Harnessing Technology Schools Survey 2009

Data report – Part 2, data analysis

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Helen Marshall, David Teeman, Ellie Mundy, Yin Lin, Jo Morrison, Tilaye Yeshanew, Vani Cardozo and Sue Stoddart

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1 Introduction

The Harnessing Technology Schools Survey 2009 is a national survey of ICT in primary, secondary and special schools. This report – part 2 of the data report – provides explanations in relation to four types of analysis:

- factor analysis
- cross tabulations, ANOVAs and correlations
- change over time
- regression analysis.

The paper is divided into four sections; each explains the purpose and findings of one of the types of analysis above.

The following reports are available separately:

- Analysis report:[1] the main findings and analyses from the 2009 Harnessing Technology Schools Survey.
- Data report, part 1:[2] the findings from every question in each of the three surveys (for school leaders, ICT co-ordinators and teachers); the findings for each question are also set out by school sector – by primary, secondary and special school sub-samples.
- Technical report:[3] details of the sampling processes and the methodology of the project.

2 Factor analysis

After frequencies had been produced for all questions, factor analysis was carried out to produce variables for use in further analysis. This analysis grouped together suitable questions that cover similar issues and used their correlations with each other to form factors, thus condensing information from a larger number of individual questions into a smaller number of factors while still retaining much of the information from the individual responses. Which questions were entered into each factor analysis was decided by the research team in conjunction with Becta; the questions corresponded to the themes covered in parts of the report.

2.1 Summary of factor analysis findings

The factor analyses were carried out separately for each type of respondent: senior leaders, teachers and ICT co-ordinators. Tables 2.1.1–2.1.3 show each factor and its

[1] Rudd, P., Teeman, D., Marshall, H. *et al*. (2009). *Harnessing Technology Schools Survey 2009: Analysis report*. Coventry: Becta.
[2] Marshall, H., Teeman, D. Mundy, E., *et al*. (2009). *Harnessing Technology Schools Survey 2009: Data report – Part 1, descriptive analysis*. Coventry: Becta.
[3] NFER (2009). *Harnessing Technology Schools Survey 2009: Technical report*. Coventry: Becta.

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constituent questions and Cronbach's alpha. Cronbach's alpha is a measure of internal consistency; it measures the degree to which the individual components of the scale all measure the same underlying construct. Cronbach's alpha has values in the range from 0 to 1, with values nearer to 1 indicating consistency.

Table 2.1.1: ICT co-ordinator factors

Factor	Question(s)	Cronbach's alpha
Use of Web 2.0 applications	Q23	0.803
Being well informed about learning platforms	Q32	0.962
Frequency of use of learning platforms	Q36	0.962
Encouraged use of own devices	Q31	0.732

Table 2.1.2: Senior leader factors

Factor	Question(s)	Cronbach's alpha
CPD – Skills audits/reviews/needs analysis	Q13	0.633
CPD – ICT skills development	Q14	0.768
CPD – collaborative/peer/mentor CPD	Q15	0.606
Priorities – learner progress	Q7d, Q7e	0.793
Priorities – remote access	Q7c, f, j	0.675
Priorities – individualised parental/pupil/SEN support	Q7g, h, i, k	0.576
Priorities – personalised learning	Q7a, b	0.625
Teaching of e-safety and other aspects of ICT	Q35	0.809
Parental engagement – pupil-specific	Q36a, b	0.868
Parental engagement – strategic	Q36f, g, h	0.824

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Table 2.1.3: Teacher factors

Factor	Question(s)	Cronbach's alpha
Teacher confidence	Q6, Q31, Q35	0.904
Time saving	Q40	0.722
Disruption to networks	Q19a, b	0.858
Disruption to ICT hardware	Q19c, d, e	0.864
Parental engagement – pupil-specific	Q45a, b	0.855
Parental engagement – strategic	Q45f, g, h	0.817
Usefulness of formal CPD	Q36, Q37g	0.702
Needing further CPD	Q38	0.833
Helpfulness of peer/collaborative CPD	Q37a-Q37d	0.746
Being informed about learning platforms	Q20	0.965
Usefulness of learning platforms	Q22, Q24	0.975
Use of resources – reusing materials	Q10	0.852
Use of resources – online resources	Q11a, b, c, f	0.637
Impact on learner engagement	Q41	0.920
Use ICT for pupils' independent learning	Q27a, e-k	0.859
Use ICT for pupils' sharing of information	Q27b, c, d	0.742
Assessment for Learning – planning and review	Q44a–e	0.865
Assessment for Learning – pupil-directed learning	Q44f, g	0.858
Access to equipment – networked computers	Q13a, b	0.621
Access to equipment – mobile devices	Q13e, h	0.606

2.2 Factor loading tables

This section provides factor loadings of the items constituting each factor. Factor loading is a measure of the strength of the relationship between the item and each factor; it takes values from –1 to +1. Values close to –1 or +1 indicate strong negative or positive relationships, while values close to zero suggest that there is little or no relationship between the items and the factor. Only the items that load on the factors are presented here.

2.2.1 ICT co-ordinator questionnaire factors

Table 2.2.1.1: Use of Web 2.0 applications

Question from ICT questionnaire	Factor loading
Q23a1 Online discussion groups	0.656

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Question from ICT questionnaire	Factor loading
Q23b1 Blogs	0.657
Q23c1 Wikis	0.518
Q23d1 Instant messaging	0.609
Q23e1 Social networking	0.678
Q23f1 Social bookmarking	0.685
Q23g1 Online virtual worlds	0.433
Q23h1 Media-sharing sites	0.476
Q23i1 Podcasting	0.454

A higher score of this factor indicates more encouragement for learners to use Web 2.0 technologies.

Table 2.2.1.2: Extent of being fully informed about using learning platforms

Question from ICT questionnaire	Factor loading
Q32a1 For delivering lessons	0.819
Q32b1 For planning work	0.822
Q32c1 For assessment	0.786
Q32d1 For personalisation of learning	0.845
Q32e1 For communicating with learners	0.903
Q32f1 For communication between learners	0.869
Q32g1 For communication with parents/carers	0.852
Q32h1 For communicating with colleagues	0.866
Q32i1 For communicating with others outside school	0.792

A higher score of this factor indicates being better informed about using learning platforms.

Table 2.2.1.3: Frequency of use of learning platforms for a range of tasks

Question from ICT questionnaire	Factor loading
Q36a1 For information about learner progress – learners	0.811
Q36b1 For information about learner progress – teaching staff	0.833
Q36c1 For information about learner progress – management	0.779
Q36d1 For information about learner progress – parents	0.620
Q36e1 As a repository for lesson plans	0.828
Q36f1 As a repository for learning resources for learners	0.837
Q36g1 As a repository for teaching software	0.752
Q36h1 For assessment of learning	0.840

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Question from ICT questionnaire	Factor loading
Q36i1 For assessment for learning	0.846
Q36j1 For assessment and hosting e-portfolios	0.728
Q36k1 For setting homework – learners to store work	0.833
Q36l1 For setting homework – learners to share work	0.836
Q36m1 For setting homework – dialogue with a learner about work	0.805
Q36n1 For Web 2.0 activities, wikis, blogs, podcasting, social networking	0.648

A higher score of this factor indicates the school uses learning platforms more frequently.

Table 2.2.1.4: Encourage learners to use their own devices

Question from ICT questionnaire	Factor loading
Q31a1 How often learners allowed to use mobile phones	0.713
Q31b1 How often learners allowed to use handheld computers	0.769
Q31c1 How often learners allowed to use laptops	0.636
Q31d1 How often learners allowed to use handheld games console	0.493

A higher score of this factor indicates that learners are encouraged to use their own devices more often.

2.2.2 Senior leader questionnaire factors

Table 2.2.2.1: CPD – ICT skills development

Question from senior leader questionnaire	Factor loading
Q14a1 General ICT skills	0.478
Q14b1 Skills in using ICT to support teaching	0.643
Q14c1 Skills in using ICT for specific subject matters	0.560
Q14d1 Skills in using specific software applications	0.655
Q14e1 Skills in using specific devices	0.566

A higher score of this factor indicates that there is a greater extent of focus on ICT skills development.

Table 2.2.2.2: CPD – skills audits/reviews/needs analysis

Question from senior leader questionnaire	Factor loading
Q13a1 Individual ICT CPD reviews	0.560
Q13b1 Staff ICT skills audits	0.738
Q13c1 Use of software for self-assessment of ICT skills	0.427

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Q13d1 Consideration of ICT curriculum considered 'weak' use of ICT	0.317

A higher score of this factor indicates that audits/reviews of skills occur more often.

Table 2.2.2.3: CPD – collaborative/peer/mentor CPD

Question from senior leader questionnaire	Factor loading
Q15a1 Teachers mentored by colleague	0.545
Q15b1 Collaborative learning between colleagues in the school	0.638
Q15c1 Collaborative learning with colleagues other schools	0.608
Q15d1 Participating in action research	0.391
Q15e1 Learning from an ICT expert	0.318

A higher score of this factor indicates that peer mentoring CPD activities are rated as more important.

Table 2.2.2.4: Priorities in strategies – personalised learning

Question from senior leader questionnaire	Factor loading
Q7a1 To promote independent learning	0.625
Q7b1 To promote personalised learning	0.654

A higher score of this factor indicates that personalised learning is given a higher priority within school.

Table 2.2.2.5: Priorities in strategies – learner progress

Question from senior leader questionnaire	Factor loading
Q7d1 To assess learner progress	0.768
Q7e1 To record learner progress	0.803

A higher score of this factor indicates that learner progress is given a higher priority within school.

Table 2.2.2.6: Priorities in strategies – remote access

Question from senior leader questionnaire	Factor loading
Q7c1 To extend learning beyond the classroom	0.627
Q7f1 To improve communications with parents	0.512
Q7j1 Using to support learning next three years – remote access study	0.658

A higher score of this factor indicates that remote access is given a higher priority within school.

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Table 2.2.2.7: Priorities in strategies – individualised parental/pupil SEN support

Question from senior leader questionnaire	Factor loading
Q7g1 To establish links with educational institutions	0.402
Q7h1 To provide parenting support	0.731
Q7i1 To better help pupils with SEN	0.381
Q7k1 To address attendance and behaviour challenges	0.349

A higher score indicates that individualised parental/pupil support is given a higher priority within school.

Table 2.2.2.8: Teaching of e-safety and other aspects of ICT

Question from senior leader questionnaire	Factor loading
Q35a1 Critical evaluation of information from the internet	0.730
Q35b1 History of information technology	0.635
Q35c1 Accessing services online	0.597
Q35d1 E-safety	0.638
Q35e1 Overview of websites	0.794

A higher score indicates that topics relating to e-safety are addressed more fully in lessons within school.

Table 2.2.2.9: Parental engagement – pupil-specific

Question from senior leader questionnaire	Factor loading
Q36a1 Improved ability to engage parents – assessment of their children's progress	0.833
Q36b1 Improved ability to engage parents – review of children's work	0.823

A higher score indicates a greater improvement in parental engagement with pupil-specific activities.

Table 2.2.2.10: Parental engagement – strategic

Question from senior leader questionnaire	Factor loading
Q36f1 Improved ability to engage parents – strategic developmental plans	0.765
Q36g1 Improved ability to engage parents – school finances	0.675
Q36h1 Improved ability to engage parents – school rules	0.730

A higher score indicates a greater improvement in parental engagement with strategic aspects of the school.

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2.2.3 Teacher questionnaire factors

Table 2.2.3.1: Teacher confidence

Question from teacher questionnaire	Factor loading
Q6A Presentations	0.589
Q6B Spreadsheets	0.475
Q6C Multimedia resources	0.551
Q6D Text documents	0.526
Q6E Images	0.611
Q6F Applications	0.598
Q31A Graphics tablets	0.558
Q31B Voting pads	0.495
Q31C Data projectors	0.586
Q31D Digital audio players	0.684
Q31E Digital multimedia microscopes	0.523
Q31F Location devices	0.601
Q31G Digital cameras	0.558
Q31H Digital video cameras	0.632
Q31I Smart phones	0.558
Q31J Video-conferencing equipment	0.527
Q35A Supporting personalising learning	0.547
Q35B Lesson planning	0.577
Q35C Assessment	0.501
Q35D Supporting own professional development	0.638
Q35E Lesson delivery	0.620
Q35F Classroom management	0.561
Q35G Communication with staff	0.498
Q35H Communication with learners	0.520
Q35I Communication with parents	0.404

A higher score of this factor indicates higher teacher confidence.

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Table 2.2.3.2: Time saving

Question from teacher questionnaire	Factor loading
Q40A Lesson planning	0.532
Q40B Marking/assessment	0.649
Q40C Report writing	0.544
Q40D Communication with pupils	0.750
Q40E Communication with parents	0.654
Q40F Communication with staff	0.617

A higher score of this factor indicates more time saved.

Table 2.2.3.3: Disruption to ICT hardware

Question from teacher questionnaire	Factor loading
Q19A School's network	0.731
Q19B School's internet connection	0.754

A higher score of this factor indicates more disruption to work because the problems are not usually dealt with before they cause disruption.

Table 2.2.3.4: Disruption to networks

Question from teacher questionnaire	Factor loading
Q19C Computers used by pupils	0.688
Q19D Interactive whiteboards	0.685
Q19E Printers	0.735

A higher score of this factor indicates more disruption to work because the problems are not usually dealt with before they cause disruption.

Table 2.2.3.5: Parental engagement – pupil-specific

Question from teacher questionnaire	Factor loading
Q45A Assessment of child's work	0.762
Q45B Assessment of child's progress	0.857

A higher score of this factor indicates there has been a greater improvement in parental engagement with pupil-specific activities.

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Table 2.2.3.6: Parental engagement – strategic

Question from teacher questionnaire	Factor loading
Q45F Strategic development plans	0.689
Q45G School finances	0.750
Q45H Governance/school rules	0.754

A higher score of this factor indicates there has been a greater improvement in parental engagement with strategic aspects of the school.

Table 2.2.3.7: Usefulness of formal CPD

Question from teacher questionnaire	Factor loading
Q36A Higher education course	0.640
Q36B Local authority course	0.648
Q36C Formal school-based CPD	0.519
Q36D Course run by commercial or freelance trainer off site	0.668
Q36E Informal school-based CPD	0.505
Q36F Online courses	0.731
Q37G Online learning	0.602

A higher score of this factor indicates formal CPD is rated as more useful.

Table 2.2.3.8: Helpfulness of peer/collaborative CPD

Question from teacher questionnaire	Factor loading
Q37A Being a mentor	0.689
Q37B Being mentored	0.832
Q37C Collaborative learning with others in school	0.729
Q37D Collaborative learning with colleagues in other schools	0.615

A higher score of this factor indicates that peer CPD is rated as more helpful.

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Table 2.2.3.9: Needing further CPD

Question from teacher questionnaire	Factor loading
Q38A Software packages	0.623
Q38B Technology for teaching and learning	0.775
Q38C Internet	0.594
Q38D Learning platform	0.457
Q38E Creating electronic resources	0.756
Q38F Supporting pupils' use of technology	0.768
Q38G Digital video or camera	0.603

A higher score of this factor indicates that further CPD is needed.

Table 2.2.3.10: Teachers are well informed about learning platforms

Question from teacher questionnaire	Factor loading
Q20A Delivering lessons	0.845
Q20B Planning work	0.856
Q20C Assessment	0.831
Q20D Personalisation of learning	0.881
Q20E Communicating with pupils	0.867
Q20F Communicating with colleagues	0.858
Q20G Communicating with parents/carers	0.860
Q20H Communicating with others outside school	0.839

A higher score of this factor indicates that teaches are better informed about learning platforms.

Table 2.2.3.11: Teachers' reported usefulness of learning platforms

Question from teacher questionnaire	Factor loading
Q22A1 Information about pupils' progress – for pupils	0.802
Q22B1 Information about pupils' progress – for teaching staff	0.859
Q22C1 Information about pupils' progress – for teaching support staff	0.854
Q22D1 Information about pupils' progress – for management	0.839
Q22E1 Information about pupils' progress – for parents	0.783
Q22F1 Repository of documents – lesson plans	0.846
Q22G1 Repository of documents – learning resources	0.867

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Question from teacher questionnaire	Factor loading
Q22H1 Repository of documents – teaching software	0.849
Q22I1 Online assessment – assessment of learning	0.866
Q22J1 Online assessment – Assessment for Learning	0.873
Q22K1 Online assessment – hosting e-portfolios	0.792
Q22L1 Setting homework – for pupils to store work	0.838
Q22M1 Setting homework – for pupils to share work	0.827
Q22N1 Setting homework – dialogue with pupil about work	0.812
Q22O1 Web 2.0-related activities – wikis, blogs, podcasting, social networking	0.696
Q241 Upload and store digital learning resources	0.673

A higher score of this factor indicates that teaches report that learning platforms are more useful.

Table 2.2.3.12: Teachers' use of resources – reusing materials

Question from teacher questionnaire	Factor loading
Q10A Presentations	0.798
Q10B Spreadsheets	0.570
Q10C Multimedia resources	0.752
Q10D Text documents	0.746
Q10E Images	0.679

A higher score of this factor indicates resources are adapted more frequently.

Table 2.2.3.13: Teachers' use of resources – online/electronic resources

Question from teacher questionnaire	Factor loading
Q11A Software on CD-ROM/DVD	0.412
Q11B Websites for teachers	0.759
Q11C Other websites	0.571
Q11F Online subscription services	0.414

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Table 2.2.3.14: Teachers' views of impact on learner engagement

Question from teacher questionnaire	Factor loading
Q41A Key Stage 1	0.760
Q41B Key Stage 2	0.837
Q41C Key Stage 3	0.890
Q41D Key Stage 4	0.867
Q41ef boys and girls	0.939
Q41G able or gifted	0.825
Q41H SEN	0.795

A higher score of this factor indicates stronger agreement that ICT has a positive impact on learner engagement.

Table 2.2.3.15: Teachers' use of ICT for pupils' independent learning

Question from teacher questionnaire	Factor loading
Q27A Finding, selecting and synthesising information	0.561
Q27E Analysing data or information	0.554
Q27F Problem solving	0.652
Q27G Developing ideas and creativity	0.740
Q27H Assessment for learning	0.613
Q27I Personalise learning	0.607
Q27J Presenting information	0.638
Q27K Discussing work	0.569

A higher score of this factor indicates more frequent use of ICT for pupils' independent learning.

Table 2.2.3.16: Teachers' use of ICT for pupils' sharing of information

Question from teacher questionnaire	Factor loading
Q27B Share information with other pupils	0.716
Q27C Share information with pupils in other schools	0.558
Q27D Share information with teaching staff	0.722

A higher score of this factor indicates more frequent use of ICT for pupils' sharing of information.

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Table 2.2.3.17: Assessment for Learning – planning and review

Question from teacher questionnaire	Factor loading
Q44A Record pupils' assessments accessibly	0.725
Q44B Reviews of pupils' performance	0.857
Q44C Areas for improvement	0.835
Q44D Planning for individualised learning	0.716
Q44E Test pupils' understanding of learning objectives	0.463

A higher score of this factor indicates more frequent use of ICT for planning and review elements of Assessment for Learning.

Table 2.2.3.18: Assessment for Learning – pupil-directed learning

Question from teacher questionnaire	Factor loading
Q44F Record pupils' feedback and ideas	0.930
Q44G Pupils' contributions to teaching materials	0.764

A higher score of this factor indicates more frequent use of ICT for pupil-directed learning elements of Assessment for Learning.

Table 2.2.3.19: Teachers' access to equipment – networked computers

Question from teacher questionnaire	Factor loading
Q13A Networked desktop computers	0.791
Q13B Networked laptop computers	0.530

A higher score of this factor indicates more access to networked computers.

Table 2.2.3.20: Teachers' access to equipment – mobile devices

Question from teacher questionnaire	Factor loading
Q13E Handheld computers	0.701
Q13H Mobile phones	0.619

A higher score of this factor indicates more access to mobile devices.

2.3 Other scores or variables created

As well as scores created using factor analysis, other scores or variables were also derived to aid further analysis. These variables were created by combining data from various data sources and questionnaire responses, and/or performing necessary calculations in preparation for regression analysis later.

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Table 2.3.1: Other scores or variables

Variable	Source
School attainment/improvement	National Pupil Database
Computer–pupil ratio	ICT Q4 and NFER's register of schools
Computer–teacher ratio	ICT Q4 and NFER's register of schools
Percentage of pupils with remote access	ICT Q27 and SL Q29
School has Home Access scheme	ICT Q28 and SL Q30
School has learning platform	ICT Q33 and T Q21
Comprehensiveness of e-safety policy	SL Q32 and SL Q32a
Budget/money	SL Q16
CPD spending	SL Q16a
Frequency of teachers' CPD experiences	T Q37

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3 Cross-tabulations, ANOVAs and correlations

This section provides explanations of cross-tabulation, one-way analysis of variance (ANOVA), and correlation analyses.

3.1 Cross-tabulations and ANOVAs

After basic frequencies have been produced and factors constructed, it may be interesting to explore whether two or more groups of respondents responded differently to a particular question, or whether one group of respondents scored higher in a factor compared to another group. The way in which the comparison is approached depends on the types of responses involved:

- If the variable of interest is categorical (eg use of Web 2.0 applications is encouraged/not encouraged), cross-tabulation with a statistical test of significance was used.
- If the variable of interest is numerical (eg a factor score of parental engagement), one-way analysis of variance (ANOVA) was used.

These two approaches differ mathematically but provide the same information: whether two or more groups differ in a variable of interest.

3.1.1 Cross-tabulation findings

Data from the three questionnaires was used for this analysis. For each cross-tabulation, respondents with missing responses or vague responses (eg 'don't know', 'not applicable') were not included. Therefore each cross-tabulation facilitated only a proportion of the sample which gave valid responses, and there is no guarantee that this proportion of the sample is representative of the national picture. Thus any resulting findings cannot be directly generalised to the national level.

Furthermore, due to schools not returning full sets of questionnaires from each of the three respondents (senior leaders, ICT co-ordinators and teachers), when comparing two respondent types, the respondents come from different schools. Thus any difference observed could be due to a difference relating to the schools the respondents come from rather than a difference relating to respondent types. Thus any significance in difference should be treated with caution.

Pearson's chi-square test was used to test whether the responses of the groups of respondents differ. Each test yields a significance value, which measures how likely it is that the differences observed would occur by chance, assuming there is no real difference between the two respondent groups. Typically, a significance value of 0.05 or less indicates that the difference is highly unlikely to have occurred by chance, and is probably due to a real difference of opinion. All 'significant' findings reported below have significance values less than 0.05.

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Analysis looked at how the answers to some questions related to various school background characteristics:

- Schools with Home Access schemes were compared with schools without, in terms of access to materials:
  - Senior leadership teams in schools with a Home Access scheme can access significantly more materials.
  - Teaching staff in schools with a Home Access scheme can access significantly more materials.
  - Teaching support staff in schools with a Home Access scheme can access significantly more materials.
  - There is no significant difference in terms of remote access to materials for other school staff.
  - Learners in schools with a Home Access scheme can access significantly more materials.
  - There is no significant difference in terms of remote access to materials for parents.
  - There is no significant difference in terms of remote access to materials for governors.
- Schools with Home Access schemes were compared with schools without, in terms of homework setting:
  - Teachers in schools with a Home Access scheme set homework that requires use of a computer significantly more often.
  - Teachers in schools with a Home Access scheme set homework that requires access to the internet significantly more often.

Views of teachers, senior leaders and ICT co-ordinators were compared on a range of questions. Analysis found that, in general:

- ICT co-ordinators are significantly more confident than teachers that staff can access the following equipment when they need to:
  - networked desktop computers
  - networked laptop computers
  - interactive whiteboards
  - digital projectors
  - handheld computers
  - digital video and camera equipment
  - specialist subject equipment
  - mobile phones/smart phones.
- ICT co-ordinators are significantly more confident than senior leaders that staff can access networked desktop computers when they need to.

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- Senior leaders are significantly more confident than ICT co-ordinators that staff can access the following equipment when they need to:
  - Digital video and camera equipment
  - Specialist subject equipment
  - Mobile phones/smart phones.
- No significant difference was found for the following equipment:
  - Networked laptop computers
  - Interactive whiteboards
  - Digital projectors
  - Handheld computers.
- Senior leaders are significantly more confident than teachers that staff can access the following equipment when they need to:
  - Networked desktop computers
  - Networked laptop computers
  - Interactive whiteboards
  - Digital projectors
  - Handheld computers
  - Digital video and camera equipment
  - Specialist subject equipment
  - Mobile phones/smart phones.
- Senior leaders compared with teachers reported, to a greater extent, that their schools encourage pupils to use the following applications to support their learning:
  - Online discussion groups
  - Blogs
  - Instant messaging
  - Social networking
  - Online virtual worlds
  - Podcasting.
- No significant difference was found for the following applications:
  - Wikis
  - Social bookmarking
  - Media-sharing sites.
- ICT co-ordinators compared with teachers reported, to a greater extent, that their schools encourage pupils to use the following applications to support their learning:
  - Online discussion groups
  - Blogs
  - Wikis
  - Instant messaging

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    - Social networking
    - Social bookmarking
    - Online virtual worlds
    - Podcasting.
- No significant difference was found for media-sharing sites.
- ICT co-ordinators compared with senior leaders reported, to a greater extent, that their schools encourage pupils to use wikis to support their learning.
- No significant difference was found for the following applications:
    - Online discussion groups
    - Blogs
    - Instant messaging
    - Social networking
    - Social bookmarking
    - Online virtual worlds
    - Media-sharing sites
    - Podcasting.
- Teachers reported that they are more fully informed about what a learning platform can contribute than senior leaders think they are, for the following activities:
    - Assessment
    - Communicating with pupils
    - Communicating with colleagues.
- No significant difference was found for the following activities:
    - Delivering lessons
    - Planning work
    - Personalisation of learning
    - Communicating with others outside their schools.
- Teachers compared with senior leaders reported, to a greater extent, that ICT has improved their school's ability to engage parents in relation to the following activities:
    - Assessment of their child's work
    - Assessment of their child's progress
    - Forthcoming work plans, lessons and assignments
    - Their child's behaviour
    - Achool's strategic development plans
    - Issues around governance/school rules
    - News about the school.
- No significant difference was found in relation to the following activities:
    - Their child's attendance

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    - School finances.
- Senior leaders are significantly more confident than teachers that staff are able to make best use of the following ICT when delivering lessons:
    - Graphic tablets
    - Voting pads
    - Multimedia/data projectors
    - Digital audio players
    - Digital multimedia microscopes
    - Digital still cameras
    - Digital video cameras
    - Smart phones
    - Sets of video-conferencing equipment
- No significant difference was found in relation to location devices.

Note: wordings of this question in the teacher questionnaire and the senior leader questionnaire were different, and results should be considered with caution.

- Teachers are significantly more confident than ICT co-ordinators that staff are able to make best use of the following ICT when delivering lessons:
    - Graphic tablets
    - Voting pads
    - Digital audio players
    - Location devices
    - Smart phones.
- ICT co-ordinators are significantly more confident than teachers that staff are able to make best use of the following ICT when delivering lessons:
    - Multimedia/data projectors
    - Digital multimedia microscopes
    - Digital still cameras.
- No significant difference was found for the following:
    - Digital video cameras
    - Sets of video-conferencing equipment.

Note: the wordings of this question in the teacher questionnaire and the ICT infrastructure questionnaire were different, and results should be considered with caution.

- Senior leaders are significantly more confident than ICT co-ordinators that staff are able to make best use of the following ICT when delivering lessons:
    - Graphic tablets
    - Voting pads
    - Multimedia/data projectors

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- Interactive whiteboards
- Digital audio players
- Digital multimedia microscopes
- Location devices
- Digital still cameras
- Digital video cameras
- Smart phones
- Sets of video-conferencing equipment.

3.1.2 ANOVA findings

Factor scores derived from the three questionnaires and other calculated variables were used for this analysis. ANOVA compares the mean (or average) of a score between different respondent groups. As in the case of cross-tabulation, a significance measure is produced; a value less than 0.05 indicates that there is a significant difference between the groups' averages, which is unlikely to be caused by chance. All 'significant' findings reported below have significance values less than 0.05.

- Schools with Home Access schemes and schools without Home Access schemes were compared. Analysis found that there is no significant difference in:
  - parental engagement in relation to their children's work and progress (pupil-specific parental engagement factor score)
  - parental engagement in strategic aspects of the school (strategic parental engagement factor score)
  - the use of Web 2.0 applications
  - the percentage of school budget spent on ICT.
- Schools whose network(s) are maintained by a managed service provider (MSP) – ie a local authority support service or an ICT supplier – were compared with schools whose network(s) are maintained otherwise. Analysis found that:
  - schools with network(s) managed by an MSP reported higher levels of teacher's access to networked computers
  - there is no significance difference in teacher's access to mobile devices
  - schools with network(s) managed by an MSP reported higher levels of disruption to networks
  - schools with network(s) managed by an MSP reported higher levels of disruption to ICT hardware
  - there is no significant difference in terms of parental engagement – either pupil-specific or strategic.

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- Analysis looked at how school size (in terms of the number of pupils in the school) is related to school's most frequent way of purchasing ICT equipment:
  - Smaller schools are more likely to purchase ICT equipment from their local authorities.
  - Larger schools are more likely to purchase ICT equipment from an ICT supplier or reseller.
  - Larger schools are more likely to purchase ICT equipment from other independent sources.
- Each school's strategy or improvement plan for ICT and/or e-learning was looked at in relation to school budget. Analysis found that:
  - having the ICT improvement plan embedded within the whole-school developmental plan is not related to the percentage of school budget spent on ICT
  - having the ICT improvement plan separate from the whole-school developmental plan is not related to the percentage of school budget spent on ICT
  - teaching ICT as a discrete subject or embedded in the overall curriculum is not related to the percentage of school budget spent on ICT.

3.2 Correlations

After comparing factor scores between groups of respondents, it may be interesting to know how two factor scores are related. The correlation between two scores explores how likely it is that there is a linear relationship between them. For example, it is possible to explore whether there is a link between schools' budgets for ICT and teachers' CPD in ICT; the correlation between these two factors shows whether the schools spending more on ICT are also those with more ICT CPD for teachers.

Correlation calculations require pairs of scores; therefore some schools were excluded if they didn't have pairs of scores. For example, information on a school's budgets for ICT was collected in the senior leader questionnaire, and teachers' CPD in ICT was collected in the teacher questionnaires. To find the correlation between these two factors, only schools returning both types of questionnaires could be included in the calculation. Hence each calculation facilitated only a proportion of the sample, and there is no guarantee that this proportion of the sample is representative of the national picture. Any resulting findings cannot be directly generalised to the national level.

Correlations can take values from –1 to +1. Values close to +1 or –1 indicate strong positive or negative linear relationships, while values close to 0 suggest that no apparent linear relationships exist.

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Table 3.2.1: Correlations

Factor 1	Factor 2	Correlation
Frequency of CPD experiences (TQ)	Time saving (TQ)	0.179
Per cent of budget spent on ICT	Use of Web 2.0 applications (ICT)	0.083
	ICT cords well informed on learning platforms (ICT)	0.149
	Frequency of use of learning platforms (ICT)	0.242
	Encouraged use of own devices (ICT)	0.062
	Total number of computers or PDAs for learners	0.137
	Total number of computers or PDAs for teachers	0.137
	Percentage of pupils with remote access	0.029
	CPD – skills audits/reviews/needs analysis (SLT)	0.079
	CPD – ICT skills development (SLT)	0.030
	CPD – collaborative/peer/mentor CPD (SLT)	0.048
	Priorities – learner progress (SLT)	–0.007
	Priorities – remote access (SLT)	0.082
	Priorities – individualised parental/pupil SEN support (SLT)	0.064
	Priorities in strategies – personalised learning (SLT)	0.025
	Parental engagement – pupil-specific (SLT)	0.090
	Parental engagement – strategic (SLT)	0.164
	Per cent pupils with remote access	0.006
	E-safety policy measure	0.060

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4 Change over time analysis

4.1 Introduction to change over time analysis

Following on from the Harnessing Technology Survey 2008, the 2009 survey contained many similar questions, such as the number of networked desktops in a school, and teachers' ratings of their confidence in ICT. When data allows, responses from the two surveys can be matched and compared so as to identify any significant changes in the year 2008–09.

In terms of mathematical techniques, the aim was again to identify whether the responses differ between two groups: the 2008 respondents and the 2009 respondents. Thus cross-tabulations and ANOVAs were used as appropriate (see Section 3.1).

The first two tables in Section 4.2 below (Tables 4.2.1.1 and 4.2.1.2) give the average (mean) number of computers in schools from the 2008 survey and the 2009 survey. Instances where the averages have changed between 2008 and 2009 – either increased or decreased – are indicated by an asterisk (*).

The subsequent tables in Sections 4.2 and 4.3 show the distribution of responses (percentages) from both the 2008 survey and the 2009 survey. Where these distributions are different (where there is a change of opinion or information), it is indicated with an asterisk (*) in the column labelled 'Significant?. Non-significant differences are indicated by an 'NS' in the 'Significant?' column, and this shows that any change from 2008 to 2009 is not sufficiently great, and is probably due to chance.

Unless stated otherwise, the 2009 responses were weighted in the same way as the descriptive analysis, so as to be representative of the national picture.

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4.2 Change over time tables

4.2.1 ICT co-ordinators and change over time

Table 4.2.1.1: Change over time of numbers of computers in schools

ICT equipment and user group	Year	N=	Mean	Significant?
Total number of computers for teachers	2008	523	66	NS
	2009	593	63	
Number of desktops for teachers	2008	453	42	NS
	2009	519	38	
Number of laptops for teachers	2008	513	29	NS
	2009	569	30	
Number of PDAs for teachers	2008	326	2	NS
	2009	363	2	
Total number of computers for pupils	2008	525	121	NS
	2009	594	130	
Number of desktops for pupils	2008	516	101	NS
	2009	588	105	
Number of laptops for pupils	2008	440	23	*
	2009	475	32	
Number of PDAs for pupils	2008	325	4	NS
	2009	332	2	
Overall number of pupils per computer	2008	523	5	NS
	2009	594	5	
Overall number of pupils per desktop	2008	514	6	NS
	2009	586	7	
Overall number of pupils per laptop	2008	358	45	*
	2009	405	32	

NS, not significant; * significant change over time.

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Table 4.2.1.2: Change over time of numbers of computers in schools by school type

School type	ICT equipment and user group	Year	N=	Mean	Significant?
Primary	Total number of computers for teachers	2008	165	23	NS
		2009	216	22	
	Number of desktops for teachers	2008	131	14	NS
		2009	172	13	
	Number of laptops for teachers	2008	164	12	NS
		2009	206	12	
	Number of PDAs for teachers	2008	95	1	NS
		2009	119	0	
	Total number of computers for pupils	2008	166	38	NS
		2009	215	43	
	Number of desktops for pupils	2008	162	27	*
		2009	211	32	
	Number of laptops for pupils	2008	133	15	NS
		2009	160	14	
	Number of PDAs for pupils	2008	98	0	NS
		2009	112	2	
	Overall number of pupils per computer	2008	165	7	NS
		2009	215	7	
	Overall number of pupils per desktop	2008	161	13	NS
		2009	210	12	
	Overall number of pupils per laptop	2008	97	42	NS
		2009	128	33	

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School type	ICT equipment and user group	Year	N=	Mean	Significant?
Secondary	Total number of computers for teachers	2008	170	146	NS
		2009	170	156	
	Number of desktops for teachers	2008	162	87	NS
		2009	163	89	
	Number of laptops for teachers	2008	167	61	NS
		2009	164	70	
	Number of PDAs for teachers	2008	125	4	NS
		2009	122	5	
	Total number of computers for pupils	2008	170	291	*
		2009	174	337	
	Number of desktops for pupils	2008	169	247	NS
		2009	172	273	
	Number of laptops for pupils	2008	156	44	*
		2009	155	72	
	Number of PDAs for pupils	2008	110	7	NS
		2009	104	4	
	Overall number of pupils per computer	2008	170	4	NS
		2009	174	4	
	Overall number of pupils per desktop	2008	169	4	NS
		2009	172	7	
	Overall number of pupils per laptop	2008	142	67	NS
		2009	147	46	
Special	Total number of computers for teachers	2008	187	31	NS
		2009	207	31	
	Number of desktops for teachers	2008	159	18	NS
		2009	184	17	
	Number of laptops for teachers	2008	181	16	NS
		2009	199	17	
	Number of PDAs for teachers	2008	105	1	NS
		2009	122	1	
	Total number of computers for pupils	2008	188	40	NS
		2009	205	46	

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School type	ICT equipment and user group	Year	N=	Mean	Significant?
	Number of desktops for pupils	2008	184	33	NS
		2009	204	38	
	Number of laptops for pupils*	2008	150	7	*
		2009	160	11	
	Number of PDAs for pupils	2008	116	3	NS
		2009	116	1	
	Overall number of pupils per computer	2008	188	3	NS
		2009	205	3	
	Overall number of pupils per desktop	2008	184	3	NS
		2009	203	3	
	Overall number of pupils per laptop*	2008	119	21	*
		2009	130	15	

NS, not significant; * significant change over time.

Table 4.2.1.3: Gender

School sector	Gender	Per cent in		Significant?
		2009	2008	
Primary	Male	26	23	NS
	Female	72	75	
Secondary	Male	73	72	NS
	Female	23	28	
Special	Male	42	40	NS
	Female	55	57	

Note: 2009 figures are un-weighted and will only be representative of the respondents.

NS, not significant.

Table 4.2.1.4: Current role in school*

School sector	Role	Per cent in:	
		2009	2008
Primary	ICT co-ordinator	54	64
	ICT subject leader	21	21
	Head of ICT	1	1
	ICT manager	4	5
	ICT advisor	<1	2
	Headteacher	4	9
	Deputy headteacher	3	7
	Assistant headteacher	1	2
	Bursar	2	0
	Other	2	5
Secondary	ICT co-ordinator	23	25
	ICT subject leader	11	11
	Head of ICT	14	29
	ICT manager	30	25
	ICT advisor	0	1
	Headteacher	0	0
	Deputy headteacher	1	3
	Assistant headteacher	6	8
	Bursar	0	0
	Other	5	4
Special	ICT co-ordinator	42	54
	ICT subject leader	11	13
	Head of ICT	5	6
	ICT manager	13	10
	ICT advisor	<1	1
	Headteacher	1	3
	Deputy headteacher	6	12
	Assistant headteacher	4	6

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School sector	Role	Per cent in:	
		2009	2008
	Bursar	1	1
	Other	6	7

*Statistical tests not requested. Note: 2009 figures are unweighted and will only be representative of the respondents.

Table 4.2.1.5: Graphic tablets available for teaching and learning

Number of graphic tablets	Per cent in:		Significant ?
	2008	2009	
None	76	69	*
Between 1 and 5	16	23	
Between 6 and 10	4	5	
Between 11 and 20	3	3	
Between 21 and 40	2	1	
N=	462	628	

* Significant change over time.

Table 4.2.1.6: Voting pads available for teaching and learning

Number of voting pads	Per cent in:		Significant ?
	2008	2009	
None	79	72	*
Between 1 and 10	3	6	
Between 11 and 20	3	4	
Between 21 and 40	9	13	
Between 41 and 60	3	4	
61 or more	3	2	
N=	461	631	

* Significant change over time.

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Table 4.2.1.7: Data projectors available for teaching and learning

Data projectors	Per cent in:		Significant?
	2008	2009	
None	16	8	*
Between 1 and 5	47	17	
Between 6 and 10	12	21	
Between 11 and 20	10	25	
Between 21 and 40	7	12	
Between 41 and 60	5	10	
61 or more	3	7	
N=	501	625	

* Significant change over time.

Table 4.2.1.8: Digital audio players available for teaching and learning

Digital audio players	Per cent in:		Significant ?
	2008	2009	
None	83	64	*
Between 1 and 5	11	24	
Between 6 and 10	4	7	
11 or more	2	5	
N=	450	630	

* Significant change over time.

Table 4.2.1.9: Digital multimedia microscopes available for teaching and learning

Digital multimedia microscopes	Per cent in:		Significant ?
	2008	2009	
None	22	24	NS
Between 1 and 5	74	69	
Between 6 and 10	3	6	
11 or more	1	2	
N=	489	633	

NS, not significant.

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Table 4.2.1.10: Location devices available for teaching and learning

Location devices	Per cent in:		Significant ?
	2008	2009	
None	95	91	
1 or more	5	9	*
N=	444	616	

* Significant change over time.

Table 4.2.1.11: Digital cameras available for teaching and learning

Digital cameras	Per cent in:		Significant ?
	2008	2009	
Between 0 and 5	30	25	
Between 6 and 10	39	36	
Between 11 and 20	25	30	*
21 or more	5	9	
N=	531	642	

* Significant change over time.

Table 4.2.1.12: Digital video cameras available for teaching and learning

Digital video cameras	Per cent in:		Significant ?
	2008	2009	
None	9	8	
Between 1 and 5	68	60	
Between 6 and 10	16	20	
Between 11 and 20	7	10	*
21 or more	1	2	
N=	516	643	

* Significant change over time.

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Table 4.2.1.13: Smart phones available for teaching and learning

Smart phones	Per cent in:		Significant ?
	2008	2009	
None	97	96	NS
1 or more	3	4	
N=	435	632	

NS, not significant.

Table 4.2.1.14: Video-conferencing equipment available for teaching and learning

Video-conferencing equipment	Per cent in:		Significant ?
	2008	2009	
None	73	73	NS
Between 1 and 5	26	26	
6 or more	1	1	
N=	461	636	

NS, not significant.

Table 4.2.1.15: Person with main responsibility for day-to-day maintenance and support for school's network(s)

School sector	Responsible for day-to-day maintenance	Per cent in:		Significant ?
		2009	2008	
Primary	Teacher/ICT co-ordinator	30	24	*
	Dedicated school-based ICT technician	13	15	
	ICT technician shared with another school	18	20	
	ICT technician loaned from another school	4	4	
	Local authority support service	19	18	
	ICT supplier	10	4	
	Other	6	17	
Secondary	Dedicated, school-based ICT technician	82	80	NS
	All others	18	18	

School sector	Responsible for day-to-day maintenance	Per cent in:		Significant ?
		2009	2008	
Special	Teacher/ICT co-ordinator	15	16	NS
	Dedicated, school-based ICT technician	43	39	
	ICT technician shared with another school/loaned from another school	11	11	
	Local authority support service	14	13	
	ICT supplier	7	4	
	Other	7	15	

Note: for secondary schools, categories combined because numbers are too low for statistical tests; for special schools, ICT technician shared from another school/loaned from another school combined, as numbers are too low for statistical tests.

NS, not significant, * significant change over time.

Table 4.2.1.16: Type of firewall(s) used

School sector	Type of firewall	Per cent in:		Significant ?
		2009	2008	
Primary	School managed software firewall	9	14	NS
	School managed firewall built into switch/router	5	4	NS
	Local authority managed firewall	69	64	NS
	Regional broadband consortium managed firewall	17	15	NS
	Internet service provider managed firewall	7	11	NS
	ICT supplier managed firewall	5	7	NS
	None	0	0	≠

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School sector	Type of firewall	Per cent in:		Significant ?
		2009	2008	
Secondary	School managed software firewall	33	39	NS
	School managed firewall built into switch/router	13	23	*
	Local authority managed firewall	65	65	NS
	Regional broadband consortium managed firewall	34	35	NS
	Internet service provider managed firewall	15	11	NS
	ICT supplier managed firewall	3	2	NS
	None	<1	0	≠
Special	School managed software firewall	14	14	NS
	School managed firewall built into switch/router	7	10	NS
	Local authority managed firewall	70	64	NS
	Regional broadband consortium managed firewall	17	20	NS
	Internet service provider managed firewall	11	12	NS
	ICT supplier managed firewall	5	7	NS
	None	0	1	≠

Note: As this was a 'tick all that apply' question, comparisons have to be done item by item.

NS, not significant; ≠ numbers too small for significance tests.

Table 4.2.1.17: Proportions of pupils who have home access to a computer

School sector	Type of home access to computers	Per cent in:		Significant ?
		2009	2008	
Primary	Computer loaned or leased by the school	4	24	≠
	Own/family-owned computer	75	71	NS
	No home access	23	30	NS

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School sector	Type of home access to computers	Per cent in:		Significant ?
		2009	2008	
Secondary	Computer loaned or leased by the school	4	10	≠
	Own/family-owned computer	84	81	NS
	No home access	12	18	NS
Special	Computer loaned or leased by the school	3	15	≠
	Own/family-owned computer	61	60	NS
	No home access	33	40	NS

≠ numbers too small for significance tests; NS, not significant.

Table 4.2.1.18: A specific Home Access scheme in place

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Yes	4	4	NS
	No	94	94	
Secondary	Yes	15	17	NS
	No	81	78	
Special	Yes	11	5	*
	No	88	92	

NS, not significant; * Significant change over time.

Table 4.2.1.19: School uses a learning platform

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Yes	40	21	*
	No	57	76	
Secondary	Yes	78	60	*
	No	20	35	
Special	Yes	41	30	*
	No	56	68	

* Significant change over time.

Table 4.2.1.20: Purchasing ICT hardware

School sector	Source of ICT	Per cent in:	Significant

		2009	2008	?
Primary	Regional broadband consortium	0	0	*
	Local authority	24	29	
	Another school or group of schools	1	0	
	ICT supplier or reseller	38	48	
	Other independent sources	34	14	
	Does not obtain this service	0	0	
Secondary	Regional broadband consortium	0	0	*
	Local authority	4	6	
	Another school or group of schools	0	0	
	ICT supplier or reseller	55	63	
	Other independent sources	39	24	
	Does not obtain this service	0	0	
Special	Regional broadband consortium	0	0	NS
	Local authority	20	22	
	Another school or group of schools	<1	1	
	ICT supplier or reseller	44	48	
	Other independent sources	32	22	
	Does not obtain this service	0	0	

Note: significance tests compare local authority, ICT supplier and other independent sources only – all other categories ignored as too small.

NS, not significant; * Significant change over time.

Table 4.2.1.21: Purchasing networking equipment

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Regional broadband consortium	1	2	*
	Local authority	27	35	
	Another school or group of schools	2	0	

School sector	Response	Per cent in:		Significant ?
		2009	2008	
	ICT supplier or reseller	31	36	
	Other independent sources	36	17	
	Does not obtain this service	1	–	
Secondary	Regional broadband consortium	0	0	NS
	Local authority	8	7	
	Another school or group of schools	1	1	
	ICT supplier or reseller	43	53	
	Other independent sources	45	34	
	Does not obtain this service	1	–	
Special	Regional broadband consortium	0	0	NS
	Local authority	28	28	
	Another school or group of schools	<1	2	
	ICT supplier or reseller	35	38	
	Other independent sources	33	27	
	Does not obtain this service	1	–	

Note: significance tests compare local authority, ICT supplier and other independent sources only – all other categories ignored as too small.

NS, not significant; * Significant change over time.

Table 4.2.1.22: Purchasing technical support and maintenance services

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Regional broadband consortium	0	1	*
	Local authority	37	46	
	Another school or group of schools	8	4	
	ICT supplier or reseller	17	19	
	Other independent sources	32	21	
	Does not obtain this service	1	1	

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School sector	Response	Per cent in:		Significant ?
		2009	2008	
Secondary	Regional broadband consortium	0	2	*
	Local authority	17	22	
	Another school or group of schools	1	1	
	ICT supplier or reseller	29	28	
	Other independent sources	31	18	
	Does not obtain this service	20	19	
Special	Regional broadband consortium	0	1	NS
	Local authority	46	49	
	Another school or group of schools	4	4	
	ICT supplier or reseller	16	13	
	Other independent sources	23	18	
	Does not obtain this service	6	7	

Note: for primary and special schools, significance tests compare local authority, ICT supplier, another school/group of schools and other independent sources only – all other categories ignored as too small; for secondary, significance tests compare local authority, ICT supplier and other independent sources only.

NS, not significant; * Significant change over time.

Table 4.2.1.23: Purchasing advice and guidance about design of school's ICT infrastructure

Schools sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Regional broadband consortium	0	1	NS
	Local authority	53	50	
	Another school or group of schools	5	2	
	ICT supplier or reseller	13	15	
	Other independent sources	19	14	
	Does not obtain this service	4	9	
Secondary	Regional broadband consortium	1	2	NS

Schools sector	Response	Per cent in:		Significant ?
		2009	2008	
	Local authority	21	22	
	Another school or group of schools	2	2	
	ICT supplier or reseller	20	21	
	Other independent sources	33	19	
	Does not obtain this service	19	26	
Special	Regional broadband consortium	<1	1	NS
	Local authority	46	49	
	Another school or group of schools	4	4	
	ICT supplier or reseller	16	10	
	Other independent sources	21	18	
	Does not obtain this service	8	10	

Note: for primary and special schools, significance tests compare local authority, ICT supplier, another school/group of schools, ICT supplier and other independent sources. Regional broadband consortium ignored as too small, and 'does not obtain this service' removed to make comparisons more useful. For secondary, significance tests compare local authority, ICT supplier and other independent sources only.

NS, not significant.

Table 4.2.1.24: Purchasing equipment for internet connectivity

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Regional broadband consortium	21	21	NS
	Local authority	62	67	
	Another school or group of schools	2	1	
	ICT supplier or reseller	5	2	
	Other independent sources	6	2	
	Does not obtain this service	0	1	
Secondary	Regional broadband consortium	35	34	NS
	Local authority	54	56	
	Another school or group of	0	1	

School sector	Response	Per cent in:		Significant ?
		2009	2008	
	schools			
	ICT supplier or reseller	4	3	
	Other independent sources	6	3	
	Does not obtain this service	0	0	
Special	Regional broadband consortium	18	24	NS
	Local authority	63	63	
	Another school or group of schools	1	2	
	ICT supplier or reseller	6	3	
	other independent sources	5	5	
	does not obtain this service	<1	0	

Note: significance tests compare regional broadband consortium, local authority, ICT supplier and other independent sources only – other categories ignored as too small.

NS, not significant.

Table 4.2.1.25: Responsibility for purchasing ICT hardware

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Headteacher	74	76	NS
	ICT co-ordinator	72	68	NS
	ICT manager/technician	29	24	NS
	Department heads	2	1	≠
	Bursar	7	6	NS
	Governors	28	14	*
	Other	2	1	≠
Secondary	Headteacher	31	32	NS
	ICT co-ordinator	41	49	NS
	ICT manager/technician	70	65	NS
	Department heads	7	13	*
	Bursar	14	11	NS
	Governors	8	3	*
	Other	8	10	NS

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School sector	Response	Per cent in:		Significant ?
		2009	2008	
Special	Headteacher	49	53	NS
	ICT co-ordinator	67	69	NS
	ICT manager/technician	44	46	NS
	Department heads	8	4	NS
	Bursar	10	12	NS
	Governors	11	13	NS
	Other	6	4	NS

≠ numbers too small for significance tests; NS, not significant; * significant change over time.

Table 4.2.1.26: Responsibility for purchasing networking equipment and cabling

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Headteacher	68	68	NS
	ICT co-ordinator	54	58	NS
	ICT manager/technician	37	29	NS
	Department heads	<1	1	≠
	Bursar	6	5	NS
	Governors	16	10	NS
	Other	1	2	≠
Secondary	Headteacher	15	22	NS
	ICT co-ordinator	27	36	NS
	ICT manager/technician	77	70	NS
	Department heads	<1	3	≠
	Bursar	12	10	NS
	Governors	3	2	≠
	Other	8	9	NS
Special	Headteacher	40	43	NS
	ICT co-ordinator	47	52	NS
	ICT manager/technician	51	52	NS
	Department heads	<1	2	≠
	Bursar	12	10	NS
	Governors	6	8	NS

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School sector	Response	Per cent in:		Significant ?
		2009	2008	
	Other	5	4	NS

NS, not significant; ≠ numbers too small for significance tests.

Table 4.2.1.27: Responsibility for purchasing technical support and maintenance services

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Headteacher	75	72	NS
	ICT co-ordinator	54	51	NS
	ICT manager/technician	26	24	NS
	Department heads	1	1	≠
	Bursar	8	6	NS
	Governors	17	7	*
	Other	1	2	≠
Secondary	Headteacher	22	26	NS
	ICT co-ordinator	24	34	*
	ICT manager/technician	72	66	NS
	Department heads	1	1	≠
	Bursar	14	12	NS
	Governors	5	1	*
	Other	8	9	NS
Special	Headteacher	52	52	NS
	ICT co-ordinator	41	45	NS
	ICT manager/technician	41	44	NS
	Department heads	<1	3	≠
	Bursar	14	13	NS
	Governors	7	8	NS
	Other	4	4	NS

NS, not significant; ≠ numbers too small for significance tests; * significant change over time.

Table 4.2.1.28: Confidence of teachers in using ICT to deliver the school curriculum

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	Very confident	21	17	NS
	Quite confident	70	76	
	Not very/not at all confident	8	7	
Secondary	Very confident	23	5	*
	Quite confident	62	76	
	Not very/not at all confident	13	15	
Special	Very confident	24	9	*
	Quite confident	61	72	
	Not very/not at all confident	14	17	

Note: not very and not at all categories collapsed because the not at all category is too small for sig tests.

NS, not significant; * significant change over time.

Table 4.2.1.29: Proportions of teachers enthusiastic towards using ICT in delivering the school curriculum

School sector	Response	Per cent in:		Significant ?
		2009	2008	
Primary	All/nearly all	29	31	NS
	Most	52	47	
	Some/few	19	20	
Secondary	All/nearly all	21	9	*
	Most	56	61	
	Some/few	22	27	
Special	All/nearly all	26	21	NS
	Most	48	46	
	Some/few	25	30	

Note: some and few categories collapsed because the ‘few’ category is too small for sig tests.

NS, not significant; * significant change over time.

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4.2.2 Senior leader change and change over time

Table 4.2.2.1: Gender

School sector	Gender	Per cent in:		Significant?
		2009	2008	
Primary	Male	26	19	NS
	Female	72	79	
Secondary	Male	66	65	NS
	Female	32	33	
Special	Male	48	37	*
	Female	46	60	

Note: 2009 figures are unweighted and will only be representative of the respondents.

NS, not significant; * significant change over time.

Table 4.2.2.2: Current role in school*

School sector	Role	Per cent in:	
		2009	2008
Primary	Headteacher	77	58
	Deputy headteacher	9	16
	Assistant headteacher	3	6
	Bursar	0	1
	ICT co-ordinator	4	7
	ICT subject leader	1	3
	Head of ICT	0	0
	ICT manager	0	1
	Other	5	4
Secondary	Headteacher	29	23
	Deputy headteacher	22	21
	Assistant headteacher	36	41
	Bursar	1	2
	ICT co-ordinator	2	3
	ICT subject leader	0	1
	Head of ICT	4	3
	ICT manager	1	1
	Other	3	2

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School sector	Role	Per cent in:	
		2009	2008
Special	Headteacher	51	47
	Deputy headteacher	19	24
	Assistant headteacher	16	14
	Bursar	1	1
	ICT co-ordinator	2	5
	ICT subject leader	1	1
	Head of ICT	1	1
	ICT manager	0	1
	Other	5	5

* Statistical tests not requested.

Note: 2009 figures are unweighted and are only representative of the respondents.

Table 4.2.2.3: A written strategy or improvement plan for ICT and/or e-learning

School sector	Have a written strategy	Per cent in:		Significant ?
		2009	2008	
Primary	Yes (embedded or separate)	90	92	NS
	No	5	4	
Secondary	Yes (embedded or separate)	89	85	NS
	No	5	11	
Special	Yes (embedded or separate)	86	93	NS
	No	5	4	

NS, not significant.

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Table 4.2.2.4: ICT taught as a discrete subject matter or embedded in overall curriculum

School sector	Response	Per cent in:		Significant?
		2009	2008	
Primary	Discrete	24	21	NS
	Embedded	69	72	
Secondary	Discrete	85	91	NS
	Embedded	12	9	
Special	Discrete	28	65	*
	Embedded	66	29	

NS, not significant; * significant change over time.

Table 4.2.2.5: Participated in ICT leadership training in past two years

School sector	Response	Per cent in:		Significant?
		2009	2008	
Primary	Yes	35	29	NS
	No	63	69	
Secondary	Yes	43	27	*
	No	55	70	
Special	Yes	25	26	NS
	No	74	73	

NS, not significant; * significant change over time.

4.2.3 Teacher and change over time

Table 4.2.3.1: Gender

School sector	Gender	Per cent in:		Significant?
		2009	2008	
Primary	Male	13	12	NS
	Female	86	85	
Secondary	Male	42	46	NS
	Female	56	51	
Special	Male	26	28	NS
	Female	72	68	

Note: 2009 figures are unweighted and are only representative of the respondents.

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Table 4.2.3.2: Key stage taught*

School sector	Year group	Per cent in:	
		2009	2008
Primary	Foundation Stage	20	21
	Key Stage 1	40	46
	Key Stage 2	51	50
	Key Stage 3	1	0
	Key Stage 4	<1	0
	Post 16	<1	0
Secondary	Foundation Stage	0	0
	Key Stage 1	0	0
	Key Stage 2	18	9
	Key Stage 3	91	96
	Key Stage 4	76	89
	Post 16	42	45
Special	Foundation Stage	9	12
	Key Stage 1	17	21
	Key Stage 2	31	36
	Key Stage 3	52	57
	Key Stage 4	49	54
	Post 16	17	15

Note: 2009 figures are unweighted and are only representative of the respondents.

*Statistical tests not requested.

Table 4.2.3.3: Current role in school

School sector	Role	Per cent in:	
		2009	2008
Primary	Department head	3	4
	Subject co-ordinator	24	42
	Class teacher	59	39
	SENCO	3	2
	Other	9	11

School sector	Role	Per cent in:	
		2009	2008
Secondary	Department head	53	76
	Subject co-ordinator	16	10
	Class teacher	22	7
	SENCO	1	0
	Other	7	6
Special	Department head	15	16
	Subject co-ordinator	31	38
	Class teacher	38	34
	SENCO	1	1
	Other	13	10

Note: 2009 figures are unweighted and are only representative of the respondents.

*Statistical tests not requested.

Table 4.2.3.4: Time saved/lost each week by using ICT planning lessons

School sector	Time saved each week for lesson planning	Per cent in:		Significant ?
		2009	2008	
Primary	Save more than 2 hours	27	21	NS
	Save between 1 and 2 hours	19	20	
	Save up to 1 hour	20	18	
	Does not make any difference	22	25	
	Lose up to 1 hour	3	4	
	Lose between 1 and 2 hours	3	4	
	Lose more than 2 hours	3	3	
	No access/N/A (don't use ICT for this task)	<1	5	
Secondary	Save more than 2 hours	26	15	*
	Save between 1 and	15	13	

School sector	Time saved each week for lesson planning	Per cent in:		Significant ?
		2009	2008	
	2 hours			
	Save up to 1 hour	17	15	
	Does not make any difference	29	31	
	Lose up to 1 hour	4	6	
	Lose between 1 and 2 hours	3	5	
	Lose more than 2 hours	3	3	
	No access/N/A (don't use ICT for this task)	1	9	
Special	Save more than 2 hours	21	18	NS
	Save between 1 and 2 hours	20	20	
	Save up to 1 hour	19	24	
	Does not make any difference	30	25	
	Lose up to 1 hour	2	3	
	Lose between 1 and 2 hours	2	2	
	Lose more than 2 hours	1	2	
	No access/N/A (don't use ICT for this task)	0	5	

NS, not significant; * significant change over time.

Table 4.2.3.5: Time saved/lost each week by using ICT for marking/assessment

School sector	Time saved each week for marking/assessment	Per cent in:		Significant ?
		2009	2008	
Primary	Save more than 2 hours	4	2	NS
	Save between 1 and 2 hours	5	5	

School sector	Time saved each week for marking/assessment	Per cent in:		Significant ?
		2009	2008	
	Save up to 1 hour	11	10	
	Does not make any difference	58	42	
	Lose up to 1 hour	4	3	
	Lose between 1 and 2 hours	2	1	
	Lose more than 2 hours	<1	1	
	No access/N/A (don't use ICT for this task)	13	33	
Secondary	Save more than 2 hours	9	5	
	Save between 1 and 2 hours	12	8	
	Save up to 1 hour	16	15	
	Does not make any difference	47	42	
	Lose up to 1 hour	3	5	*
	Lose between 1 and 2 hours	2	3	
	Lose more than 2 hours	1	2	
	No access/N/A (don't use ICT for this task)	6	17	
Special	Save more than 2 hours	6	7	
	Save between 1 and 2 hours	9	6	
	Save up to 1 hour	13	12	
	Does not make any difference	54	38	
	Lose up to 1 hour	2	5	NS
	Lose between 1 and 2 hours	1	2	
	Lose more than 2 hours	1	1	
	No access/N/A (don't use ICT for this task)	8	25	

NS, not significant; * significant change over time.

Table 4.2.3.6: Time saved/lost each week by using ICT for report writing

School sector	Time saved each week for report writing	Per cent in:		Significant ?
		2009	2008	
Primary	Save more than 2 hours	30	39	*
	Save between 1 and 2 hours	11	11	

School sector	Time saved each week for report writing	Per cent in:		Significant ?
		2009	2008	
	Save up to 1 hour	18	14	
	Does not make any difference	27	23	
	Lose up to 1 hour	1	0	
	Lose between 1 and 2 hours	1	0	
	Lose more than 2 hours	3	3	
	No access/N/A (don't use ICT for this task)	4	6	
Secondary	Save more than 2 hours	17	14	*
	Save between 1 and 2 hours	13	15	
	Save up to 1 hour	31	24	
	Does not make any difference	25	26	
	Lose up to 1 hour	4	6	
	Lose between 1 and 2 hours	3	3	
	Lose more than 2 hours	2	4	
	No access/N/A (don't use ICT for this task)	1	2	
Special	Save more than 2 hours	19	22	NS
	Save between 1 and 2 hours	15	16	
	Save up to 1 hour	24	24	
	Does not make any difference	29	25	
	Lose up to 1 hour	3	2	
	Lose between 1 and 2 hours	1	1	
	Lose more than 2 hours	2	2	
	No access/N/A (don't use ICT for this task)	2	4	

NS, not significant; * significant change over time.

Table 4.2.3.7: Time saved/lost each week by using ICT for communicating with pupils

School sector	Time saved each week for communication with pupils	Per cent in:		Significant ?
		2009	2008	
Primary	Save more than 2 hours	1	0	NS

School sector	Time saved each week for communication with pupils	Per cent in:		Significant ?
		2009	2008	
	Save between 1 and 2 hours	2	2	
	Save up to 1 hour	5	2	
	Does not make any difference	55	30	
	Lose up to 1 hour	1	0	
	Lose between 1 and 2 hours	<1	0	
	Lose more than 2 hours	0	0	
	No access/N/A (don't use ICT for this task)	33	63	
Secondary	Save more than 2 hours	4	1	*
	Save between 1 and 2 hours	5	3	
	Save up to 1 hour	13	8	
	Does not make any difference	57	48	
	Lose up to 1 hour	3	2	
	Lose between 1 and 2 hours	<1	0	
	Lose more than 2 hours	<1	0	
	No access/N/A (don't use ICT for this task)	14	33	
Special	Save more than 2 hours	2	2	NS
	Save between 1 and 2 hours	2	2	
	Save up to 1 hour	6	5	
	Does not make any difference	57	36	
	Lose up to 1 hour	<1	1	
	Lose between 1 and 2 hours	0	0	
	Lose more than 2 hours	<1	0	
	No access/N/A (don't use ICT for this task)	26	48	

NS, not significant; * significant change over time.

Table 4.2.3.8: Time saved/lost each week by using ICT for communicating with parents

School sector	Time saved each week for communication with parents	Per cent in:		Significant?
		2009	2008	
Primary	Save more than 2 hours	<1	1	*

School sector	Time saved each week for communication with parents	Per cent in:		Significant?
		2009	2008	
	Save between 1 and 2 hours	1	2	
	Save up to 1 hour	6	8	
	Does not make any difference	51	32	
	Lose up to 1 hour	1	1	
	Lose between 1 and 2 hours	0	0	
	Lose more than 2 hours	0	0	
	No access/N/A (don't use ICT for this task)	36	53	
Secondary	Save more than 2 hours	2	2	NS
	Save between 1 and 2 hours	3	2	
	Save up to 1 hour	10	12	
	Does not make any difference	60	46	
	Lose up to 1 hour	2	2	
	Lose between 1 and 2 hours	<1	0	
	Lose more than 2 hours	0	0	
	No access/N/A (don't use ICT for this task)	20	31	
Special	Save more than 2 hours	2	2	NS
	Save between 1 and 2 hours	2	2	
	Save up to 1 hour	6	8	
	Does not make any difference	52	36	
	Lose up to 1 hour	1	1	
	Lose between 1 and 2 hours	0	0	
	Lose more than 2 hours	<1	0	
	No access/N/A (don't use ICT for this task)	31	47	

NS, not significant; * significant change over time.

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Table 4.2.3.9: Time saved/lost each week by using ICT for communicating with staff

School sector	Time saved each week for communication with staff	Per cent in:		Significant ?
		2009	2008	
Primary	Save more than 2 hours	1	1	NS
	Save between 1 and 2 hours	2	3	
	Save up to 1 hour	17	12	
	Does not make any difference	56	37	
	Lose up to 1 hour	2	1	
	Lose between 1 and 2 hours	<1	0	
	Lose more than 2 hours	<1	0	
	No access/N/A (don't use ICT for this task)	18	43	
Secondary	Save more than 2 hours	13	9	NS
	Save between 1 and 2 hours	12	11	
	Save up to 1 hour	30	26	
	Does not make any difference	30	29	
	Lose up to 1 hour	4	5	
	Lose between 1 and 2 hours	2	3	
	Lose more than 2 hours	2	1	
	No access/N/A (don't use ICT for this task)	4	12	
Special	Save more than 2 hours	5	3	NS
	Save between 1 and 2 hours	6	6	
	Save up to 1 hour	17	14	
	Does not make any difference	50	41	
	Lose up to 1 hour	2	1	
	Lose between 1 and 2 hours	<1	0	
	Lose more than 2 hours	<1	0	
	No access/N/A (don't use ICT for this task)	12	32	

NS, not significant; * significant change over time.

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Table 4.2.3.10: ICT has a positive impact on the engagement of Key Stage 1 pupils

School sector	ICT has a positive impact on engagement of KS1 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	56	46	*
	Agree	40	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	8	
Secondary	Strongly agree	51	39	*
	Agree	29	42	
	Disagree/Strongly disagree/ Neither agree nor disagree	20	19	
Special	Strongly agree	60	57	NS
	Agree	36	37	
	Disagree/Strongly disagree/ Neither agree nor disagree	4	6	

NS, not significant; * significant change over time.

Table 4.2.3.11: ICT has a positive impact on the engagement of Key Stage 2 pupils

School sector	ICT has a positive impact on engagement of KS2 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	64	50	*
	Agree	32	46	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	4	
Secondary	Strongly agree	51	37	*
	Agree	36	48	
	Disagree/Strongly disagree/ Neither agree nor disagree	13	15	
Special	Strongly agree	60	58	NS
	Agree	38	38	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	5	

NS, not significant; * significant change over time.

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Table 4.2.3.12: ICT has a positive impact on the engagement of Key Stage 3 pupils

School sector	ICT has a positive impact on engagement on KS3 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	67	55	*
	Agree	23	41	
	Disagree/Strongly disagree/ Neither agree nor disagree	9	4	
Secondary	Strongly agree	53	33	*
	Agree	44	56	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	11	
Special	Strongly agree	64	54	*
	Agree	33	41	
	Disagree/Strongly disagree/ Neither agree nor disagree	2	5	

* Significant change over time.

Table 4.2.3.13: ICT has a positive impact on the engagement of Key Stage 4 pupils

School sector	ICT has a positive impact on engagement on KS4 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	67	53	*
	Agree	23	43	
	Disagree/Strongly disagree/ Neither agree nor disagree	10	4	
Secondary	Strongly agree	54	36	*
	Agree	41	53	
	Disagree/Strongly disagree/ Neither agree nor disagree	4	11	
Special	Strongly agree	68	54	*
	Agree	30	40	
	Disagree/Strongly disagree/ Neither agree nor disagree	2	6	

* Significant change over time.

Table 4.2.3.14: ICT has a positive impact on the engagement of girls

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School sector	ICT has a positive impact on engagement on girls	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	54	39	*
	Agree	44	52	
	Disagree/Strongly disagree/ Neither agree nor disagree	2	9	
Secondary	Strongly agree	44	29	*
	Agree	51	55	
	Disagree/Strongly disagree/ Neither agree nor disagree	4	16	
Special	Strongly agree	59	50	*
	Agree	38	42	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	7	

* Significant change over time.

Table 4.2.3.15: ICT has a positive impact on the engagement of boys

School sector	ICT has a positive impact on engagement on boys	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	67	56	*
	Agree	31	39	
	Disagree/Strongly disagree/ Neither agree nor disagree	2	5	
Secondary	Strongly agree	59	43	*
	Agree	37	47	
	Disagree/Strongly disagree/ Neither agree nor disagree	4	11	
Special	Strongly agree	65	55	*
	Agree	33	40	
	Disagree/Strongly disagree/ Neither agree nor disagree	2	5	

* Significant change over time.

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Table 4.2.3.16: ICT has a positive impact on the engagement of able or gifted and talented pupils

School sector	ICT has a positive impact on engagement on able or gifted and talented pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	61	50	*
	Agree	35	42	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	8	
Secondary	Strongly agree	56	39	*
	Agree	39	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	5	16	
Special	Strongly agree	67	63	NS
	Agree	27	28	
	Disagree/Strongly disagree/ Neither agree nor disagree	5	9	

NS, not significant; * significant change over time.

Table 4.2.3.17: ICT has a positive impact on the engagement of pupils with SEN

School sector	ICT has a positive impact on engagement of pupils with SEN	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	61	53	*
	Agree	36	39	
	Disagree/Strongly disagree/ Neither agree nor disagree	3	7	
Secondary	Strongly agree	59	41	*
	Agree	36	47	
	Disagree/Strongly disagree/ Neither agree nor disagree	5	12	
Special	Strongly agree	71	60	*
	Agree	28	36	
	Disagree/Strongly disagree/ Neither agree nor disagree	1	4	

NS, not significant; * significant change over time.

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Table 4.2.3.18: ICT has a positive impact on the attainment of Key Stage 1 pupils

School sector	ICT has a positive impact on attainment of KS1 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	38	28	*
	Agree	52	43	
	Disagree/Strongly disagree/ Neither agree nor disagree	10	29	
Secondary	Strongly agree	39	28	NS
	Agree	38	44	
	Disagree/Strongly disagree/ Neither agree nor disagree	23	28	
Special	Strongly agree	49	38	*
	Agree	43	43	
	Disagree/Strongly disagree/ Neither agree nor disagree	8	19	

NS, not significant; * significant change over time.

Table 4.2.3.19: ICT has a positive impact on the attainment of Key Stage 2 pupils

School sector	ICT has a positive impact on attainment of KS2 pupils	Per cent in:		Significant ?
		2009	2008	
Primary	Strongly agree	40	28	*
	Agree	51	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	9	26	
Secondary	Strongly agree	38	24	*
	Agree	43	48	
	Disagree/Strongly disagree/ Neither agree nor disagree	19	27	
Special	Strongly agree	48	38	*
	Agree	44	44	
	Disagree/Strongly disagree/ Neither agree nor disagree	8	18	

NS, not significant; * significant change over time.

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Table 4.2.3.20: ICT has a positive impact on the attainment of Key Stage 3 pupils

School sector	ICT has a positive impact on attainment of KS3 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	44	27	*
	Agree	41	47	
	Disagree/Strongly disagree/ Neither agree nor disagree	15	26	
Secondary	Strongly agree	38	23	*
	Agree	55	51	
	Disagree/Strongly disagree/ Neither agree nor disagree	7	27	
Special	Strongly agree	50	34	*
	Agree	44	46	
	Disagree/Strongly disagree/ Neither agree nor disagree	6	20	

NS, not significant; * significant change over time.

Table 4.2.3.21: ICT has a positive impact on the attainment of Key Stage 4 pupils

School sector	ICT has a positive impact on attainment of KS4 pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	45	26	*
	Agree	40	48	
	Disagree/Strongly disagree/ Neither agree nor disagree	15	26	
Secondary	Strongly agree	40	24	*
	Agree	53	52	
	Disagree/Strongly disagree/ Neither agree nor disagree	7	23	
Special	Strongly agree	51	35	*
	Agree	42	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	7	20	

NS, not significant; * significant change over time.

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Table 4.2.3.22: ICT has a positive impact on the attainment of girls

School sector	ICT has a positive impact on attainment of girls	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	38	26	*
	Agree	53	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	9	30	
Secondary	Strongly agree	35	22	*
	Agree	56	51	
	Disagree/Strongly disagree/ Neither agree nor disagree	8	28	
Special	Strongly agree	47	33	*
	Agree	46	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	7	22	

NS, not significant; * significant change over time.

Table 4.2.3.23: ICT has a positive impact on the attainment of boys

School sector	ICT has a positive impact on attainment of boys	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	45	32	*
	Agree	47	43	
	Disagree/Strongly disagree/ Neither agree nor disagree	8	25	
Secondary	Strongly agree	42	28	*
	Agree	51	49	
	Disagree/Strongly disagree/ Neither agree nor disagree	8	23	
Special	Strongly agree	51	36	*
	Agree	42	44	
	Disagree/Strongly disagree/ Neither agree nor disagree	7	19	

NS, not significant; * significant change over time.

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Table 4.2.3.24: ICT has a positive impact on the attainment of able or gifted and talented pupils

School sector	ICT has a positive impact on attainment of able or gifted and talented pupils	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	42	31	*
	Agree	49	45	
	Disagree/Strongly disagree/ Neither agree nor disagree	9	24	
Secondary	Strongly agree	42	28	*
	Agree	49	46	
	Disagree/Strongly disagree/ Neither agree nor disagree	9	26	
Special	Strongly agree	55	44	*
	Agree	38	34	
	Disagree/Strongly disagree/ Neither agree nor disagree	7	21	

NS, not significant; * significant change over time.

Table 4.2.3.25: ICT has a positive impact on the attainment of pupils with SEN

School sector	ICT has a positive impact on attainment of pupils with SEN	Per cent in:		Significant?
		2009	2008	
Primary	Strongly agree	43	34	*
	Agree	48	43	
	Disagree/Strongly disagree/ Neither agree nor disagree	9	22	
Secondary	Strongly agree	44	31	*
	Agree	49	48	
	Disagree/Strongly disagree/ Neither agree nor disagree	8	20	
Special	Strongly agree	56	41	*
	Agree	38	41	
	Disagree/Strongly disagree/ Neither agree nor disagree	6	19	

NS, not significant; * significant change over time.

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5 Regression analysis

5.1 Introduction to regression

The basic analysis enables consideration of the responses overall and then broken down by key variables. However, the cross-tabulations and ANOVAs only consider two variables at a time and therefore do not show whether a relationship between two variables ceases to exist once other variables are taken into account. For example, it may appear that males have a more positive attitude towards confidence, but if a control for age is used, it may show there is no longer a relationship between gender and confidence, because what the data is showing is that men at a particular end of the age range rate their confidence differently from those at different ages. The relationship therefore exists not between gender and confidence but between age and confidence.

Regression is a technique that helps to address this problem by predicting the values of some measure of interest given the values of one or more related measures. In this study, the regression analysis allowed us to build on the basic descriptive work by considering the effect of background variables on each of the outcomes, once other background variables have been controlled for.

5.1.1 Teacher- and school-level outcomes

Regression models were built for seven outcomes, three relating to teachers and four relating to schools, namely:

- Teacher-level outcomes:
  - Teacher confidence
  - Impact on learner engagement
  - Time saving.
- School-level outcomes:
  - Comprehensiveness of school's e-safety policy
  - Primary school attainment
  - Secondary school attainment
  - Secondary school improvement.

The teacher-level outcomes and the school-level comprehensiveness of e-safety policy were scores derived using factor analysis; the remaining three outcomes made use of attainment data available in the NFER's register of schools. For each outcome, a corresponding list of variables was included in the regression; this list of variables and other controlling background variables were entered as predictors for this outcome. These detail the relationships to examine. A comprehensive list of variables and their base cases for each of the teacher- and the school-level models is given in Tables 5.1.1 and 5.1.2 below. Which particular variables were included in each of the models is documented in Sections 5.3 and 5.4.

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Table 5.1.1: Teacher-level regression

Variable level	Variable	Comparator
Teacher-level variables	6–10 years; 11–20 years; 21+ years and Not specified	Teacher years of professional experience – 0–5 years
	Subject co-ordinator, class teacher, SENCO, other and not specified	Teacher current role – department head
	Male teachers	Female teachers
	Teacher confidence‡	More confident about various aspects of ICT compared to less confident
	Teachers' access to CPD‡	More frequent access compared to less
	Usefulness of formal CPD‡	More useful compared to less useful
	Needing further CPD‡	More developments needed compared to less
	Helpfulness of peer/collaborative CPD‡	More helpful compared to less helpful
	Disruption to networks‡	More disruption to work compared to less
	Disruption to ICT hardware‡	More disruption to work compared to less
	Time saving‡	More time saved compared to less time saved or time loss
	Teachers are well informed about learning platform‡	Well informed compared to not well informed
	Teachers' reported usefulness of learning platforms‡	More useful compared to less useful
	Assessment for Learning – planning and review‡	More use compared to less use
	Assessment for Learning – pupil-directed learning‡	More use compared to less use
	Teachers' access to equipment – networked computers‡	More confident equipments are accessible compared to less confident
	Teachers' access to equipment – mobile devices‡	More confident equipments are accessible compared to less confident
	Teachers' use of resources – reusing materials‡	Adapt resources to suite own need more often compared to less often
	Teachers' use of resources – online resources‡	Use resources more often compared to less
School-	Primary schools, special schools	Secondary schools

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Variable level	Variable	Comparator
level variables	Head count of total no. of pupils╫	More compared to less (in the same school sector)
	Full-time equivalent of qualified teacher╫	More compared to less (in the same school sector)
	Pupil–teacher ratio╫	Higher compared to lower (in the same school sector)
	Per cent of pupils eligible for free school meals (FSM)╫	Higher compared to lower
	Per cent of pupils with statements of special education needs (SEN)╫	Higher compared to lower (in the same school sector)
	Per cent of pupils with English as an additional language (EAL)╫	Higher compared to lower
	Population density╫	Higher compared to lower
	Eastern, East Midlands, London, North East, North West, South West, West Midlands, Yorkshire and The Humber	South East GOR
	Computer–pupil ratio╫	Higher compared to lower
	Computer–teacher ratio╫	Higher compared to lower
	Per cent of pupils with remote/home access╫	Higher compared to lower
	School has Home Access scheme	Schools with no Home Access scheme
	School has a learning platform schools	Schools with no learning platform
	Encouraged use of own devices (ICT)╫	Allow to use more compared to less
	Use of Web 2.0 applications (ICT)╫	Encourage more compare to less
	Per cent of school budget spent on ICT (SLT)╫	Higher compared to lower
	0% of ICT budget ,1–5% of ICT budget, 6–51% of ICT budget	% of ICT budget spent on teacher training – not specified

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Variable level	Variable	Comparator
	CPD – ICT skills development (SLT) ╫	Greater extent of focus compared to less focus
	CPD – skills audits/reviews/needs analysis (SLT) ╫	More often compared to less often
	CPD – Collaborative/peer/mentor CPD (SLT) ╫	More important compared to less important
	ICT teaching embedded in curriculum (SLT)	ICT taught discretely
	Written embedded strategy	Strategy or plan for ICT and/or e-learning – no written strategy
	Written separate strategy	
	No information provided	

╫ Numerical variable (no comparator).

Table 5.1.2: School-level regression

Variable	Comparator
Primary schools	Secondary schools
Special schools	
Head count of total no. of pupils╫	More compared to less (in the same school sector)
Full-time equivalent of qualified teacher╫	More compared to less (in the same school sector)
Per cent of pupils eligible for free school meals (FSM)╫	Higher compared to lower
Per cent of pupils with statements of special education needs (SEN)╫	Higher compared to lower (in the same school sector)
Per cent of pupils with English as an additional language (EAL)╫	Higher compared to lower
Population density╫	Higher compared to lower
Eastern ,East Midlands, London, North East, North West, South West, West Midlands, Yorkshire and The Humber	South East GOR
Computer–pupil ratio╫	Higher compared to lower
Computer–teacher ratio╫	Higher compared to lower

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Variable	Comparator
Per cent of pupils with remote/home access╫	Higher compared to lower
School has Home Access scheme	Schools with no Home Access scheme
School has a learning platform schools	Schools with no learning platform
Encouraged use of own devices (ICT)╫	Allow to use more compared to less
Use of Web 2.0 applications (ICT)╫	Encourage more compared to less
Per cent of school budget spent on ICT (SLT)╫	Higher compared to lower
0% of ICT budget, 1–5% of ICT budget, 6–51% of ICT budget	% of ICT budget spent on teacher training – not specified
ICT teaching embedded in curriculum (SLT)	ICT taught discretely
Written embedded strategy	Strategy or plan for ICT and/or e-learning – no written strategy
Written separate strategy	
Teaching of e-safety and other aspects of ICT (SLT)╫	Topics addressed more fully compared to less
Teacher confidence (TQ) ╫	More confident about various aspects of ICT compared to less confident
KS3 average point score 2007╫	Higher compared to lower

╫ Numerical variable (no comparator).

5.2 Interpreting regression tables

For each outcome, the analysis looked at the relative strength of relationships between various background variables and the outcome. The first of each pair of tables below present the variables that have a significant relationship with the outcome variable. The beta coefficient indicates the strength and the direction of the relationship. A larger beta coefficient indicates a stronger relationship than a smaller beta coefficient. A positive beta coefficient indicates a positive relationship, where an increase in one variable is associated with an increase in the other variable. A negative beta coefficient indicates a negative relationship, where an increase in one variable is associated with a decrease in the other variable.

The following section presents the regression for each of the outcomes previously listed. For each outcome, the following is presented:

- An explanation of the outcome
- A tabular presentation of the significant findings
- A tabular presentation of the insignificant predictors.

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5.3 School-level regression tables

5.3.1 Comprehensiveness of e-safety policy

The comprehensiveness of a school's e-safety policy was measured by combining Q32 and Q32a of the senior leader questionnaire and creating a count of how many items from the listed were included (0 indicating that the school does not have an e-safety/acceptable use policy). A higher score indicates the school's e-safety/acceptable use policy covers more of the items listed in the question.

Table 5.3.1.1: Comprehensiveness of e-safety policy

Significant variables	Beta
Teaching of e-safety and other aspects of ICT (SLT)*	0.252

* Variables asterisked are factors – please see section 2 for details of how each factor was constructed.

5.3.2 Primary attainment

This score was constructed using schools' overall Key Stage 2 results (or Key Stage 1 result if Key Stage 2 result was unavailable). A higher score indicates that the school is higher-attaining. Regression analysis then identified which respondent- and school-level characteristics are related to this score.

Table 5.3.2.1: Primary attainment

Variable	Beta
London Government Office Region (compared to South East)	0.155
Per cent pupils eligible for free school meals (FSM)	–0.603
Per cent pupils with statement of special education needs (SEN)	–0.147

5.3.3 Secondary attainment

This score was constructed using schools' overall GCSE results (or Key Stage 3 result if GCSE result was unavailable). A higher score indicates that the school is higher-attaining. Regression analysis then identified which respondent- and school-level characteristics are related to this score.

Table 5.3.3.1: Secondary attainment

Variable	Beta
6–51% of ICT budget spent on teacher training/CPD in using ICT	0.213
Per cent pupils eligible for free school meals (FSM)	–0.400
Per cent pupils with statement of special education needs (SEN)	–0.309

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5.3.4 Secondary improvement

This score was schools' overall GCSE results. A higher score indicates that the school is higher-attaining. Schools' Key Stage 3 results were entered into the model to control for prior attainment, so that the model focused on the improvement of results rather than attainment itself. Regression analysis then identified which respondent- and school-level characteristics are related to improvement over and above the effect of prior attainment.

Table 5.3.4.1: Secondary improvement

Variable	Beta
KS3 average point score in 2007	0.803
Computer–teacher ratio	0.184
1–5% of ICT budget spent on teacher training/CPD in using ICT	–0.149

5.4 Teacher-level regression tables

5.4.1 Teacher confidence

The outcome of this model is a factor that was constructed using individuals' responses to Questions 6, 31 and 35 of the teacher questionnaire. A higher score indicates being more confident about various aspects of ICT (as set out in the questions).

Table 5.4.1.1: Teacher confidence

Variable	Beta
Teachers' use of resources – reusing materials*	0.201
Teachers are well informed about learning platforms*	0.120
Helpfulness of peer/collaborative CPD*	0.088
Teachers' use of resources – online resources*	0.086
Usefulness of formal CPD*	0.086
Time saving*	0.083
Frequency of teachers' CPD experiences	0.075
Male (teachers)	0.063
Per cent of school budget spent on ICT	0.056
Teachers feel more CPD (related to use of ICT) is needed	–0.452
Primary schools (compared to secondary schools)	–0.066
21 or more years of professional experience in education	–0.062
Disruption to ICT hardware*	–0.059

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Variable	Beta
School has a learning platform	–0.050

* Variables asterisked are factors – please see Section 2 for details of how each factor was constructed.

5.4.2 Impact on learner engagement

The outcome of this model is a factor that was constructed using individuals' responses to Question 41 of the teacher questionnaire. A higher score indicates a more positive impact on learners' engagement in learning.

Table 5.4.2.1 Impact on learner engagement

Variable	Beta
Assessment for Learning – planning and review*	0.157
Special schools (compared to secondary schools)	0.142
Teacher confidence*	0.123
Primary schools (compared to secondary schools)	0.104
Teachers' use of resources – online resources*	0.092
Assessment for Learning – pupil-directed learning*	0.056
Computer–pupil ratio	–0.072
South West Government Office Region (compared to South East)	–0.046

* Variables asterisked are factors – please see section 2 for details of how each factor was constructed.

5.4.3 Time saving

This factor was constructed using individuals' responses to Question 40 of the teacher questionnaire. A higher score indicates more time saved, while a lower score indicates less time saved (or time lost).

Table 5.4.3.1: Time saving

Variable	Beta
Assessment for Learning – planning and review*	0.142
Teacher confidence*	0.128
Assessment for Learning – pupil-directed learning*	0.101
Frequency of teachers' CPD experiences	0.088
Usefulness of formal CPD*	0.068
Current role – class teacher (compared to department head)	0.067
Teachers' reported usefulness of learning platforms*	0.058
Teachers' access to equipment – networked computers*	0.056
Teachers' use of resources – online resources*	0.048

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Variable	Beta
North West Government Office Region	–0.051

* Variables asterisked are factors – please see Section 2 for details of how each factor was constructed.

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