local Authorities, Ofsted and Government. An example of this was brought into sharp relief by a middle manager in a National Challenge school with significantly low school-level CVA:

> *"I feel that there are mixed messages from governments about this. For example, our last year's FFT(D) which put us in the top 25% of schools in the country for value-added, says we should get 28% of our kids 5 or more A*-C GCSE grades including English and maths, but as a National Challenge school you have to get 30%. And we were beaten up as a rubbish school because we didn't get 30%. But if we're in the top 25% of schools nationally and we've only got 28%! And both those figures, both those sort of sets of demands, have come in theory from the same government! It's not joined-up thinking and it's a crude use of data."*
>
> School-wide pastoral leader, MM School

This respondent refers to both school level evaluation data and data used to inform target setting (including Fischer Family Trust estimates data, which is, in fact not produced by the government). The fact that the National Challenge attainment floor target and progress estimates based on value added statistical models can give rise to such different views of the challenge for this school is clearly difficult to reconcile in the eyes of this respondent. It illustrates the tensions that can arise for schools with challenging data profiles.

Others were concerned that an overemphasis on external school-level accountability detracts from a more focused use of data to evaluate pupil progress:

> *"I think our use of data is driven very much by external pressure. I don't think we would do half the data collection that we do if it wasn't required by somebody external. I think if we weren't requested constantly by these external people for data, I think data use would be much more specific and much better aimed at the individual student. We could take a much more holistic view."*
>
> Classroom teacher (and Union Rep), CC School

> *"All the other factors impacting on a student's performance are actually not helpful in predicting what a pupil should be getting. I appreciate it's very difficult because somebody has got to measure how much value a school is adding, so I know that we need a measure of value-added, but I would prefer to have teacher's own assessments of pupils taken more seriously."*
>
> Classroom teacher (English), CC School

School-wide leaders working in schools that fall within the controversial 'coasting' category demonstrate that these schools are experiencing substantial tensions giving rise to a focus on using school level evaluation data more to prove a point than to improve outcomes:

> *"Trying to analyse our value-added and work out where we have negative and positive residuals and what that will show us should be about looking at our capacity to improve, but instead we are just trying to prove that we should still be a viable institution and I do find that quite scary really."*
>
> Assistant head (and Data Manager), CT School

> *"The school is based in a … poor metropolitan area so we tend to be towards the bottom anyway, nationally, as a group. We've got huge pockets of deprivation. The kids where we are, in the great scheme of things, are making progress, but if you look at more affluent areas like Surrey or Lincolnshire - the shire counties - you're not going to make the same level gains that are expected by government. It is just not going to happen because the social impacts are too great."*
>
> School-wide pastoral leader (and SENCO), CC School

Not everyone views external pressures as necessarily negative. A key question is where the delicate balance in accountability-improvement tension lies. This response, from an experienced teacher in a school with high levels of raw attainment but significantly negative CVA, is telling. It suggests the accountability agenda may both inform and dictate that schools take a sophisticated approach to the tracking of pupil attainment and progress using a blend of data sources to inform expectations of individual and groups of pupils:

> *"Use of data is influenced by external pressures. I think because of the national agenda and Ofsted's new Section 8 criteria, we are looking increasingly at specific groups of students who are underachieving, and data is invaluable to us in helping us to identify where that is happening. It prevents these groups who seem to be trailing off at the bottom end of the results tables from underachieving. If we can intervene fast and see that they are actually not getting the scores that KS2 and CATs results tell us that they should be capable of getting, then we know that we can help them."*
>
> Advanced Skills teacher (English), PM School

Figure 3.61 shows the distribution of responses, to what respondents think should be the reasons for data collection, based on school type. The distribution is very similar for each school type with the internal uses for school improvement and self-evaluation scoring markedly higher than external accountability uses.

When the distribution of responses is shown against the responsibility range in schools, there are some subtle differences (Fig 3.62).

All teachers responded positively to using data 'to enable pupils to make better academic progress' and most 'to enable teachers to be more effective'.

Senior leaders were more positive than their junior colleagues about using data 'to assist schools with self-evaluation', 'to hold teachers professionally accountable for the job they do' and also the use of data 'to hold schools accountable to the public for the job they do'.

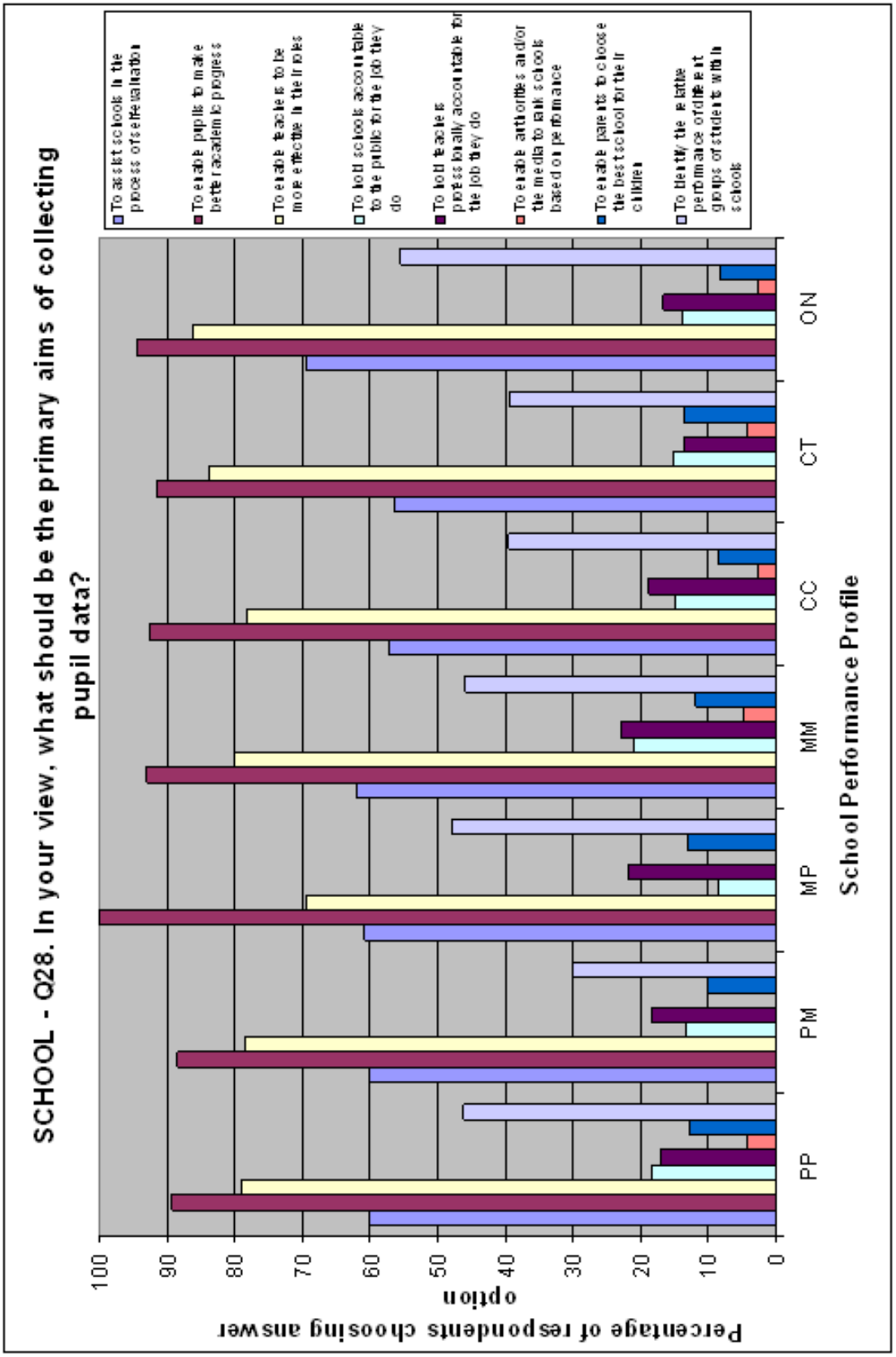

SCHOOL - Q28. In your view, what should be the primary aims of collecting pupil data?
To assist schools in the process of self-evaluation
To enable pupils to make better academic progress
To enable teachers to be more effective in the long run
To hold schools accountable to the public for the job they do
To hold teachers professionally accountable for the job they do
To enable authorities and/or the media to rank schools based on performance
To enable parents to choose the best school for their children
To identify the relative performance of different groups of students within schools
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
PP
PM
MP
MM
CC
CT
ON
School Performance Profile

Fig 3.61

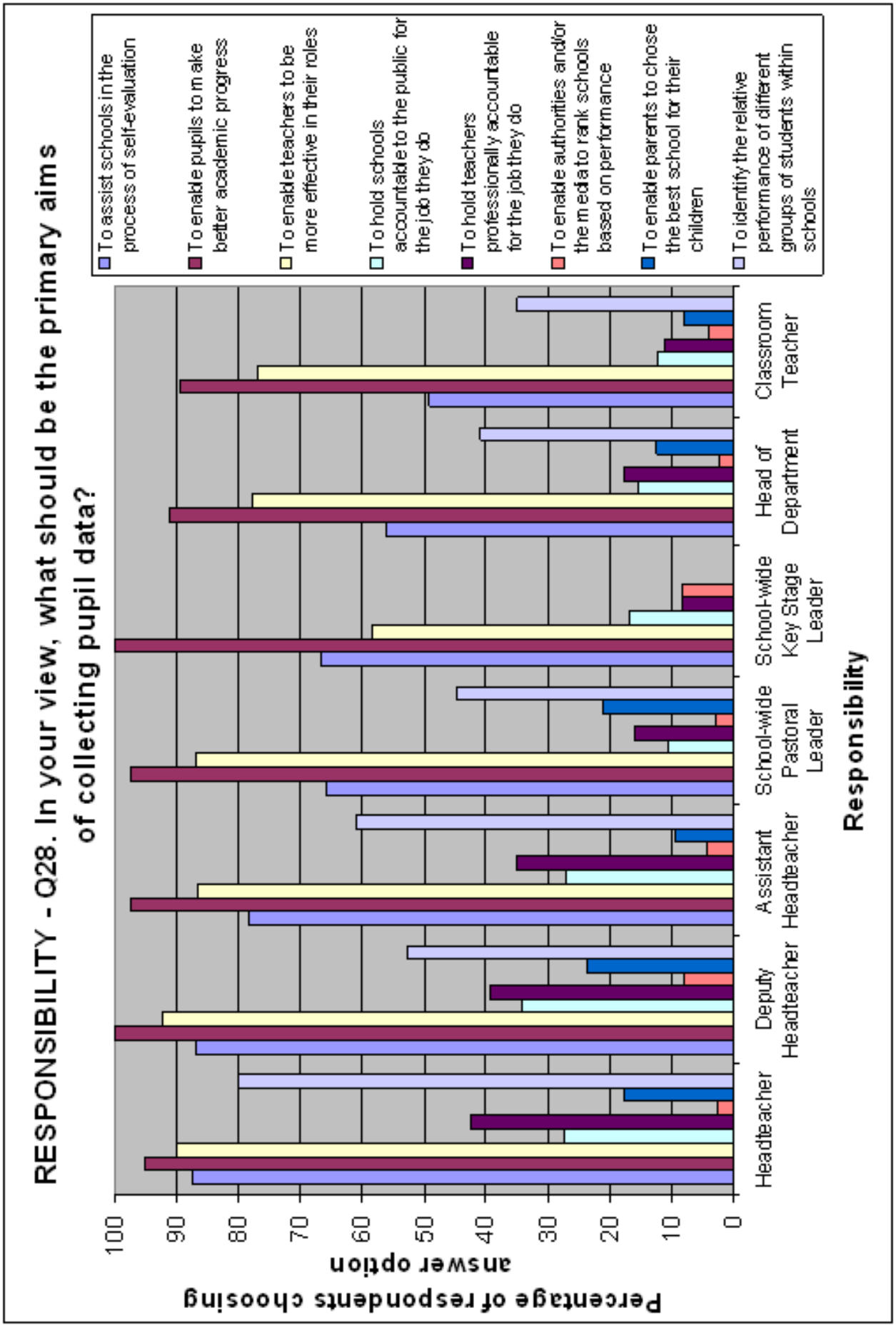

RESPONSIBILITY - Q28. In your view, what should be the primary aims of collecting pupil data?
To assist schools in the process of self-evaluation
To enable pupils to make better academic progress
To enable teachers to be more effective in their roles
To hold schools accountable to the public for the job they do
To hold teachers professionally accountable for the job they do
To enable authorities and/or the media to rank schools based on performance
To enable parents to chose the best school for their children
To identify the relative performance of different groups of students within schools
Percentage of respondents choosing answer option
100
90
80
70
60
50
40
30
20
10
0
Headteacher
Deputy Headteacher
Assistant Headteacher
School-wide Pastoral Leader
School-wide Key Stage Leader
Head of Department
Classroom Teacher
Responsibility

Fig 3.62

Not all classroom teachers are so positive about pupil level evaluation data being used to hold teachers to account, even in schools that have positive data pictures on both attainment and progress fronts:

> *"You do have this pressure and I think the data has made it more difficult for teachers to do the job. What if you are not achieving so well or if you are below some average that is artificially put? What happens then? Do you lose your job? It certainly does put pressure on teachers and it may influence retention of teachers."*
>
> Classroom teacher (mathematics), PP School

There is no significant relationship between subject specialism or length of time teaching and what respondents think should be the reasons for collecting pupil performance data.

Some interviewees expressed frustration with what they perceived to be inappropriate uses of data for internal accountability purposes. Some classroom teachers question the de-professionalisation that may result from data being used by senior colleagues in a literal rather than a provisional way (Saunders 2000 - see Fig 1.1) to make retrospective judgments of them as classroom teachers and to set what they perceive to be artificial or contrived expectations of pupil progress. The first set of comments refers to both evaluation data at the pupil level as well as pupil estimates data used to inform target setting:

> *"This year, after our GCSE results, we received spreadsheets with profile targets for each of our Year 11 pupils and we'd never seen that data before. So some kind of outside national agency had looked at the pupil attainment data and decided on the basis of that and their social class and where we are in the country that that individual pupil should have attained such and such a grade. And that is very difficult for teachers and very demoralising because they are the ones who know the pupils and how well they have been doing in previous years and really it's how they have been working in schools that makes the biggest difference in the grade they will achieve, not what somebody else fixes with a standardised test."*

> *"I think that [school leaders] are ticking government boxes. The man in charge of data is a mathematician. So they take the job seriously and all the children are put through their standardised tests in Year 7. I have been at this school for 2 years and I have expressed my frustration at the use of these arbitrarily created targets, and when we've had the chance to discuss it in whole-staff meetings, the relevant deputy has not been particularly helpful."*

> *"This is a two-way street and we are listened to in that sense. I believe those interim grades that I give are fed into the prediction of what the child will get overall, but I still think in the end, we get these arbitrary targets and I don't know exactly how they have been created, but I don't feel that they are very accurate. And they seem to get worse every year; they seem to set absurdly high targets which we then know we'll fail to reach. And they don't really explain how they get to these targets. I feel that somebody ought to be protesting about this because we get beaten with that stick."*

> *"I think teachers generally want to set stretching targets for their pupils so I think we should be trusted to do that. I think there is a little bit of an obsession with the science of standardised testing, certainly in English, which is my field. I think it is absurd. I strongly disagree with imposing targets that are created out of only standardised test results. I think I would much prefer a system where teachers were trusted"*
>
> Classroom teacher (English), CC School

This second set of responses is an example of what Saunders (2000) describes as a sceptical approach to data, especially that used to inform pupil target setting:

> *"There is an expectation to add two levels of attainment to our KS3 students and then another 2 levels of achievement when they reach KS4. So our students are supposed to achieve 4 levels of attainment in 5 years. And that is a policy, so there is an assumption that everybody will work towards that. If we didn't have that as a target, if we could somehow get rid of this artificial target of achieving ever better results than last year, then I believe we could actually use data much better for the children. With all the things that we are identifying like special needs and gifted children it could help us do what they want in a more personalised [way]. This is what happens: because we have to show growth, I teach my children things that will improve their grades compared to the children I taught before; even at the expense of spending time understanding algebra, for example. This pressure, which is a social pressure is less from parents [and] more from the school and from government.*
>
> *"Teachers who become managers don't teach so much anymore. So they forget that the job is about human beings and that motivation is very important."*
>
> Classroom teacher (mathematics), PP School

Respondents were given the opportunity (on the online questionnaire) to list additional reasons why pupil attainment data should be collected and to comment on why data should be collected. Here is a representative sample gathered under summary themes:

Concern: a focus on data can detract from an holistic approach to education

> *"I am very keen on making learners the centre of data use as part of a personalised learning approach. This is the method we are working towards currently within our department. Learners must take responsibility for their learning if they are to make progress, and it is easy to become demoralised by a successive stream of figures and grades constantly telling you that you are still at the bottom of the pile. Consideration of this psychological effect needs to be taken into account when considering how to use data."*
>
> *"I feel strongly that, while I accept we have to collect and analyse data and can learn a lot from it, children do not learn 'in a straight line' and we assess them and analyse the data too often, to the detriment of their learning."*

"As a teacher I collect data all the time but none of it can be expressed as a number or letter. Some of it is acted upon immediately in the classroom. We are supposed to call this 'Assessment for Learning', but what it actually is, is a teacher setting a task, watching what happens and then giving individuals the feedback and advice they need to take them forward. This is what I was trained to do and this is what I do all day, every day. Some of the data I collect is stored as a memory and acted upon later: a memo to a colleague; a phone call to a parent; a change to the way I present a task / skill / concept next time I teach it."

"So many things don't show up with test data. The whole picture is obscured. The child could be ill; undergoing some sort of family upheaval; or have Special Needs. CATs, for instance, only test individual words not whole sentences, and then projected grades are based on them."

"Although useful, I think parents and pupils should be encouraged to look at the whole picture of a school: what is offered; the general atmosphere;the rules etc."

Concern: tensions between accountability and improvement

"As long as my pay is measured by what level my students achieve, I will try to swing my levels as high as I can manage, by whatever means possible. Accurate data, which is meaningful to both student and teacher, must rest on teachers' professional judgement to be of any use. Yet my professional judgement is always going to be called into question if my pay depends on it."

"I think the key is more accurate data plus less emphasis on the data alone. League tables have meant that the target becomes everything: teaching is to targets [and] children lose independence as they become more spoon-fed. In other words, data is important but not [as] reliable as people think. Children become less, not more, motivated at the lower ability end."

"If league tables were abolished, data would be more accurate and teachers would have more faith in [its] reliability."

Concern: the need to distribute data to wide group of stakeholders

"Re parents: I think their involvement in understanding the data collected about their children and how they can assist with the progress of their child is crucial. Access to data online might be useful here, with an improved dialogue at secondary level; i.e. a partnership approach."

"The situation with regard to how data is used in my school is changing. I have been in post for six months and we have rewritten our assessment policy and are changing the way we present data and who is responsible for it. From September, all are responsible and all need, and all will get access."

"The collection and analysis of data should be a collective responsibility."

"It seems to me is that all the pupil data that we've got is… well, we hold most of it, say we'll hold 60% of it, and allow the kids to see maybe 20-30%, but nobody else. Maybe a social worker or external agencies; they might get to see some of it, but we don't seem to share that much with parents apart from maybe one grade at end of year reports and at parents evenings."

Concern: there is an over emphasis on the use of data

(leading some respondents to be highly sceptical of its place in school policy and practice)

"I think the whole process is nonsense and has been inflicted on schools by 'know-nothing' politicians. I taught in the USA and it is a much better system there with no silly data collections. The whole 'levels' business is a waste of time and is manipulated by teachers to avoid parental complaints. It is massively time consuming. Most parents don't understand it. I would rather go back to writing proper school reports."

"Are education standards any better now than prior to the fashion for collating data? It would free up a lot of admin time if we didn't devote so much time to the god 'Data'."

"I really like teaching but I despair at the state of our education system and the degree to which we are now driven by targets and data and learning objectives and learning outcomes and lesson objectives and WILF and TIB and all the rest of the [nonsense] that we have to deal with. I try to be a good teacher; I reckon I am a good teacher - the kids in my classes behave well, work hard, enjoy what we are doing and leave the room feeling that they have achieved something. They feel safe in my room and they enjoy what we are doing. I never put learning objectives on the board and never will. I want them to learn the stuff, not just know what I am supposed to be teaching them without actually learning it!"

"I hope that I will still be around when the education system realises how wrong it has been and once again allows teachers to do what they do best … but I don't think I will be!"

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Appendix A: The questionnaire

i) General Questions

1. What is your age category? (Please select one option)

20-25	☐
26-35	☐
36-45	☐
46-55	☐
56-65	☐

2. How long have you been teaching? (Please select one option)

Less than 1 year	☐
1-5 years	☐
6-10 years	☐
11-15 years	☐
16-20 years	☐
21-25 years	☐
26-30 years	☐
More than 30 years	☐

3. How long have you been teaching in your current school? (Please select one option)

Less than 1 year	☐
1-5 years	☐
6-10 years	☐
11-15 years	☐
16-20 years	☐
21-25 years	☐
26-30 years	☐
More than 30 years	☐

4. Are you male or female?

Male	☐
Female	☐

5. What is your main responsibility within the school? (Please select one option)

Classroom teacher	☐
Leadership of a subject area / department	☐
School-wide leadership of a Key Stage	☐
A school-wide Pastoral leadership role	☐
Assistant Headteacher	☐
Deputy Headteacher	☐
Headteacher	☐

Other (please describe your position)

6. If you are a classroom teacher, are you full-time or part-time?

Full-time	☐
Part-time	☐

7. What is (or was) your main subject specialism? (Please select one option)

Mathematics	☐
Science	☐
English	☐
Technology / Engineering	☐
ICT / Business Studies	☐
Media / Citizenship / Art / Drama	☐
Modern Foreign Languages / other Languages	☐
History / Geography / other Humanities	☐
Religious Education	☐
Physical Education	☐

ii) Use of data

8. How would you describe the extent of your use of pupil attainment and progress data? (Please select one option)

Frequent	☐
Regular	☐
Occasional	☐
Seldom	☐
Never	☐

9. How satisfied are you with your level of usage? (Please select one option)

Very satisfied	☐
Satisfied	☐
Neutral	☐
Dissatisfied	☐
Very dissatisfied	☐

10. Do you feel confident that you have the skills to access / utilise / interpret data?

yes	☐
no	☐

If you have answered 'no', what skills would you like to develop?

...and how would you like these skills to be developed?

11. If you do use pupil attainment data, do you use it to inform the way (or what) you teach (or how you manage) in a practical way?

yes	☐
no	☐

12. If you have answered 'yes', what do you use it for mainly? (Please select all that apply)

To evaluate pupil learning / performance	☐
To set targets for pupils	☐
To evaluate my own teaching	☐
To set targets for my own teaching	☐
To evaluate the teaching of colleagues	☐
To set targets for colleagues	☐
To evaluate my department / subject area	☐
For whole school evaluation	☐

Other (please state)

13. How would you rate your understanding of your school's pupil attainment and progress data (and how it is used)? (Please select one option)

Very good	☐
Good	☐
Moderate	☐
Poor	☐
Very poor	☐

14. How satisfied are you with this level of understanding? (Please select one option)

Very satisfied	☐
Satisfied	☐
Neutral	☐
Dissatisfied	☐
Very dissatisfied	☐

15. How often in the last five years have you had training or professional development in the area of data utilisation or data interpretation? (Please select one option)

- More frequently then annually ☐
- Annually ☐
- Less frequently then annually ☐
- Never ☐

16. How often do you make use of your own pupil data (e.g. from your class tests or continuous assessments)? (Please select one option)

- Frequently ☐
- Regularly ☐
- Occasionally ☐
- Seldom ☐
- Never ☐

17. In your opinion, is this data more or less useful to you than external sources of pupil progress and attainment data? (Please select one option)

- More useful ☐
- About the same ☐
- Less useful ☐
- If your own data is more useful or less useful, in what way? ☐

iii) Management of data

18. Which of the following statements best describes who manages your school's pupil attainment and progress data? (Please select one option)

- One senior colleague is primarily responsible for pupil data ☐
- A number of senior colleagues share responsibility for pupil data ☐
- A cross-curricular (or similar) team of teachers is responsible for pupil data ☐
- It is not clear to me who is responsible for our pupil attainment data ☐

19. Which of the following statements best describes who analyses your school's pupil attainment and progress data? (Please select one option)

A senior colleague analyses our pupil data	☐
A number of senior colleagues analyse our pupil data	☐
Pupil attainment and progress data is mostly analysed by Heads of Department	☐
Pupil attainment and progress data is mostly analysed by teachers within Departments	☐
Pupil attainment and progress data is mostly analysed by teachers within Pastoral teams	☐
It is not clear to me who is responsible for analysing our pupil data	☐

20. Which of the following statements best describes who interprets your school's pupil attainment and progress data? (Please select one option)

A senior colleague interprets our pupil data	☐
A number of senior colleagues interpret our pupil data	☐
Pupil attainment and progress data is mostly interpreted by Heads of Department	☐
Pupil attainment and progress data is mostly interpreted by teachers within Departments	☐
Pupil attainment and progress data is mostly interpreted by teachers within Pastoral teams	☐
It is not clear to me who is responsible for interpreting our pupil data	☐

21. Which of the following options best describe your preferred approach to analysing your school's pupil attainment and progress data? (Please select all that apply)

A senior colleague should analyse our data	☐
A number of senior colleagues should analyse our data	☐
Data should be mostly analysed by Heads of Department	☐
Data should be mostly analysed by teachers within Departments	☐
Data should be mostly analysed by teachers within Pastoral teams	☐
It is not clear to me who should be responsible for analysing our data	☐

22. Which of the following options best describe your preferred approach to interpreting your school's pupil attainment and progress data? (Please select all that apply)

- A senior colleague should interpret our data ☐
- A number of senior colleagues should interpret our data ☐
- Data should be mostly interpreted by Heads of Department ☐
- Data should be mostly interpreted by teachers within Departments ☐
- Data should be mostly interpreted by teachers within Pastoral teams ☐
- It is not clear to me who should be responsible for interpreting our data ☐

23. How would you describe the availability to you of your school's data on pupil attainment / progress? (Please select one option)

- Not available ☐
- Available ☐
- Widely / easily available ☐

24. If pupil attainment data is available to you, in what way is it available? (Please select one option)

- I can access pupil data and carry out my own analysis and interpretation ☐
- I can access pupil attainment data only in my subject area ☐
- Pupil attainment data is accessible to staff with a management role in the school ☐
- Pre-interpreted data is given to teaching staff by management ☐

25. Do you personally have access to data via RAISEOnline?

- yes ☐
- no ☐

iv) Reasons for collecting pupil data

26. In your view, what are currently the main reasons for collecting pupil attainment data? (Please select all that apply)

- [ ] To assist schools in the process of self-evaluation
- [ ] To enable pupils to make better academic progress
- [ ] To enable teachers to be more effective in their roles
- [ ] To hold schools accountable to the public for the job they do
- [ ] To hold teachers professionally accountable for the job they do
- [ ] To enable authorities and/or the media to rank schools based on performance
- [ ] To enable parents to chose the best school for their children
- [ ] To identify the relative performance of different groups of students within schools

Other (please describe your view)

27. How do you feel about these reasons for collecting pupil data? (Please select the one that best describes your feeling)

- [ ] I am indifferent
- [ ] I accept it as a necessary feature of my life as an educator
- [ ] I think it is desirable
- [ ] It irritates me and/or makes me feel resentful
- [ ] I feel rewarded for my hard work and/or it makes me feel good

28. In your view, what should be the primary aims of collecting pupil data? (Please select all that apply)

- [ ] To assist schools in the process of self-evaluation
- [ ] To enable pupils to make better academic progress
- [ ] To enable teachers to be more effective in their roles
- [ ] To hold schools accountable to the public for the job they do
- [ ] To hold teachers professionally accountable for the job they do
- [ ] To enable authorities and/or the media to rank schools based on performance
- [ ] To enable parents to chose the best school for their children
- [ ] To identify the relative performance of different groups of students within schools

Other (please describe your view)

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