National Foundation
for Educational Research

2008/09 Secondary Maths and Science HLTA research

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July 2009

Contents

Acknowledgements

The research team would like to thank the schools who agreed to participate in the study and their staff who took the time to contribute to the research. We would particularly like to thank the mathematics and science HLTAs who agreed to be interviewed and who helped set-up the case-study visits.

We would also like to thank colleagues from NFER who provided invaluable research input and support, namely:

- Suzanne Straw, Caroline Sharp, and Rebekah Wilson, who helped to design the research instruments.
- Jenny Hudson and Julie Thompson, project administrators, who have provided outstanding administrative support to the research team.
- Christine Webster, who managed the school contacts database and provided survey support.
- Emma Scott and Marco Pomati, who provided statistical support.

Finally, the research team would like to thank the Training and Development Agency for Schools for funding and managing this research, and in particular Linda Pettitt, for the consistently cooperative, responsive and facilitative support and research management.

Executive Summary

2008/09 Secondary Maths and Science HLTA research

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Report brief

- This report is intended to provide insights into the mathematics and science HLTA programme in order to inform the next stages of the HLTA initiative and its funding arrangements for 2009/10.

About the HLTA programme

- Support staff and teachers are working more closely than ever before to improve pupil outcomes and the introduction of Higher Level Teaching Assistant (HLTA) status in 2003 strengthened this partnership.
- The status recognises the higher level skills and knowledge that support staff require to lead a range of learning related activities under the direction and supervision of a teacher.
- The development of the secondary mathematics and science strand of the programme is a reflection of the Government's commitment to the wider science, technology, engineering and mathematics (STEM) agenda.

Scope of the study

- The research aimed to provide the TDA with evidence on how HLTAs who have achieved mathematics or science HLTA status are being deployed, and what impact they are having in schools. The research also explored senior school leaders' reasons for supporting staff members in achieving the status, and HLTAs' motivations to undertake the programme.
- The study was commissioned by the Training and Development Agency for Schools (TDA), and carried out by a team at the National Foundation for Educational Research (NFER), Northern Office.
- The study comprised investigations into the:
  - motivations for individuals who undertake the status and schools that support it
  - deployment and impact of mathematics and science HLTAs
  - subject knowledge training pre-HLTA status, and post-status CPD offered to HLTAs.
- The report's findings were drawn from surveys of 186 headteachers; 409 HLTAs; 168 Heads of Departments (HODs), 212 teachers; and case-study visits to nine secondary schools.

Conclusions and overview of the findings

- Overall, the study found that schools valued the contribution mathematics and science HLTAs were making to school life. Schools that had embraced the role found their mathematics/science HLTAs were helping to support pupils with specific needs, contributing to pupils' understanding of mathematics and science topics, and improving their achievement and opportunity for personalised learning. These are messages that could be promoted and celebrated at the national, regional and individual school level.

In relation to the following specific themes, the study has highlighted a number of important issues and key messages.

Rationale and pre-status support for mathematics/science HLTA status

- Findings from the survey suggested that the main factors motivating mathematics and science HLTAs to undertake the status were to better assist pupil learning and to develop/progress their career.
- The main factors underpinning HODs' support for the mathematics/science HLTA status were: to improve the quality of teaching and learning; and to improve outcomes in mathematics/science.
- In the case studies, when headteachers, as well as HODs, were asked about why the school had supported the HLTA status, answers covered three different foci: the fit with significant whole school developments and ethos (such as restructuring support staff deployment and commitment to CPD for all staff); the value for individual HLTAs themselves (e.g. recognition and progression opportunities for highly skilled support staff) and the benefits for pupil learning (e.g. offering greater targeted support).

Deployment and line management of mathematics/ science HLTAs

- The survey and case-study findings revealed a diverse range of deployment and line management arrangements. Specialist teaching roles carried out by the HLTAs included behaviour management and learner support, and specialist intervention work.
- Schools and departments appeared to adapt the role of the HLTA to meet their particular needs, priorities and organisational structures to reflect the skills and prior experience of the HLTAs themselves.
- Notably, almost half of the HLTAs responding to the survey reported that they were line managed by the SENCO, while about four out of ten said they were line managed by a HOD. The findings suggest that for many HLTAs, their line managers were not part of the department to which they were attached.
- Many HLTAs responding to the survey reported that they most frequently worked with pupils who found mathematics or science challenging and supported pupils with emotional and behavioural difficulties. This is not surprising, given that many HLTAs progress from TA or learning support roles where these skills have been developed.
- HLTAs often provided support to a whole class, but sometimes to small groups or on a one-to-one basis. It was also notable than many HLTAs reported leading the delivery of lessons without a teacher.

Impact of mathematics/science HLTAs

- HLTAs were perceived to have a range of positive impacts on mathematics and science departments, teachers and pupils.
- Respondents agreed that one of the main contributions of the role was to pupils' understanding of mathematics and science topics, and to providing opportunities for personalised learning.
- The majority of teachers reported that they felt that HLTAs made a positive contribution to improving the quality of their teaching, while many agreed that having an HLTA support them had helped to reduce their stress levels and workload.
- Many HLTAs also reported that attaining the specialist status had benefited them personally, by way of promotion, improved job satisfaction, greater confidence, and by recognising their contribution within the school.

CPD and support

- The most commonly provided type of support was 'performance review', followed by: training relating to behaviour management; subject specific training; and training related to specific pupil needs.
- Around one in five HLTAs reported that they needed to develop their subject specific knowledge, while just under half (45 per cent) of all mathematics/science HLTAs reported that they required additional support or professional development.
- Compared to HLTAs managed by HODs or subject leaders, those managed by SENCOs were less likely to receive performance reviews or mentoring and coaching, and were less likely to have participated in training relating to mathematics or science.

Development of the mathematics/ science HLTA role

- Almost half of all headteachers (47 per cent) and mathematics/science HLTAs (49 per cent) reported that the HLTAs' skills and interests had been matched 'to a great extent' to the needs of the school.
- In comparison, less than a third of HODs (30 per cent) confirmed that the school had 'to a great extent' matched the needs of the department to the skills and interests of the HLTA.
- Mathematics/science HLTAs line managed by a SENCO compared to those managed by a HOD or subject leader were more likely to report that their skills and interests had not been matched to the needs of the school (13 per cent compared to three per cent).
- When asked about how the mathematics/science HLTA role could be developed in the future, case-study interviewees (including headteachers and HODs) advocated: 'top-up courses' and other opportunities for developing mathematics and science knowledge; regional networks for HLTAs to share practice; exemplification of good practice; and specific training for HLTAs and teachers together on how to implement the role.
- The extent to which the key elements of the NFER good practice model for HLTAs (Wilson *et al.*, 2007) was being implemented, appears to depend on the HLTA's subject specialism and their line management arrangements.

1. Introduction

This report sets out the findings from a research study into how Higher Level Teaching Assistants (HLTAs) who have achieved status in secondary mathematics and science are being deployed, and what impact they are having in schools. The study was commissioned by the Training and Development Agency for Schools (TDA) and carried out by a team at the National Foundation for Educational Research (NFER), Northern Office.

Earlier in this decade, much research emerged to suggest that the popularity of STEM subjects was in decline (e.g. Roberts' Review, 2002; Stagg *et al*., 2003). In 2005, HEFCE identified STEM subjects as 'strategically important and vulnerable subjects' in terms of the mismatch between the supply and demand (HEFCE, 2005). During this period, the Science and Innovation Investment Framework 2004-2014, and subsequent 'Next Steps' document, set out the Government's ambitions to build a STEM education and training environment capable of delivering a strong supply of scientists, engineers, technologists and mathematicians. More recently, the STEM Programme Report (2007) and the Sainsbury Review of Science and Innovation (2007) have paved the way for further developments of the agenda.

Some of the issues associated with the decline in popularity of studying STEM subjects have been attributed to: young people's negative perceptions and experiences of STEM subjects[1]; lack of information on, and awareness of, STEM careers[2]; a shortage of specialist teachers in schools[3]; and school awareness of, and engagement with, STEM interventions[4]. It is anticipated that the deployment of science and mathematics HLTAs will address some of these issues. The development of the secondary mathematics and science strand of the HLTA programme is a reflection of the Government's commitment to the wider STEM agenda.

The HLTA status was introduced in 2003 to acknowledge the existing skills of many school support staff and to reinforce and improve the skills of other school support staff, allowing them to take on additional responsibilities and, in doing so, raise standards and reduce teacher workload. The status was introduced as part of the national agreement *Raising Standards and Tackling Workload* (ATL *et al.*, 2003).

[1] e.g. Jenkins and Nelson, 2005; Murray and Reiss, 2005; Blickenstaff, 2005; Bennet and Hogarth, 2006; Cleaves, 2005; Francis et al., 2004; Lord and Jones, 2006.
[2] e.g. Cleaves, 2005; Dalgety and Coll, 2004; and Medhat, 2003; Lord et al. 2007; London Development Agency, 2006; Kniveton, 2004; Hilbling and Barke, 2000, in Jagger, 2004.
[3] Moor et al., 2006
[4] DfES and DTI, 2006

According to the TDA (2009), there are now more than 27,000 HLTAs in schools across England.

There are two training routes to become a mathematics or science HLTA. These are either developing subject knowledge at the same time as preparing for HLTA assessment or taking further subject specific training after HLTA assessment. The TDA website states that, by 2008, the TDA is committed to building capacity so that every secondary school is able to recruit a HLTA in science or mathematics. There are now over 1500 mathematics or science HLTAs in secondary schools.

The TDA (2007) recently published research on a HLTA mathematics and science pilot. When this research was published, there were just over 200 HLTAs with a secondary science or mathematics specialism. This study noted that mathematics/science HLTAs had a positive impact on students and could provide better continuity than a supply teacher. The pilot found that schools were beginning to remodel their workforce as a result of deploying mathematics and science HTLAs. The research also showed that HLTA training had improved:

- TAs' subject knowledge
- collaboration between teachers and HLTAs
- the professional profile of support staff
- subject-specific understanding by pupils.

This project is intended to build on the understandings gained from that pilot, as HLTA deployment and practices within schools have had a further two years to develop and become embedded and the programme has been established at a national level. The findings have also helped to further develop the NFER's model of good HLTA planning, deployment and development practice and to increase its relevance to mathematics and science (and potentially other specialist) HLTAs.

1.1 Research aims

The overarching aim of the research was to provide insight into the mathematics and science HLTA programme in order to inform the next stages of the HLTA initiative and its funding arrangements for 2009/10.

To address this principal aim, our research strategy was formulated to address six key areas. These comprised investigations into the:

- motivations for individuals who undertake mathematics and science HLTA status
- motivations for schools that support mathematics and science HLTAs
- deployment and good practice of mathematics and science HLTAs
- subject knowledge training pre-HLTA status
- impact of the mathematics/science HLTA status
- extent and type of continuing professional development (CPD) post-HLTA status.

The findings provide additional evidence to inform the TDA's development of the HLTA Programme over the coming years, and support the TDA's strategic aim to develop the children's workforce.

1.2 Methodology

The methodology was designed to provide robust evidence on a national scale as well as additional in-depth qualitative insights, about how mathematics and science HLTAs were being deployed, and what impact they were having in schools. A large-scale postal and on-line survey of headteachers, mathematics and science HLTAs, teachers and Heads of Departments in schools was conducted, followed by case-study visits to nine schools[5].

1.3 Sample design and sampling procedures

The first part of the sampling process involved drawing together the TDA's list of mathematics and science HLTAs who had agreed to be contacted for research purposes. This list was then merged with the NFER's Register of Schools, which provides up-to-date information about each school in England, including information such as size, governance and location, as well as information about schools' overall levels of attainment and entitlement to free school meals. By combining the Register with the TDA's information on mathematics and science HLTAs, the research team were able to analyse responses both in relation to HLTA characteristics and their school context.

Both paper-based and online surveys were produced in order to offer flexibility to respondents and to maximise the response rate.

[5] See Appendix E for copies of the survey instruments.

To minimise the burden on schools, prior to the surveys going out, letters were sent to local authorities asking them to state if there were any schools which should not be approached for any particular reason.

Respondents from a total of 676 schools were invited to participate in the study. Where the subject area of the HLTA was known, a questionnaire was sent direct to the Headteacher and the HLTA, while the Head of Department and teacher questionnaires were sent to the Head of Department for distribution. Where the subject area of the HLTA was not known, the Headteacher, Head of Department, and teacher questionnaires were all sent to the Headteacher for distribution, while the HLTA was sent their questionnaire directly. Each respondent was asked to submit their individual questionnaire online or to return their postal questionnaire to NFER in the envelopes provided.

The surveys were undertaken between February and April 2009. Two reminder letters were sent, the second with a further copy of the questionnaire. HLTAs were also sent an email reminder, while telephone reminders were targeted at Headteachers.

Table 1 shows the number of respondents that were drawn, the number intended to be recruited, and the number of responses actually achieved.

The research team adopted a target response rate for HLTAs of 58 per cent, and 40 per cent from the other respondents. Table 1 shows that despite a comprehensive and sustained programme of written, telephone and email reminders to schools, overall, fewer respondents returned a questionnaire than was expected. A total of 997 responses were received. After cleaning the data, this left 975 responses: 186 from headteachers, 409 from HLTAs, 168 from Heads of Departments, and 212 from teachers.

Table 1 Respondent recruitment and sample profile

Respondent	Number of questionnaires:			Number of responses used in report
	Sent	Target	Achieved	
Headteacher	676	270	186	186
Mathematics/ Science HLTA	857	497	427	409
Mathematics/ Science Head of Department	796	318	172	168
Mathematics/ Science Teacher	1586	634	212	212
Totals	**3915**	**1720**	**997**	**975**

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

The lower-than-expected returns were largely attributed to inaccuracies in the TDA contacts database. For example, 70 schools contacted the NFER to withdraw from the survey because they no longer had or had never had a mathematics or science HLTA. The NFER also received a number of calls from HLTAs who had not undertaken the subject training, and so were beyond the remit of the study. As the contacts database contained records collected from as far back as 2004, it is quite possible that there were other schools in the sample that no longer had a mathematics or science HLTA, and so chose not to respond. Despite this, the number of questionnaires returned is sufficient for statistical analysis, including regression analysis of the HLTA returns.

1.4 Analysis and reporting

Three types of analysis were conducted: basic descriptive statistics (with cross tabulations), factor analysis, and regression[6]. The type of variables which went into the regression analysis were: subject area, regional comparisons, age of respondent (where available), and school characteristics e.g. percentage of pupils eligible for free school meals. For a full list of variables see Appendix B, Table B1.

[6] See Appendix B,C&D for an explanation of the basic descriptive statistics, factor analysis and regression.

About this report

The remainder of the report is divided into a further seven main chapters, a references section, and Appendices (A to D). Chapter 2 presents information about the overall respondent sample in terms of: subject area and gender, age, and ethnicity (where available).

Chapter 3 presents information about the rationale for supporting mathematics/science HLTA status, including factors underpinning support for the role and HLTAs' motivations of undertaking the training.

Chapter 4 examines mathematics and science HLTAs' line management arrangements and how they are deployed to support pupils and teachers.

Chapter 5 examines the impact of mathematics and science HLTAs, and specifically their contribution to helping pupils and teachers.

Chapter 6 explores the CPD opportunities and support received by mathematics and science HLTAs.

Chapter 7 explores the extent to which respondents felt their school had undertaken a range of activities in relation to the mathematics and science, including matching school needs to HLTA interests and skills and defined HLTAs' role requirements and responsibilities.

The final chapter brings together the key findings from the study.

Findings from descriptive analysis, within-school matched analysis, and from regression analysis are reported within chapters. The main variables discussed throughout relate to the type of respondent and the mathematics and science subject split. Selected findings from regression analysis are reported within the chapters, with a full breakdown presented in the Appendix. The selection of findings from regression analysis for inclusion in the chapters is based on rank order of statistical significance. Key findings are summarised at the beginning of each of the chapters.

A summary of each of the nine case-study schools can be found in Appendix A. The additional frequency tables are presented in Appendix B.

The explanation of descriptive statistics, the factor analysis and the regression analysis, and tables outlining the regression analysis findings, are presented in Appendix D. The data from the matched analysis is presented in Appendix C. The survey questionnaires and case-study instruments are included in Appendix E.

2. Sample Profile

Key findings

HLTAs

- Nearly two thirds (62 per cent) of the HLTAs responding to the survey specialised in mathematics, with the remainder (38 per cent) specialising in science.
- The majority of HLTAs were female (90 per cent), white (89 per cent), and aged between 35-54 years (74 per cent).
- Nearly three quarters of HLTAs questioned (72 per cent) undertook subject knowledge training at the same time as preparing for HLTA assessment.
- About four out of ten HLTAs (39 per cent) were on HLTA-only contracts, while about a third (34 per cent) were on TA-only contracts. It was notable that a higher proportion of science HLTAs (40 per cent) were on TA only contracts compared to their mathematics counterparts (30 per cent).
- Almost two thirds of HLTAs worked part-time (64 per cent).
- The vast majority of HLTAs (98 per cent) had a level 2 qualification or higher (in mathematics, science or another subject), while almost a quarter (22 per cent) reported they had a bachelor's degree or higher qualification.

Headteachers

- Headteachers reported that only nine per cent of their mathematics and science HLTAs were appointed with the status; the majority (82 per cent) were existing staff supported to achieve the HLTA status.

Heads of Departments

- The majority of responses were from heads of mathematics departments (71 per cent), with the remainder (29 per cent) from heads of science departments.

Teachers

- Approximately two thirds (65 per cent) of the teachers responding to the survey specialised in mathematics, with the remainder (35 per cent) specialising in science.
- The majority of teachers were female (59 per cent), white (87 per cent), and aged 44 or younger (68 per cent).

2.1 Introduction

This chapter presents information about the overall respondent sample. Where available, information is presented on subject specialism, gender, age, and ethnicity.

Also presented are findings from those questions which explored a range of background factors relating to the role and experience of respondents.

2.2 The overall profile of respondents

2.2.1 Number of HLTAs surveyed

Table 2.2a below shows the achieved HLTA sample profile by subject specialism, gender, age and ethnic background[7]. This information was drawn from the TDA contacts database and matched to the questionnaire returns.

Table 2.2a Achieved HLTA sample by subject specialism, gender, age and ethnicity

	Subject specialism		Gender		Age				Ethnicity	
	Maths	Science	Male	Female	18 - 34	35-44	45-54	55+	White	BME
N=	253	156	30	370	45	123	180	45	362	23
%	62	38	7	90	11	30	44	11	89	6
% No response [8]	-		2		4				6	

Percentages may not sum to 100 due to rounding
N=409
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Table 2.2a shows that of the 409 HLTAs surveyed, approximately six out of ten (62 per cent) identified themselves as mathematics HLTAs with almost four out of ten (38

[7] For the purpose of analysis, due to the small number of respondents from black and minority ethnic (BME) groups, those involved had to be collapsed into a group labelled 'BME'. This group did not include anyone identifying themselves as white.
[8] Includes those respondents who ticked 'preferred not to say', ticked more than one box, or declined to answer the question.

per cent) identifying themselves as science HLTAs. These returns are similar to the ratio of mathematics and science HLTAs in the TDA contacts database.

Nine out of ten HLTA respondents were female and the sample included respondents from across the age ranges. Approximately three quarters of HLTAs (74 per cent) were distributed across the mid age range bands (35-54), leaving the remaining quarter equally distributed between the upper and lower age range brackets (55+ and 18-34 respectively). More than half of the HLTAs (55 per cent) were aged 45 or older.

The majority of HLTAs described themselves as 'white'. The 'white' category includes all respondents who identified themselves as being of white ethnic background, including white British, Irish and Another white Background. The BME group includes respondents who identified themselves as being black or from any ethnic group other than that classified as white, including African and Asian.

2.2.2 Number of Headteachers surveyed

A total of 186 questionnaires were returned by headteachers. Data on gender, age and ethnicity were not collected.

2.2.3 Number of Heads of Departments surveyed

Table 2.2b below shows the achieved Head of Department (HOD) sample profile split by department.

Table 2.2b Achieved HOD sample split by subject

	Department	
	Mathematics	Science
N=	119	49
%	71	29
% No response	-	

Percentages may not sum to 100 due to rounding
N=168
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

The majority of responses were from heads of mathematics departments (71 per cent), with the remainder (29 per cent) from heads of science departments.

2.2.4 Number of teachers surveyed

Table 2.2c below shows the achieved teacher sample profile by subject, gender, age and ethnic background[9].

Table 2.2c Achieved teacher sample by subject, gender, age and ethnicity

	Subject taught		Gender		Age				Ethnicity	
	Maths	Science	Male	Female	18 - 34	35-44	45-54	55+	White	BME
N=	138	74	82	125	81	64	41	23	184	15
%	65	35	39	59	38	30	19	11	87	7
% No response [10]	-		2		1				6	

Percentages may not sum to 100 due to rounding
N=212
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Table 2.2c shows that over half of the teachers (59 per cent) were female and that the sample included respondents from across the age ranges. Almost half of the teachers (49 per cent) were distributed across the mid age range bands (35-54), leaving the majority of the remaining half in the lower age range bracket (18-34). More than two thirds of teachers (68 per cent) were aged 44 or younger.

The majority of respondents described themselves as 'white'. In all cases, teachers identified their own ethnicity.

Analysis revealed that teachers responding to the survey were very similar to the proportions of white and BME teaching staff nationally. Analysis of national census data available in SFR 9/2009 (DfES, 2009), revealed that in 2009, 94 per cent of

[9] Full ethnicity information was collected (see Appendix B4, Table B4.24). However, for the purpose of analysis, due to the small number of respondents from black and minority ethnic (BME) groups, those involved had to be collapsed into a group labelled 'BME'. This group did not include anyone identifying themselves as white.
[10] Includes those respondents who ticked 'preferred not to say', ticked more than one box, or declined to answer the question.

teachers in the LA maintained sector belonged to the 'white' group, while 5 per cent of the population belonged to the BME group. Bearing in mind that six percent of teachers preferred not to provide details of their ethnicity, the findings suggest that the BME group were slightly overrepresented and the white group were slightly underrepresented when compared to teaching staff nationally.

Teachers responding to the survey were also asked if they met the Disability Discrimination Act definition of disability. The vast majority (87 per cent) said they did not, while 1 per cent said they did[11].

2.2.5 The profile of HLTAs

Table 2.2d below shows the number of HLTAs who undertook subject knowledge training at the same time as HLTA assessment or later, the number working part-time and full-time, and the number with contracts for 52 weeks per year and term time only.

Table 2.2d Achieved HLTA sample by timing of subject knowledge training, part-time/full-time, and contract length

	Timing of subject knowledge training		Part time or full time			Contract length	
	At same time as HLTA assessment	Post-HLTA assessment	Part time	Full time	Don't know	52 weeks	Term time only
N=	293	93	260	141	7	74	321
%	72	23	64	35	2	18	79
% No response[12]	6		<1			3	

Percentages may not sum to 100 due to rounding
N=409
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

[11] See Appendix B4, Table B4.21
[12] Includes those respondents who ticked 'preferred not to say', ticked more than one box, or declined to answer the question.

Table 2.2d shows that:

- most HLTAs (72 per cent) undertook subject knowledge training at the same time as preparing for HLTA assessment
- almost two thirds of HLTAs (64 per cent) worked part-time
- the majority of HLTAs (79 per cent) had term time only contracts.

2.2.6 Types of contract held by HLTAs

HLTAs were asked to state what type of contract they held. Table 2.2e below presents the findings for this question.

Table 2.2e Types of contract held by HLTAs

Response:	Mathematics		Science		Total	
	N	%	N	%	N	%
HLTA only contract	113	45	48	31	161	39
Split HLTA/TA contract	13	5	11	7	24	6
TA only contract	76	30	63	40	139	34
Other contract	11	4	9	6	20	5
No response	40	16	25	16	65	16
	N=253		N=156		N=409	

Percentages may not sum to 100 due to rounding
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Table 2.2e shows that:

- Overall, almost four out of ten HLTAs (39 per cent) were on HLTA-only contracts.
- Approximately a third of respondents (34 per cent) appeared to be employed on TA-only contracts. Proportionally, this was higher for science HLTAs (40 per cent) than it was for mathematics HLTAs (30 per cent).

Additional analysis revealed that of those who reported they were employed on another type of contract (n=20), the majority reported that their contract was split with another role, such as cover supervisor, laboratory assistant, or learning assistant. For a full breakdown of the responses to this question please see the Appendix B1, Tables B1.7 and B1.7a.

2.2.7 Hours worked by HLTAs per week

HLTAs were asked to state how many hours they worked each week. Table 2.2f below presents the findings for this question.

Table 2.2f Hours worked by HLTAs per week

Response:	Mathematics		Science		Total	
	N	%	N	%	N	%
Up to 15 hours	7	3	1	1	8	2
16-20 hours	14	6	6	4	20	5
21-25 hours	26	10	17	11	43	12
26-30 hours	66	26	35	22	101	25
31-35 hours	66	26	52	33	118	29
36-40 hours	65	26	39	25	104	25
41-45 hours	2	1	0	0	2	< 1
No response	7	3	6	4	13	2
		N=253		N=156		N=409

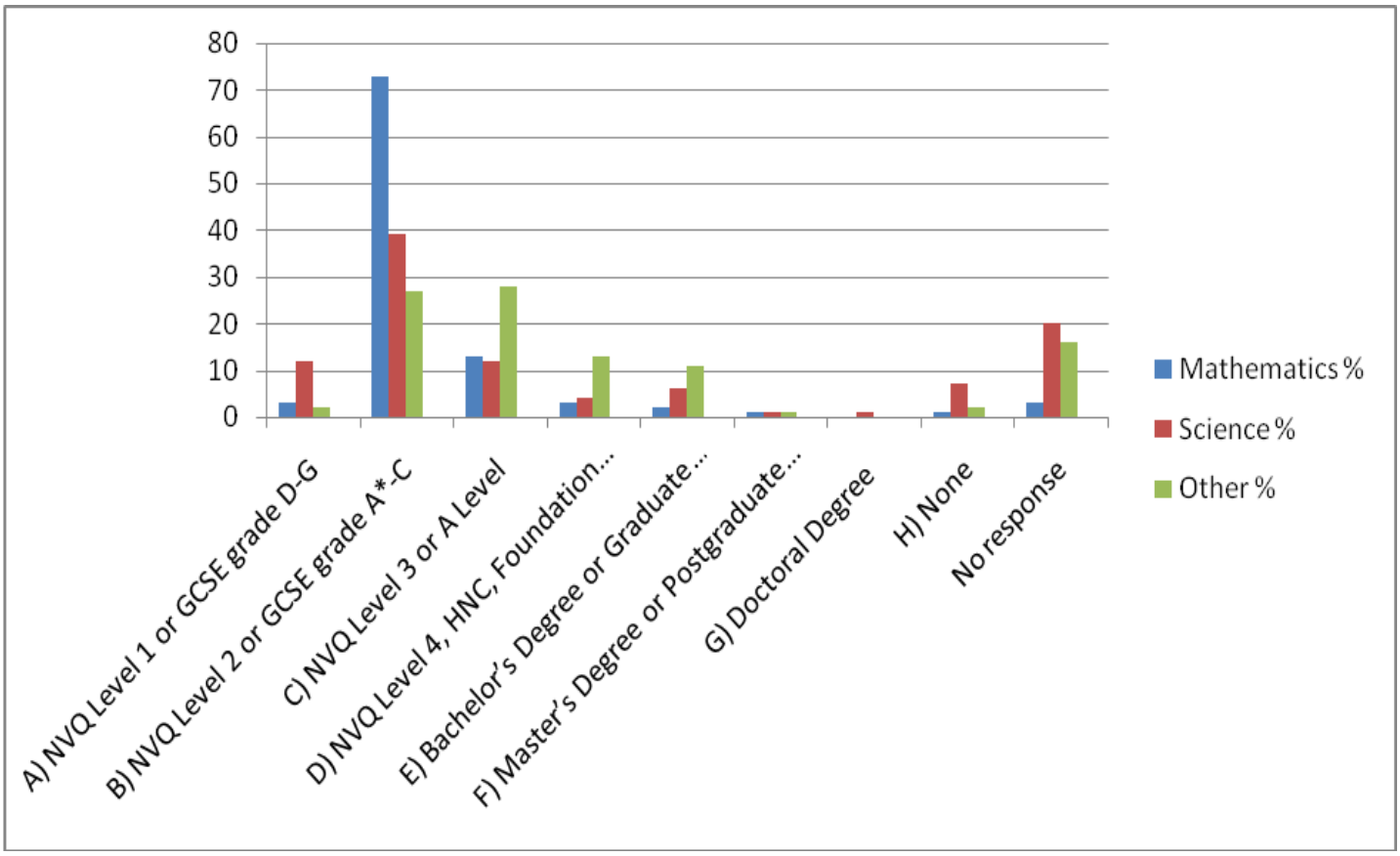
Percentages may not sum to 100 due to rounding
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Overall, almost eight out of ten HLTAs (79 per cent) worked an average of between 26-40 hours per week. More than half (56 per cent) reported working 31 hours per week or more. There were no notable differences reported in the hours worked by mathematics and science HLTAs.

2.2.8 Highest level of qualification

HLTAs were asked to indicate their highest level of qualification in mathematics, science, and in any other subject area. Figure 2.2a below presents the findings for this question.

Figure 2.2a HLTAs' highest level of qualification in mathematics, science and any other subject area



Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

N=409

Analysis shows that:

- Overall, the majority of HLTAs (98 per cent) had a level 2 qualification or higher (in mathematics, science or another subject).
- The single most frequently reported qualification was a level 2 qualification (or equivalent) in mathematics.
- Almost a quarter of HLTAs (22 per cent) had a bachelor's degree or higher qualification.

Additional analysis revealed that the responses of mathematics HLTAs and science HLTAs were similar. The main notable difference was that proportionally more science HLTAs reported holding a bachelor's degree or higher qualification in their subject specialism (e.g. science) than did mathematics HLTAs (15 per cent compared

with six per cent). For a full breakdown of the responses to this question please see Appendix B1, Tables B1.11, B1.11a and B1.11b.

2.2.8 Profile of staff who have achieved HLTA status in schools

Headteachers were asked to state how many staff in their schools had achieved mathematics HLTA status, science HLTA status, and general HLTA status (i.e. not mathematics or science). Headteachers were then asked how many of those staff in the school with mathematics or science HLTA status had been appointed with the status, and how many were existing staff supported to achieve the status.

The findings reveal that:

- Schools in the sample had on average one mathematics HLTA, one science HLTA, and two general HLTAs.
- Headteachers reported having up to three mathematics and/or science HLTAs, and up to 12 general HLTAs.
- Almost six out of ten headteachers (58 per cent) reported having both a mathematics and a science HLTA, while just under half (48 per cent) reported having a mathematics, science and general HLTA.
- Headteachers reported that only nine per cent of their mathematics and science HLTAs were appointed with the status; the majority (82 per cent) were existing staff supported to achieve mathematics or science HLTA status.

For a full breakdown of the responses to this question please see the Appendix B2, Table B2.1.

2.2.9 Numbers of mathematics and science HLTAs working in mathematics and science departments

Analysis revealed that heads of departments had on average one mathematics or science HLTA working in their departments. There were no notable differences by subject area.

For a full breakdown of the responses to this question please see the Appendix B3, Table B3.2.

2.2.10 Hours worked by mathematics and science teachers per week

Mathematics and science teachers responding to the survey were asked to state how many hours they worked each week. Table 2.2g below presents the findings for this question.

Table 2.2g Hours worked by mathematics and science teachers per week

Response:	Mathematics teachers		Science teachers		Total	
	N	%	N	%	N	%
Up to 15 hours	5	4	1	1	6	3
16-20 hours	7	5	3	4	10	5
21-25 hours	8	6	8	11	16	8
26-30 hours	6	4	3	4	9	4
31-35 hours	21	15	6	8	27	13
36-40 hours	34	25	25	34	59	28
41-45 hours	7	5	5	7	12	6
46 hours or more	20	14	7	9	27	13
No response	30	22	16	22	46	22
		N=138		N=74		N=212

Percentages may not sum to 100 due to rounding
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Overall, almost half of the teachers (46 per cent) reported working an average of 36 hours per week or more. The highest single response was 36-40 hours (28 per cent). There were no notable differences between the hours worked by mathematics and science teachers.

2.2.11 The number of mathematics and science HLTAs that teachers reportedly worked with

Analysis revealed that mathematics teachers reported working with an average of 1.86 mathematics HLTAs, while science teachers reported working with an average of 1.38 science HLTAs. These findings suggest that within our sample, mathematics teachers were supported by more HLTAs who specialised in their subject area than were science teachers.

For a full breakdown of the responses to this question please see the Appendix B4, Table B4.5.

2.2.12 Length of time mathematics and science teachers had been teaching

Mathematics and science teachers responding to the survey were asked to state how long they had been teaching for. Table 2.2h below presents the findings for this question.

Table 2.2h Length of time mathematics and science teachers had been teaching

Response:	Mathematics teachers		Science teachers		Total	
	N	%	N	%	N	%
Less than one year	8	6	4	5	12	6
1-2 years	11	8	11	15	22	10
3-5 years	31	23	13	18	44	21
6-10 years	24	17	23	31	47	22
11-20 years	29	21	10	14	39	18
More than 20 years	34	25	13	18	47	22
No response	1	1	0	0	1	1
		N=138		N=74		N=212

Percentages may not sum to 100 due to rounding
Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Overall, approximately six out of ten teachers (62 per cent) reported they had been in teaching for six years or more. More than one fifth (22 per cent) reported being in teaching for more than 20 years. Proportionally, more mathematics teachers than science teachers had been teaching for more than 10 years (46 per cent and 31 per cent respectively).

3. Rationale and pre-status support for mathematics/science HLTA status

Key findings

- The main factors underpinning HODs' support for the mathematics/science HLTA status were: to improve the quality of teaching and learning; to improve outcomes in mathematics/science, and; to support the work of specialist mathematics/science teachers.
- Factors such as, supporting the work of non-specialist teachers, difficulties recruiting specialists and reducing teacher workload, did not appear to be salient reasons amongst HODs for supporting the status.
- The main factors motivating mathematics and science HLTAs to undertake the status were to better assist pupil learning and to develop/progress their career.
- In the case studies, when headteachers, as well as HODs, were asked about why the school had supported the HLTA status, answers covered three different foci: the fit with significant whole school developments and ethos (such as restructuring support staff deployment and commitment to CPD for all staff); the value for individual HLTAs themselves (e.g. recognition and progression opportunities for highly skilled support staff) and the benefits for pupil learning (e.g. offering greater targeted support).
- Just under half of the HODs (46 per cent) were involved in supporting the mathematics and science HLTAs to achieve the status. Nearly two thirds of mathematics/science HLTAs (64 per cent) reported having a mentor during their training, while almost a third (31 per cent) did not. These findings may suggest that there is room to improve the subject specific support offered to support staff training to become mathematics/science HLTAs.
- A range of approaches and factors had been used to assess mathematics and science HLTAs' subject training needs. These included: professional discussions, needs assessments, observations, subject qualifications and existing work practices.
- Subject knowledge training for the status was most likely to have been provided in-house or via local authority training.

3.1 Introduction

This chapter presents the perspectives of HODs and mathematics/science HLTAs in relation to the rationale and pre-status support for the mathematics/science HLTA status. The chapter presents information on:

- the factors underpinning HODs' support for the role, and HLTAs' motivations for undertaking the status (3.2)
- the pre-status subject knowledge training and support offered to HLTAs to help them achieve the status (3.3).

3.2 Factors underpinning support for the role and HLTAs' motivations for undertaking the status

This section describes the factors underpinning HODs' support for mathematics and science HLTA status and HLTAs' motivations for undertaking the status.

Factors underpinning HODs' support for the status

HODs were asked to rank the top three factors that had underpinned their support for the mathematics/science HLTA status from a list of pre-defined options. There was also an opportunity for 'other' factors to be noted. The findings are presented in Table 3.2a below.

"We are finding that the HLTAs are more specialised and more skilled, and are able to not plug a gap, but provide specific intervention in key areas" (Headteacher).

"The science HLTA *was showing a big interest* in science *and because I knew that she had a degree in science, we try to use those skills, so she will become predominantly science. It was more about recognition of their existing strengths*". (Head of learning support)

Table 3.2a Factors underpinning HODs' support for mathematics/ science HLTA status

	Rank 1		Rank 2		Rank 3		No response	
	N	%	N	%	N	%	N	%
Contribution to school improvement targets	4	4	10	9	16	15	79	73
Workforce reform	3	3	1	1	0	0	105	96
To improve the quality of teaching and learning	62	57	11	10	10	9	26	24
To improve outcomes in mathematics/science	21	19	33	30	24	22	31	28
Difficulties recruiting mathematics /science teachers/specialists (leading to staff shortages	2	2	3	3	1	1	103	95
Commitment to professional development for all staff	3	3	12	11	17	16	77	71
To reduce teacher workload	1	1	4	4	6	6	98	90
To support the work of specialist mathematics/science teachers	11	10	27	25	22	20	49	45
To support the work of non-specialist mathematics/science teachers	0	0	7	6	4	4	98	90
Training and assessment was fully funded	2	2	1	1	6	6	100	92
Other factor (open)	0	0	0	0	3	3	106	97

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=109

Table 3.2a above shows that, when ranked by the total number of times a response has been selected in first, second, or third place, the top three factors underpinning HODs' support for the mathematics/science HLTA status were:

- To improve the quality of teaching and learning (ranked in the top three reasons 83 times)
- To improve outcomes in mathematics/science (ranked in the top three reasons 78 times)
- To support the work of specialist mathematics/science teachers (ranked in the top three reasons 60 times).

"In the past the TAs would have been used to control discipline in the classrooms, but now with having a mathematics specialist she's being used less for discipline and a lot more for mathematics specialism." (Headteacher)

Perhaps surprisingly, **factors such as supporting the work of non-specialist teachers, and difficulties recruiting specialists and reducing teacher workload, did not appear to be salient reasons for supporting the status** (these items were rated in the top three less than 20 times overall).

Analysis by subject area revealed only slight differences between the views of mathematics and science HODs. For example, a higher proportion of mathematics HODs rated 'to improve the quality of teaching and learning' in their top three reasons (83 per cent), compared to science HODs (73 per cent). Similarly, science HODs were slightly more likely to rate 'to support the work of specialist teachers' as a key factor (38 per cent), than mathematics HODs (28 per cent). However, mathematics HODs were slightly more likely than their science counterparts, to rank the factor 'to improve outcomes in mathematics' in their top three (50 per cent and 40 per cent respectively ranked this item in the top three factors).

In three cases, individual HODs indicated that there were 'other' factors underpinning their support for the status. These comments related to the need to retain and respond to the needs of a support staff, for example, by agreeing to requests from support staff to undertake the training, and to the need to release teachers to cover lessons. A full break down of responses can be found in Appendix B3, Table B3.6.

Factors motivating HLTAs to undertake the status

Mathematics and science HLTAs were asked to rate the top three factors that had motivated them to undertake the status from a list of pre-defined list. An option was also available for respondents to identify 'other' factors. The findings are presented in Table 3.2b below.

"I realised that I could make a difference to students who would normally not get a qualification. I realised that I had the ability to teach in a way that they could understand". (Mathematics HLTA)

Table 3.2b Factors motivating mathematics and science HLTAs to undertake the mathematics/science status

	Rank 1		Rank 2		Rank 3		No response	
	N	%	N	%	N	%	N	%
To develop/progress my career	95	29	65	20	52	16	113	35
To better assist pupil learning	112	35	83	26	46	14	84	26
To gain recognition for existing skills	50	15	42	13	37	11	196	60
To develop new skills/improve my skills	30	9	52	16	64	20	179	55
To achieve job variety	6	2	10	3	19	6	290	89
To support my school	7	2	16	5	30	9	272	84
To develop an identity within my department	9	3	11	3	35	11	270	83
To improve my subject knowledge	13	4	44	14	36	11	232	71
Other (open)	3	1	2	1	6	2	314	97

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
The question has been filtered to include only those who answered it correctly.
N=325

Table 3.2b above shows that, when ranked by the total number of times a response had been selected in first, second, or third place, the top factors reported to motivate HLTAs' to undertake the status were:

- To better assist pupil learning (ranked in the top three reasons 241 times)
- To develop/progress my career (ranked in the top three reasons 212 times)

"The HLTA role was career progression and provided a role that didn't exist in school and was a way of getting more involved with the students and provided a challenge." (Science HLTA)

Also important, though rated less commonly to the above, were the factors:

- To develop new skills/improve my skills (ranked in the top three factors 146 times)
- To gain recognition for existing skills (ranked in the top three factors 129 times)

Additional analysis revealed a high degree of similarity in views of mathematics and science HLTAs, particularly with regard to the selection and priority of the top four motivations, which for both mathematics and science HLTAs were the same as those reported above. However, there were some slight differences by subject area in relation to the less commonly identified motivations. For example, science HLTAs were considerably more likely to report 'achieving job variety' as a motivation for undertaking the status (16 per cent ranked this in the top three reasons, compared to seven per cent of mathematics HLTAs). Conversely, mathematics HLTAs were more likely to rank 'to support my school' and 'to develop an identity within a department' in their top three motivations (20 per cent ranked each of these items) compared to science HLTAs (who ranked these items 11 per cent and 12 per cent respectively).

Eleven HLTAs identified other motivations for undertaking the mathematics/science HLTA status (Appendix B1, Table B1.10a). These related to school factors (e.g. it was suggested by the headteacher, to help support the department, or that progression to HLTA status was expected), and personal factors (e.g. to become a teacher, for more pay, to make better use of skills, work more closely with pupils, job security, and job satisfaction).

3.2.1 Rationale for supporting the mathematics/science HLTA status: what the case studies said

In order to provide further detail about the reasons why schools had supported the status, the case-study interviews followed up the issue when headteachers, as well as HODs, were asked about why the school had supported the HLTA status, answers covered three different foci: the fit with significant whole school developments; the value for individual HLTAs themselves and the benefits for pupil learning. Of course, these rationales are interconnected and all link to the aim of improving outcomes for students; indeed, many of the responses in the case-study interviews highlighted more than one rationale.

When focussing on a rationale linked to whole school developments, respondents suggested supporting the HLTA status was:

- in line with workforce developments underway or planned for the school, including : training TAs and LSAs to take more responsibility; rationalising and restructuring the deployment of all support staff
- a decision connected with the school's status, such as Specialist School status or The Learning School

- part of the school's ethos of continuing commitment to CPD for all its staff.
- a way of improving cover provision by providing continuity and support for pupils, and reducing the expectation on teachers to cover lessons [to allow teachers to focus on 'developmental work']

Responses focussing on a rationale relating to the benefits for individual support staff included how the mathematics/science HLTA status offered:

- progression opportunities and reward for particular highly skilled support staff who did not wish to take a degree route into teaching, but expressed interest in greater responsibility
- a formal recognition and formalisation of the role and experience that the HLTA or TA had already been contributing, including previous 'life experiences' and their 'special abilities' when working with students

When commenting on the way in which it was pupils' learning that underpinned the rationale for supporting the status, interviewees noted the value of a mathematics/science HLTA:

- delivering the maths or science curriculum to small groups or one-to-one work, ensuring pupils' better understanding through greater support for their learning
- providing a kind of direct and engaging learning opportunity that helps address the decline in interest in STEM subjects
- improving the organisation of learning support and contributing to specific developments such as the personalised curriculum.

3.3 Pre-status subject knowledge training and support

The extent and nature of the training HLTAs received before attaining the status is explored further in this section.

> *"The subject knowledge training was good because it got you thinking about things, even though I'd always used numbers in my job, I hadn't touched maths since I left school."* (Mathematics HLTA)

3.3.1 Support provided by HODs

Firstly, HODs were asked about whether or not they were involved in supporting staff to achieve mathematics/science HLTA status. The findings are presented in Table 3.3a below.

Table 3.3a Involvement in supporting staff to achieve mathematics/science HLTA status

Response	Mathematics		Science		Total	
	N	%	N	%	N	%
Yes	51	43	27	55	78	46
No	68	57	22	45	90	54
	N=119		N=49		N=168	

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100

Table 3.3a shows that:

- overall, less than half of the responding HODs (46 per cent) were involved in supporting the mathematics/science HLTA to achieve the status. This may raise questions about the level of in-school support for achieving the status.

Additional analysis reveals that, when broken down by subject area, a slightly higher proportion of science HODS, compared to mathematics HODs, were involved in supporting mathematics/science HLTAs to achieve the status (55 per cent and 43 per cent respectively). However, this result should be treated with caution due to the small number of science HODS within the sample.

3.3.2 Pre-status assessment of subject knowledge training needs

Those HODs who responded that they had been involved in supporting staff to achieve the mathematics/science HLTA status (n=78) were then asked an open question about how the subject knowledge training needs of the mathematics/science HLTA had been assessed (Appendix B3, Table B3.8) Their responses are grouped into the following themes (in no particular order):

- **Needs assessment/analysis using a particular frame work** (e.g. questionnaires from course provider, exam papers, audit using national curriculum/Scheme of Work, interview, self evaluation, use of HLTA training folder/standards, TDA guidance subject knowledge and skills review).

- **Professional discussions and review** (e.g. performance management, discussions between HLTA and mentor, meetings, monitoring).
- **Observations and in-class support** (e.g. 'team-teaching' and planning, lessons observations).
- **Mathematics/science HLTA's existing work level** (e.g. regularly attached to department, already a science technician, showed enthusiasm/interest).
- **Mathematics/science HLTA undertook course or qualification/existing qualification** (e.g. completed GCSE in subject; already had mathematics/science degree).
- **Other means of needs assessment** (e.g. personal development training and written in departmental improvement plan).

3.4 The training of HLTAs

3.4.1 HLTAs' views on methods used to identify training needs

Mathematics and science HLTAs were asked to indicate from a list of pre-defined options, which methods had been used to identify their subject-specific needs as a trainee (Appendix B1, Table B1.12). HLTAs indicated that identification of their subject specific needs had involved discussions with any (or all) of the following members of staff:

- line manager (61 per cent responded 'yes'; 16 per cent responded 'no')
- head of mathematics/science department (56 per cent responded 'yes'; 23 per cent responded 'no')
- a mathematics/science teacher (49 per cent responded 'yes'; 24 per cent responded 'no').

Additional analysis (Appendix B1, Tables B1.12b and B1.12c) revealed that science HLTAs were more likely to have consulted with all three of these members of staff than their mathematics counterparts. For example, 59 percent of science HLTAs had discussions with their line manager and 53 per cent had discussions with a class teacher. In comparison, mathematics HLTAs were considerably more likely to have had discussion with their line manager (63 per cent) than a class teacher (46 per cent).

Around one in eight (12 per cent) mathematics and science HLTAs identified 'other' methods that had been used to identify their subject-specific needs as a

trainee in addition to, or instead of those outlined above (Appendix B1, Table B1.12a).. These 'other' methods included (in no particular order):

- Professional discussions with other members of staff (e.g. with headteacher/deputy head, SENCO/assistant SENCO, combination of staff, senior TA, training provider/LA advisor/CPD advisor).
- HLTAs existing subject knowledge/qualification/undertook qualification.
- HLTAs' own assessment of their needs.

Additional analysis of the methods used to assess subject specific training needs was conducted to examine any variation in the responses by line management structure (Appendix B1, Tables B1.12d and B1.12e). The key findings were that:

- Sixty-seven per cent of HOD line managed HLTAs, 45 per cent of SENCO line managed HLTAs, and 50 per cent of 'other' line managed HLTAs had discussions with a mathematics or science HOD regarding their subject training needs. **This finding may indicate that SENCO and 'other' line managed HLTAs had less contact with a subject specialist.**
- Fifty-one per cent of HOD line managed HLTAs, 67 per cent of SENCO line managed HLTAs, and 58 per cent of 'other' line managed HLTAs had discussions with their line manager regarding their subject training needs. The findings suggest that **SENCO line managed HLTAs appear to have received more support from their line manager on subject training, than those managed by other staff**. However, it is not known how relevant or useful these discussions were, given that the SENCO is not a mathematics or science specialist.
- HLTAs line managed by HODs and those line managed by SENCOs had discussions with mathematics/science teachers regarding their subject training needs to a similar extent (e.g. 50 per cent of HOD line managed HLTAs, 49 per cent of SENCO line managed HLTAs, and 47 per cent of 'other' line managed HLTAs indicated they had discussed their subject training needs with a mathematics or science teacher).

3.4.2 Training providers used for subject knowledge training

The HODs who reported being involved in supporting staff to achieve the mathematics/HLTA status (n=78) were asked which training providers had been used to deliver pre-status subject knowledge training. Overall, the most common forms of subject knowledge training for trainee mathematics and science HLTAs were:

- In-house subject training (81 per cent of HODs reported that this approach had been used).
- Local authority subject training (54 per cent of HODs reported that this approach had been used).

Other types of training providers were used much less frequently. For example, five per cent or less of HODs reported using of subject associations, and/or the National Centre for Excellence in the Teaching of Mathematics and Professional bodies. Nine per cent of HODs (science) reported using Science Learning Centres. Further analysis by subject revealed no differences (Appendix B3, Tables B3.9a and B3.9b). Eight HODs identified the use of other training providers, these included universities and HEIs, while other responses indicated that the HLTA already had the relevant subject knowledge and/or prior education and training in the subject (Appendix B3, Table B3.9).

The same question was put to the HLTAs (Appendix B1, Table B1.13). They reported that their knowledge and training had most commonly been provided via local authority subject training (54 per cent) and in-house subject training (54 per cent). HLTAs, like HODs, reported little use of subject associations and the National Centre for Excellence in the Teaching of Mathematics and Professional bodies (four per cent or less). Similarly, only two out of ten science HLTAs (22 per cent) reported using Science Learning Centres.

This difference between the views of HODs and mathematics and science HLTAs about the use made of in-house subject training, may indicate some lack of awareness on the part of HODs as to the training HLTAs had undertaken. Alternatively, it may highlight the differences in HLTAs' and HODs' views of what constitutes 'in-house subject training', and whether this had been delivered formally or informally.

Other training providers and sources of subject training identified by HLTAs included:

- University/HEI
- Local examination boards and institutions, distance learning courses (e.g. Learn Direct, Four S training, Open College Network, EMA direct, Times Two)
- TDA/HLTA training/pilot project
- CfBT training
- Training from mentor/subject teachers

- Previous/existing subject knowledge and teaching experience and on the job training (including, follow on from STA)

For a full list of responses to this question, please see Appendix B1, Table B1.13a.

Analysis of the within-school responses regarding the use of different training providers revealed both positive and negative correlations between the views of HLTAs and HODs (see Appendix C, Table C3). This finding suggests that HLTAs and HODs from the same school were not always in agreement about whether or not different training providers had been used to support the HLTAs' subject knowledge and training.

When analysed by subject area (Appendix B1, Tables B1.13a and B1.13b), mathematics HLTAs were slightly more likely than science HLTAs to report receiving local authority subject training (57 and 49 per cent respectively) though were more-or-less equally likely to report receiving in-house subject training (55 per cent and 52 per cent respectively). Just over a fifth (22 per cent) of science HLTAs had utilised Science Learning Centres for their subject training (obviously no mathematics HLTAs reported using this training provider).

3.4.3 Provision of and support from mentors during specialist training

"The worst thing to do with anyone who is stepping out of their comfort zone is for them to feel isolated and for them to go into lessons not prepared, and not feeling confident. The mentor's role is about making sure that everything is in the right place and that when the HLTA teaches their first lesson that there is someone in there to support her." (Head of Mathematics)

HODs were asked whether or not the mathematics/science HLTA had a mentor whilst they under took specialist training, and if they did, whether or not this person was from within or outside the school. The findings indicate that over half of HODs reported that their mathematics/science HLTA had a mentor from within their own school whilst they undertook specialist training (58 per cent). Mentors were seldom from outside the mathematics/science HLTAs' school. Although very few HODs thought that the mathematics/science HLTA had not had a mentor, nearly a third responded that they 'did not know' whether or not this was the case (29

per cent). For a full breakdown of the findings, please see Appendix B3, Table 3.15.

The finding that nearly a third of HODs 'did not know' whether or not their HLTA had had a mentor, may resonate with the earlier finding that over half of the HODs had not been involved in supporting staff to achieve the status. It may be common, therefore, for members of staff other than mathematics and science HODs, to take on the role of mentor for mathematics/science HLTAs. There were no differences in the mentoring arrangements across mathematics and science subjects.

The mathematics and science HLTAs themselves were naturally more certain as to whether or not they had had a mentor during their subject knowledge training. Nearly two-thirds (64 per cent) reported having a mentor from within their own school during their subject knowledge training for the status. Only two per cent of mathematics and science HLTAs identified having a mentor from outside of their own school. Almost a third (31 per cent) of HLTAs indicated having no mentor during their training for the status (see Table B1.14 in Appendix B1).

Analysis of the within-school responses regarding the provision of a mentor revealed a positive correlation between the views of HLTAs and HODs (see Appendix C, Table C2). This finding suggests that when one respondent remarked that the HLTA had been provided with a mentor, the other respondent agreed, and vice versa.

However, the finding that nearly a third of mathematics and science HLTAs did not have a mentor, coupled with the earlier finding that more than half (54 per cent) of HODs were not involved in providing support for the HLTA, may lead to a questioning of whether HLTAs had enough school support to undertake the status. However, it may be that they were assessed as not requiring support.

Mathematics and science HLTAs who reported they had had a mentor during their subject training were asked to comment, in an open question, on the contribution the mentor had made to helping them become a mathematics/science HLTA (Appendix B1, Table B1.15). Their responses can be broken down into the following categories:

- **Provided help/support/guidance (general)** (e.g. discussion of ideas, progress, additional support, regular meetings, improving confidence, providing encouragement, reassurance)
- **Supported subject knowledge development** (e.g. tutor for GCSE course, help with subject knowledge, help with pupil misconceptions, engaging help from subject department)
- **Supported development of teaching and learning skills**, including practical help (e.g. 'team teaching', guidance with teaching elements, achieving progression with pupils, lesson planning, classroom management, provided opportunities to try out skills learnt, observed lessons and fed back, statutory procedures)
- **Supported in achieving HLTA standards (general)** (e.g. evidence gathering, portfolio compilation, support with assignments, understanding standards, advice on HLTA process)
- **Provided help with understanding subject national curriculum and levels**
- **Support arranging training/resources** (e.g. provided text/reference books, arranging training and courses, resources, arranged timetable changes)
- **No/limited support received from mentor** (e.g. no useful contribution from mentor, support provided by subject department, not mentor, time constraints hindered contribution).

This breadth of support that HLTAs identified underlines the value and importance of providing mentor support for HLTA candidates.

4. Deployment and line management of mathematics/science HLTAs

Key findings

- While seven out of ten HLTAs reported being attached to the department for which they had undergone mathematics or science subject training (73 per cent for mathematics; 70 per cent for science), a notable minority also said they were attached to the learning support/SEN department (46 per cent for mathematics; 41 per cent for science). This was because respondents could select more than one option and because as the case-study revealed dual-line management was sometimes a feature of HLTA deployment.
- The majority of HLTAs (72 per cent) reported spending more than half of their time in their subject area, while more than a third (35 per cent) were based solely in a mathematics or science department.
- Overall, almost half of the HLTAs (47 per cent) reported that they were line managed by the SENCO, while about four out of ten (41 per cent) HLTAs said they were line managed by a HOD. The findings suggest that for many HLTAs, their line managers were not part of the department to which they were attached.
- More HODs reported that they line managed HLTAs than HLTAs did themselves, suggesting that some HODs and/or HLTAs were unclear as to the exact nature or arrangement of the HLTAs' line management arrangements.
- Visits to the nine case-study schools confirmed the range of line management arrangements identified through the surveys, with some HLTAs being line managed (and timetabled) by the SEN or subject department only, and some having dual line management, with their deployment negotiated between the different HODs.
- The majority of mathematics and science HLTAs responding to the survey reported spending most of their time providing leaner support, often to a whole class, but sometimes to small groups or on a one-to-one basis. This is perhaps not surprising given that many HLTAs progress from TA or learning support roles where these skills have been developed.

- In supporting teachers, the majority of mathematics and science HLTAs reported spending most of their time providing tailored support to pupils and helping to manage classroom behaviour.
- More than half of the HLTAs (55 per cent) reported that they 'quite frequently' or 'very frequently' led the delivery of lessons without a teacher.
- A consideration of the needs of specific pupils was the main factor in determining the tasks teachers and HODs allocated to mathematics and science HLTAs. In addition, HODs' and teachers' assessment of the particular strengths and abilities of the HLTA was also important in determining the tasks allocated to HLTAs.
- Regression analysis revealed that, when compared to their counterparts, those HLTAs who were more frequently working with pupils who had shortfalls in their understanding of mathematics/science, spent significantly more time working in collaboration with a subject teacher.

4.1 Introduction

This chapter presents information about mathematics and science HLTAs' line management arrangements. It also explores how mathematics and science HLTAs are deployed and the factors underpinning this deployment.

4.2 Departmental allocation and line management arrangements

Departments to which HLTAs are attached

HLTAs responding to the survey were asked what department they were attached to. HLTAs could choose more than one option. The findings are presented in Table 4.2a below.

Table 4.2a Departments HLTAs are attached to

Response	Mathematics		Science		Total	
	N	%	N	%	N	%
Mathematics	182	72	5	3	187	46
Learning support/SEN	117	46	64	41	181	44
Science	5	2	109	70	114	28
Don't know	0	0	2	1	2	<1
None	9	4	3	2	12	3
Other	0	0	1	1	1	<1
No response	8	3	5	3	13	3
		N=253		N=156		N=409

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Multiple response question - totals may not sum to 100

Table 4.2a shows that:

- Overall, almost half of the sample of HLTAs were attached to a mathematics department (46 per cent), a similar proportion to a learning support or SEN department (44 per cent), and almost three in ten (28 per cent) to a science department.

"There is a cross over and the HLTA does still attend SEN team meetings and maths team meetings." (Assistant Headteacher)

- A small minority (3 per cent) reported they were not attached to a specific department or did not know which department they were attached to.
- While the majority of HLTAs were attached to the department for which they had undergone their subject specialist training, a small number of mathematics HLTAs reported being attached to a science department (2 per cent), and a similar proportion of science HLTAs reported being attached to a mathematics department (3 per cent).

"I attend the SEN meetings to get feedback on various pupils, and then I can apply my maths skills in the best ways to support them or advise the teacher about pupils if I'm not in class." (Mathematics HLTA)

It is notable that despite being mathematics or science subject specialists, more than four out of ten HLTAs (44 per cent) reported being attached to a learning support or SEN department. This finding is, however, supported by earlier findings from NFER research into the deployment of HLTAs, which suggested that 55 per cent of HLTAs deployed in secondary schools specialised in supporting SEN pupils (Wilson *et al.* 2007, p.16).

These findings raise the question of what proportion of their time did HLTAs actually spend working in a mathematics or science department? The findings are presented in Table 4.2b below.

Table 4.2b Proportion of HLTAs' working time spent supporting mathematics or science departments

Response	Mathematics		Science		Total	
	N	%	N	%	N	%
A) Less than 25%	23	9	17	11	40	10
B) 25-50%	42	17	24	15	66	16
C) 51-75%	36	14	22	14	58	14
D) 76-99%	66	26	28	18	94	23
E) Always (100%)	80	32	63	40	143	35
F) Don't know	3	1	1	1	4	1
G) No response	3	1	1	1	4	1
	N=253		N=156		N=409	

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100

Table 4.2b shows that:

- Overall, the majority of HLTAs (72 per cent) spent more than half of their time in their subject area, while more than a third (35 per cent) were based solely in a mathematics or science department.
- Mathematics and science HLTAs reported spending similar amounts of time supporting their respective departments.

Additional analysis revealed that more than a quarter of the HLTAs (26 per cent) said that they were supporting mathematics or science departments 'much more' since achieving mathematics or science HLTA status. This finding suggests that for many, the status had made a difference to the amount of time they subsequently spent supported their subject area. A full breakdown of the responses to this question can be found in the Appendix B1, Table B1.21.

HLTAs were also asked to what extent they felt an 'integral part' of their mathematics or science department. The findings are presented in Table 4.2c below.

Table 4.2c Extent to which HLTAs felt an integral part of the mathematics and/or science department

Response	Mathematics		Science		Total	
	N	%	N	%	N	%
A) Not at all	18	7	12	8	30	7
B) A little	21	8	7	5	28	7
C) To some extent	69	27	44	28	113	28
D) To a great extent	144	57	89	57	233	57
E) Don't know	0	0	2	1	2	1
F) No response	1	<1	2	1	3	1
	N=253		N=156		N=409	

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100

Overall, the majority of HLTAs (85 per cent) felt an integral part of the mathematics and/or science department 'to some extent' or 'to a great extent'. It is notable, however, that a small proportion (seven per cent) felt they were not integral to the department for which they had specialist subject knowledge.

"I am very much part of the maths department and I am not treated any differently from any other members of staff within the department." (Mathematics HLTA)

The next section explores whether HLTAs' line management arrangements closely correlate to the departments they were based in.

HLTAs' line management arrangements

HLTAs responding to the survey were asked to identify who their line manager was. More than one response could be given. The findings are presented in Table 4.2d below.

Table 4.2d HLTAs' line managers (as reported by the HLTAs)

Response	Mathematics		Science		Total	
	N	%	N	%	N	%
SENCO	121	48	69	44	190	47
HOD/ Subject Leader	100	40	66	42	166	41
Deputy Head Teacher/Assistant Head Teacher	39	15	26	17	65	16
Other (open)	11	4	15	10	26	6
School Business Manager/Bursar	9	4	7	4	16	4
Senior TA	9	4	7	4	16	4
Head teacher	8	3	5	3	13	3
Senior HLTA	3	1	3	2	6	2
Classroom teacher	2	1	3	2	5	1
Don't know/not sure	0	0	1	1	1	<1
I do not have a line manager	0	0	1	1	1	<1
		N=253		N=156		N=409

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Multiple response question - totals may not sum to 100

Table 4.2d shows that:

> *"When you want to be as involved with a particular subject yourself, then yes it needs to be line managed by a maths person."* (Mathematics HLTA)

- Overall, almost half of the HLTAs (47 per cent) reported that they were line managed by the SENCO, while more than four out of ten (41 per cent) said they were line managed by a HOD/ Subject Leader.
- The line managers for mathematics and science HLTAs appeared to be very similar, although slightly more mathematics HLTAs than science HLTAs reported that they were line managed by the SENCO (48 per cent compared to 44 per cent).
- About one out of six HLTAs (16 per cent) reported that they were line managed by a Deputy or Assistant Headteacher.

A minority of HLTAs (n=26) identified other people as line managing them. These included: other senior SEN staff; cover supervisors; and other staff within the mathematics or science department (Appendix B1. TableB1.9a).

Additional analysis revealed that of those HLTAs who reported being attached to a learning support or SEN department (n=181), the majority (70 per cent) were line managed by the SENCO while a smaller proportion (6 per cent)

were line managed by a HOD. Furthermore, while around three out of ten of those HLTAs who reported being attached to a mathematics or science department reported being line managed by their HOD (34 per cent for mathematics; 27 per cent for science), close to four out of ten of these HLTAs reported being line managed by the SENCO (37 per cent for mathematics; 37 per cent for science).

These findings underline the sometimes complicated nature of HLTAs' line management arrangements: that they are sometimes line managed by a HOD, SENCO or both; and that this means that their line manager (or one of their line managers) is often not part of the department to which they report being attached.

Comparison of the same line management question asked of HODs revealed some interesting differences (Appendix B3, Tables B3.16 and B3.16a). Half of the HODs (50 per cent) reported that mathematics and science HLTAs were line managed by them or other HODs, compared to 41 per cent of HLTAs, while approximately four out of ten (39 per cent) reported they were line managed by the SENCO compared to 47 per cent of HLTAs. The fact that more HODs reported that they line managed HLTAs than HLTAs did themselves, could suggest that some HODs and/or HLTAs were unclear as to the exact nature or arrangement of the HLTAs' line management arrangements. The visits to the nine case-study schools support this, and suggest that there is some role ambiguity with regards to whether the member of staff responsible for day-to-day management of the HLTA, is also the person with formal responsibility for their line management.

The extent to which different line management arrangements influence the support and training opportunities HLTAs feel they receive is explored in Chapter 6.

4.2.1 Line management and deployment of HLTAs: what the case studies said

The case-study schools demonstrated a range of line management and deployment arrangements. It is clear that a number of the mathematics/science HLTAs do indeed maintain roles and responsibilities across departments, as well as sometimes having dual line management. In addition, there is evidence

that HLTA deployment/line management is fluid and in the process of evolving, as schools and departments work out what is the most effective arrangement for their particular circumstances.

Four main types of line management structure emerged across the nine case-study schools:

Type One: The HLTA is seen as an integral member of the subject department and line-managed entirely by the HOD. Their role is to support the department, though in one instance, a mathematics HLTA has some involvement in the science department.

Type Two: The HLTA is managed by the subject HOD (though may have been originally line-managed by the SEN department, or been dual managed). The HLTA retains strong links with the SEN department e.g. deployment being negotiated between the SEN and subject departments; the HLTA reporting to the SENCO due to a continuing involvement with statemented pupils; or attending SEN department meetings to keep up to date with current issues.

Type Three: The HLTA is formally line managed by the SENCO, but deployed solely in the subject department. Half of the HLTA's timetable is managed by the SENCO, and half by the subject HOD. In practice this is seen as joint management.

Type Four: The HLTA is line managed by the SENCO/Head of Learning Support: and the timetable for HLTA deployment is entirely the responsibility of this line manager. Priority access to the HLTA is given to the subject department. This HLTA also has TA duties.

Line management outside a subject department (Type Three and Four) did raise comment on how this limited the HLTA contributing to that department (particularly the difficulty of attending subject department meetings). In some instances, references were made to how this limited involvement led to a loss of opportunity for the HLTA to develop the role and themselves professionally. Lack of clarity arising from dual management also surfaced. One other notable difference between Type One and the other models was that those mathematics/science HLTAs deployed and line managed exclusively

within a department were often seen to have a role in offering advantageous supply cover, due to their familiarity with the subject, syllabus and pupils. This cover role was not advocated in any of the other deployment models.

4.3 Deployment of mathematics/science HLTAs in supporting pupils

4.3.1 Frequency with which HLTAs undertake specific tasks

One of the main aims of HLTA status is to provide enhanced support for pupils' learning and achievement. To explore this issue, mathematics and science HLTAs were asked how frequently they undertook a series of tasks aimed at supporting pupils, when working in their mathematics or science department. The findings are presented in Table 4.3a below.

Table 4.3a HLTAs' views on the frequency with which they undertook tasks aimed at supporting pupils

Method	Never	Not very Frequently	Frequently	Very Frequently	No response
a) Supporting pupils with Special Education Needs	5%	10%	21%	63%	2%
b) Supporting pupils of higher ability/gifted and talented	36%	37%	18%	5%	4%
c) Supporting pupils with emotional and behavioural difficulties	5%	12%	34%	47%	3%
d) Working with pupils who find mathematics/science challenging	2%	7%	32%	57%	2%
e) Working with pupils who are borderline (C/D) in GCSE mathematics/science	14%	21%	32%	31%	3%
f) Supporting individual pupils in addressing any shortfalls in their understanding of concepts or topics	9%	19%	35%	35%	2%
g) Working with individual pupils in or out of class	11%	25%	30%	32%	3%
h) Working with groups of pupils in or out of class	9%	16%	34%	37%	3%
i) Supporting whole classes	9%	14%	19%	55%	3%
j) Other task in relation to supporting pupils	11%	4%	9%	17%	59%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=409

Table 4.3a shows that:

- The tasks that HLTAs reported undertaking the most frequently[13] were: working with pupils who find mathematics/science challenging (88 per cent); supporting pupils with SEN (83 per cent); supporting pupils with emotional and behavioural difficulties (80 per cent); and supporting whole classes (74 per cent).

"The HLTA role focuses on the students who are struggling and at low levels; it is about turning a concept around so that students can understand it… The role is about bridging the gap between the maths skills and SEN skills." (Mathematics HLTA)

[13] Includes 'quite frequently' and 'very frequently' responses.

- Working with pupils who are borderline (C/D) in GCSE mathematics/science and working with individual pupils in or out of class were tasks undertaken 'very frequently' or 'quite frequently' by almost two thirds of the HLTAs (63 per cent and 62 per cent)..

> *"The real advantage of the HLTA role is intervention and their ability to work with small groups with the full confidence of their departments."* (Headteacher)

- The least frequently undertaken task was supporting pupils of higher ability and/or gifted and talented students (only 23 per cent cited this as done frequently or very frequently).

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HLTAs were also asked whether each of the tasks outlined above were new activities that had been taken on since achieving mathematics or science HLTA status (Appendix B1, Table B1.24). Analysis revealed that while relatively small numbers of respondents reported that working with pupils who were borderline (C/D) in GCSE mathematics/science (17 per cent) and supporting higher ability or gifted and talented pupils (14 per cent) were new activities, and the majority of HLTAs reported that these tasks were not new to their role.

A minority of HLTAs (n=83) identified other tasks in relation to supporting pupils (Appendix B1, Table B1.24a). These mainly consisted of leading extracurricular activities (such as after school revision lessons) and setting-up and carrying out practical demonstrations.

Overall, the findings suggest that the majority of mathematics and science HLTAs spend most of their time providing learner support, often in a whole class, but sometimes to small groups or on a one-to-one basis. This is perhaps not surprising given that many HLTAs progress from TA or learning support roles where these skills have been developed.

Additional analysis revealed that the views of HLTAs on their deployment to support pupils were very similar to those of HODs and teachers responding to the survey. One notable difference was that proportionally more teachers (85 per cent[14]) and HODs (73 per cent) perceived that HLTAs more frequently supported individual pupils in addressing shortfalls in their understanding of

[14] These percentages include 'quite frequently' and 'very frequently' responses.

concepts or topics in mathematics or science than did HLTAs (70 per cent). **This finding suggests that teachers, and to a lesser extent HODs, thought HLTAs were more frequently using their enhanced subject knowledge than HLTAs did themselves.**

Analysis of the within-school responses revealed a positive correlation between the views of HLTAs, HODs and teachers regarding certain types of support (see Appendix C, Tables C10, C11 and C12). This finding suggests that HLTAs, HODs and teachers from the same school, were generally in agreement regarding the frequency with which HLTAs undertook different tasks to support pupils.

Additional analysis revealed that almost three quarters of HLTAs (73 per cent) felt that they were able to use and apply their mathematics or science subject knowledge in the classroom 'to a great extent' (Appendix B1, Table B1.22). This proportion was slightly smaller for science HLTAs than it was for mathematics HLTAs (65 per cent and 79 per cent respectively). Analysis of the within-school responses revealed a positive correlation between the views of HLTAs and HODs (see Appendix C, Table C1). This finding suggests that HLTAs and HODs from the same school, were generally in agreement regarding the extent to which they thought HLTAs were able to use and apply their mathematics or science subject knowledge.

> *"If you have got that specialist knowledge then you can help move them on. Knowing the syllabus, knowing the schemes of work, it's moving the children on. Ultimately it's all about children and their learning".* (Mathematics HLTA)

4.3.2 Frequency with which HLTAs support different age groups

HLTAs were asked how frequently they supported key stage 3, 4 and 5 pupils. The findings are presented in Table 4.3b below.

Table 4.3b HLTAs' views on the frequency with which they support different age groups

Method	Never	Not very Frequently	Quite Frequently	Very Frequently	Not applicable	No response
A) Key Stage 3	3%	11%	23%	62%	1%	1%
B) Key Stage 4	4%	9%	21%	61%	3%	2%
C) Key Stage 5	35%	8%	3%	3%	31%	21%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=409

HLTAs responding to the survey reported spending the majority of their time[15] supporting pupils in key stages 3 (85 per cent) and 4 (81 per cent). Additional analysis revealed that while more than half of the HLTAs (n=221) worked in schools with sixth forms, overall, very few (6 per cent) reported that they frequently supported pupils in key stage 5, suggesting that most HLTAs were expected to support the work of pupils aged between 11-16.

4.4 Supporting teachers

One of the other key roles of the HLTA is to work closely with teachers, complementing their role and supporting them to develop each child to his or her potential. Mathematics and science HLTAs were asked how frequently they undertook a series of tasks aimed at supporting teachers, when working in the mathematics or science department. The findings are presented in Table 4.4a below.

[15] These percentages include 'quite frequently' and 'very frequently' responses.

Table 4.4a HLTAs' views on the frequency with which they undertook tasks aimed at supporting teachers

Method	Never	Not very Frequently	Quite Frequently	Very Frequently	No response
a) Paired teaching with a teacher	32%	31%	22%	11%	3%
b) Leading delivery of lessons with a teacher	42%	33%	17%	7%	2%
c) Leading delivery of lessons without a teacher	21%	20%	19%	36%	3%
d) Preparing learning resources	8%	22%	30%	38%	2%
e) Planning/preparing lessons with a teacher	29%	33%	24%	11%	4%
f) Providing feedback on pupils' learning and behaviour	3%	9%	39%	46%	2%
g) Delivering catch-up sessions	26%	31%	25%	15%	3%
h) Extra curricular activities	44%	24%	15%	14%	2%
i) Supervising class during teacher absence	16%	35%	24%	21%	4%
j) Devising an activity to support the understanding of new concepts being introduced	21%	38%	26%	13%	2%
k) Supporting the management of behaviour in the classroom	2%	7%	38%	51%	2%
l) Differentiating activities to meet the needs of different pupils	5%	18%	40%	36%	2%
m) Other task in relation to supporting teachers	11%	1%	3%	7%	79%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=409

Table 4.4a shows that:

- The tasks that HLTAs reported undertaking the most frequently[16] were: supporting the management of behaviour in the classroom (89 per cent); providing feedback on pupils' learning and behaviour (85 per cent); and differentiating activities to meet the needs of different pupils (76 per cent).
- The least frequently undertaken tasks were leading the delivery of lessons with a teacher (only 24 per cent of respondents said this was undertaken 'quite' or 'very frequently') and extra curricular activities (29 per cent).

[16] Includes 'quite frequently' and 'very frequently' responses.

Additional analysis revealed that the majority of HLTAs reported that these tasks were not new to their role (Appendix B1, Table B1.25).

A minority of HLTAs (n=87) identified other tasks in relation to supporting teachers (Appendix B1, Table B1.25)a. These mainly consisted of supporting teachers with planning, preparation and assessment, and taking full responsibility for some classes.

Overall, the findings suggest that the majority of mathematics and science HLTAs spend most of their time providing tailored support to pupils and helping to manage classroom behaviour. It is also notable than many HLTAs reported leading the delivery of lessons without a teacher.

Analysis of the within-school responses revealed a positive correlation between the views of HLTAs, HODs and teachers (see Appendix C, Tables C13, C14 and C15). This finding suggests that as one respondent's views of the frequency with which HLTAs' undertook tasks to support teachers increases, so do the views of the other respondents.

However, when looking at the whole sample, there were a few notable differences between the views of HLTAs on their deployment to support teachers and those of HODs and teachers responding to the survey. For example:

- Proportionally fewer teachers (50 per cent[17]) thought that HLTAs frequently prepared learning resources than did HLTAs (68 per cent) or HODs (63 per cent).
- Fewer HODs (76 per cent) thought that HLTAs frequently spent time providing feedback on pupils' learning and behaviour than did HLTAs (85 per cent) or teachers (84 per cent).
- More HLTAs (89 per cent) thought they frequently supported the management of behaviour in the classroom than did teachers (74 per cent) or HODs (73 per cent).
- More HLTAs (76 per cent) thought they frequently differentiated activities to meet the needs of different pupils than did teachers (64 per cent) or HODs (61 per cent).

[17] These percentages include 'quite frequently' and 'very frequently' responses.

4.4.2 Deploying mathematics/science HLTAs within the department and classroom: what the case studies showed

Observation and interviews in the case-study schools showed a wide range of teaching tasks as well as other support activities undertaken by HLTAs

Withdrawing students, which involved the HLTA teaching small groups independently outside the classroom, was a particularly common feature across all the nine schools. In one school, the HLTA had their own teaching space adjoining the classroom, others were more flexible about actual location, e.g. booking rooms in advance. Numbers and type of students varied, as did the length of time spent with the group. In some instances, the groups comprised pupils described as ‘under achievers’ or the 'least able'; in other cases, the HLTA's group was specifically ‘statemented pupils’. Another grouping criteria, with the rationale of 'alleviating' the pressure on the teacher, was selecting pupils from known ‘behaviourally challenging' or 'lower ability' classes. Across the sample, the size of group varied from three or four to twelve students. These groups could be taught by the HLTA for a term, half a term or on a more flexible basis. In some cases, the HLTA was supported by a TA. Other types of groupings mentioned include 'nurture ' and 'intervention ' groups; booster and revision classes, especially at KS4; and Y12 and 13 pupils following alternative curriculum. Working with Gifted and Talented pupils was occasionally referenced as a future intention.

Teaching together in the same classroom environment with the subject teacher was another dimension to the HLTAs' repertoire: the HLTA could lead some of the lesson (e.g. the introduction or a specific task explanation; undertaking a question and answer session on subject revision). As part of co-teaching in this way, supporting individual pupils responsively in the classroom, including to maintain focus on-task or to manage potential disruption also was described. Equally, directly targeting differentiated support to SEN or statemented pupils within the class was noted. Managing the distribution of resources during a lesson was also an HLTA role. There could be considerable fluidity and responsiveness in this co-teaching arrangement - both within and across lessons, with examples of role exchange, (for instance, the teacher supervising a small group, and the HLTA managing the rest of the class).

Covering lessons for absent teachers was another HLTA teaching contribution cited in some case-study schools, particularly (as noted earlier) for those

HLTAs attached solely to a subject department. It was seen as an advantage and preferable to others (such as 'cover supervisors') covering lessons, because of the HLTA's familiarity with the students and with the syllabus. This in turn ensured continuity of learning and could reduce pupil disruption. Nevertheless, covering long-term absence was not seen as an appropriate HLTA role. In other instances, senior staff spoke of their unwillingness to use HLTA as cover, because of the role's crucial pro-active contribution to teaching and learning or because the school policy was to use very experienced staff in this capacity.

HLTAs often said did their own planning and preparation for teaching tasks, as well as reporting back on lesson outcomes to the teacher. In a few instances, it was noted that there was some joint planning with teacher(s): one HLTA described this as 'informal'; another specified an hour a week was allocated for this joint planning. Again, those HLTAs assigned exclusively to departments appeared to refer more to doing their 'own' planning/preparation, as well as suggesting time was available for this.

Producing resources, often with a reference to creating differentiated material. There was mention of HLTAs devising assessment schemes specifically for less able pupils; creating displays; and being responsible for preparing resources ready for the next phase of the department's scheme of work.

Other HLTA support tasks and roles noted during the case-study interviews included:

- **pastoral activity** e.g. being a form tutor or sharing that role (temporarily, in one instance);
- **cover organiser**, including arranging lesson materials
- **managing** and **supporting** other support staff in the department (e.g. line managing TAs; mentoring others undertaking HLTA status)
- **running additional activities** such as Spanish classes for the Modern Foreign Languages department; a lunchtime Latin club; an extra-curricular 'Brain Gym' session

4.5 Factors determining the allocation of tasks to HLTAs

The views of teachers and HODs

HODs and teachers were asked to what extent a series of prescribed factors determined their allocation of tasks to mathematics or science HLTAs. The findings from the teacher questionnaires are presented in Table 4.5a below.

Table 4.5a Teachers' views on the importance of different factors in determining the allocation of tasks to HLTAs

Method	Not at all	A little	To some extent	To a great extent	Don't know	No response
A) Specific pupil needs (e.g. to support a particular pupil, particular group of pupils)	2%	2%	16%	78%	0%	2%
B) Particular types of lessons (e.g. practicals, project work)	9%	18%	37%	34%	1%	2%
C) The HLTA's preference for the tasks they undertake	37%	28%	26%	3%	5%	2%
D) My assessment of the particular strengths and abilities of the HLTA	23%	20%	35%	19%	1%	2%
E) My PPA time	70%	11%	7%	5%	4%	3%
F) My assessment of the subject knowledge of the HLTA	29%	20%	27%	20%	0%	3%
G) Other (open)	9%	1%	1%	7%	4%	79%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=212

Table 4.5a shows that the three factors that most frequently[18] influenced **teachers'** allocation of tasks to mathematics and science HLTAs were:

- specific pupil needs (94 per cent);
- the nature and type of lessons being delivered (71 per cent);

[18] Includes 'to some extent' and 'to a great extent' responses.

- and teachers' assessment of the particular strengths and abilities of the HLTA (54 per cent).

Other factors identified by a minority of teachers (n=18) included: HLTAs' willingness to undertake different tasks; HLTAs' previous experience; and timetabling constraints.

A comparison of the same selection of factors posed to HODs revealed a similar picture, with a consideration of pupils' specific needs and HODs' assessment of the particular strengths and abilities of the HLTA being reported as the most important factors determining HOD's allocation of tasks to HLTAs. Additional analysis revealed that for both teachers and HODs, protecting teachers' planning, preparation and assessment (PPA) time was the least important factor in determining the tasks allocated to HLTAs. A full breakdown of the HOD responses can be found in Appendix B3, Table 3.13.

Analysis of the within-school responses revealed that as HODs' views of the importance of covering staff absences increased, as a reason for determining the allocation of tasks to HLTAs, the importance of this factor to teachers also increased (see Appendix C, Tables C16 and C17). However, as HODs' views of the importance of supporting the work of non-specialist teachers as a reason for determining the allocation of tasks to HLTAs increased, the importance of this factor to teachers decreased.

Overall, the findings suggest that a consideration of the needs of specific pupils, for example, whether to support a particular individual or to work with a particular group of pupils, was the main factor in determining the tasks teachers and HODs allocated to mathematics and science HLTAs. In addition, HODs' and teachers' assessment of the particular strengths and abilities of the HLTA was also important in determining the tasks allocated to HLTAs.

The views of Headteachers

Headteachers responding to the survey were asked to what extent a series of prescribed factors underpinned the allocation within their school of mathematics and science HLTAs. The findings are presented in Table 4.5b below.

Table 4.5b Headteachers' views of the importance of different factors in underpinning the allocation within their schools of mathematics and science HLTAs

Method	Not at all	A little	To some extent	To a great extent	Don't know	No Response
A) To ensure mathematics/science HLTAs work exclusively/mainly in their subject area	2%	5%	10%	70%	1%	4%
B) Staff shortages	55%	19%	17%	3%	1%	6%
C) Financial viability of mathematics/science HLTA posts	29%	20%	27%	13%	4%	7%
D) Staff absences	57%	18%	16%	3%	1%	5%
E) PPA time	81%	5%	6%	2%	1%	6%
F) School improvement policies	5%	5%	24%	59%	1%	5%
G) To support the work of non-specialist teachers	58%	16%	12%	8%	1%	7%
I) Other (open)	8%	2%	7%	2%	18%	82%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=186

Table 4.5b shows that:

- According to headteachers, the two factors that most frequently[19] influenced the allocation of mathematics and science HLTAs were:
  - a consideration of school improvement policies (83 per cent); and
  - the need to ensure that mathematics and science HLTAs worked exclusively or mainly in their subject area (80 per cent)

[19] Includes 'to some extent' and 'to a great extent' responses.

"It is a bit of waste to see HLTAs as cover for teachers, because they are more competent than that and there are cover supervisors to cover lessons. The HLTAs work from a structured timetable and are not for childminding." (Headteacher)

"The HLTA has a good reputation now, and the kids know that they're not going to get away with anything and so they know better than to try it on [in cover lessons]." (Head of Mathematics)

- According to headteachers, the three factors that least frequently[20] influenced the allocation of mathematics and science HLTAs were:
  - a need to protect teachers' PPA time (8 per cent);
  - covering staff absences (19 per cent); and
  - filling staff shortages (20 per cent).

Additional analysis revealed that other factors identified by a minority of headteachers (n=16) included the absence of available HLTA posts within the school, and the quality of support already being provided to pupils (Appendix B, Table B2.4a).

Overall, the findings suggests that when considering the allocation of mathematics and science HLTAs, headteachers were mainly concerned with their potential contribution to meeting school priorities and the extent to which they would be able to support a specific subject area. The financial viability of mathematics/science HLTA posts and the need to cover staff absences were infrequently reported as the reasons underpinning HLTA allocation.

4.6 Challenges to the appointment and deployment of HLTAs

4.6.1 Challenges: the views of Headteachers and HODs

Headteachers were asked to what extent they agreed or disagreed with a series of statements relating to the appointment and deployment of mathematics and science HLTAs. The findings are presented in Table 4.6a below.

[20] Includes 'not at all' and 'a little' responses.

Table 4.6a Headteachers' views on the extent to which there were challenges in appointing and deploying HLTAs

Method	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	No Response
a) The HLTA(s) have other duties in the school which limits the extent to which they can support mathematics/science teachers in the classroom	6%	25%	25%	25%	25%	25%
b) Teaching staff are reluctant to change (e.g. delegate tasks, joint planning)	1%	8%	11%	57%	20%	3%
c) Support staff are reluctant to change(e.g. to take on tasks, joint planning)	0%	7%	12%	54%	24%	3%
d) The are no HLTA vacancies in the school	26%	27%	13%	17%	12%	5%
e) There is sufficient funding for HLTA posts	3%	15%	15%	43%	21%	3%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=186

Table 4.6a shows that:

- More than half of the headteachers (53 per cent) 'agreed' or 'strongly agreed' that there were currently no HLTA vacancies in their schools.
- While half of the headteachers 'disagreed' or 'strongly disagreed' that their HLTAs had other duties which limited the extent to which they could support mathematics or science teachers, almost a third (31 per cent) 'agreed' or 'strongly agreed' with this statement.
- The majority of headteachers (64 per cent) 'disagreed' or 'strongly disagreed' that there was sufficient funding for HLTA posts.

It is also notable that only a small a minority of headteachers 'agreed' or 'strongly agreed' with the statement that teaching staff and support staff were

'reluctant to change', e.g. by refusing to joint-plan or to share tasks (9 per cent and 6 per cent respectively).

Analysis of HODs responses to a similar series of items found that:

- Eight out of ten HODs (80 per cent) 'agreed' or 'strongly agreed' that there was not enough time for teachers and HLTAs to plan together.
- Almost half of the HODs (46 per cent) 'agreed' or 'strongly agreed' that there was a lack of guidance or training for teachers working with HLTAs.
- A similar proportion of HODs (45 per cent) 'agreed' or 'strongly agreed' that there was variability in the skills and experience of HLTAs.
- The majority of HODs 'disagreed' or 'strongly disagreed' that teaching staff and support staff were 'reluctant to change' in their willingness to work more closely together (55 per cent and 63 per cent respectively).

A full breakdown of the HOD responses can be found in Appendix B3, Table 3.14.

4.6.2 Challenges: the views of HLTAs and teachers

HLTAs were asked to what extent they agreed or disagreed with a series of statements relating to the extent to which they were able to carry out their role. The findings are presented in Table 4.6b below.

Table 4.6b HLTAs' views on the extent to which the following issues were challenges

Issue	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	No response
a) I have enough time to plan and prepare lessons with the mathematics/science teacher	3%	17%	24%	34%	16%	5%
b) The teacher rarely delegates tasks to me	5%	12%	21%	38%	19%	6%
c) I have other duties in the school which limit the extent to which I can support the mathematics/science teacher in the classroom	18%	22%	17%	24%	14%	5%
d) I am always given adequate support to deliver the tasks I've been given by the teacher	16%	41%	25%	8%	5%	5%
e) I need more subject knowledge to effectively support pupils in mathematics/science	4%	18%	23%	32%	19%	5%
f) Other	3%	1%	4%	<1%	2%	90%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=409

Table 4.6b shows that:

- More than half of the HLTAs (57 per cent) 'agreed' or 'strongly agreed' that they are always given adequate support to deliver the tasks they have been given by the teacher.
- Almost four out of ten HLTAs (39 per cent) 'agreed' or 'strongly agreed' that they have other duties in their school which limit the extent to which they can support mathematics or science.

- While about one in five HLTAs (21 per cent) 'agreed' or 'strongly agreed' that they had enough time to plan and prepare lessons with a teacher, half 'disagreed' or 'strongly disagreed'.

> *"The biggest stumbling block is liaison time with all the teachers that you work with."* (Mathematics HLTA)

- The majority of HLTAs (57 per cent) 'disagreed' or 'strongly disagreed' that teachers rarely delegated tasks to them. About one in six (17 per cent), however, agreed.
- While more than half of the HLTAs (51 per cent) 'disagreed' or 'strongly disagreed' that they needed more subject knowledge to effectively support pupils, over a fifth (22 per cent) suggested they would benefit from additional subject knowledge.

Additional analysis revealed that other challenges identified by a minority of HLTAs (n=41) included: HLTA activities being predominantly SEN and not subject based; HLTAs spending time planning lessons but not being paid for it; and HLTAs wanting to make more use of their subject specialism (Appendix B1, Table B1.26a).

Overall, the findings suggest that the majority of HLTAs felt that teachers were happy to delegate tasks to them, and gave them the support required to carry out those tasks. A notable minority felt they would benefit from further subject knowledge training. Furthermore, responses from half of the HLTAs surveyed suggested that they did not have enough time to joint-plan with teachers.

> *"Ofsted judge good to outstanding lessons as those that make proactive use of TAs; we look out for that and always encourage teachers to discuss their lessons with their HLTAs".* (Headteacher)

A comparison of a similar selection of issues posed to teachers revealed a similar picture. For example, more than six out of ten teachers (61 per cent) 'disagreed' or 'strongly disagreed' that they had enough time to plan with teachers, and more than three quarters (78 per cent) 'disagreed' or 'strongly disagreed' that they found it hard to delegate tasks to an HLTA. In addition, two out of five teachers (40 per cent) 'agreed' or 'strongly agreed' that HLTAs have other duties in their school which limit the extent to which they can support mathematics or science (Appendix B4, Table B4.11).

Some teachers' responses to additional items suggest that there may be areas for further development. For example:

- While more than two out of five teachers (41 per cent) 'agreed' or 'strongly agreed' they had enough guidance on how to work with mathematics and science HLTAs, a notable minority (30 per cent) 'disagreed' or 'strongly disagreed'.
- Similarly, almost four out of ten teachers (39 per cent) 'disagreed' or 'strongly disagreed' that they had enough training on how to work with mathematics and science HLTAs.
- Finally, one in three teachers (33 per cent) reported that they 'agreed' or 'strongly agreed' that they were not always sure what tasks to give to the HLTA.

These findings suggest that some teachers could benefit from additional guidance and training on how to work with a mathematics or science HLTA. A full breakdown of the teacher responses can be found in Appendix B4, Table 4.11.

4.7 Regression analysis of the deployment and line management of mathematics/science HLTAs

Further analysis[21] revealed sets of correlated items which related to:

- the time spent supporting pupils with SEN and/or emotional and behavioural difficulties (see Appendix D, Table D3.3)
- the time spent supporting pupils who had shortfalls in their understanding of mathematics/science (see Appendix D, Table D3.4)
- the extent to which HLTAs' felt an integral part of their mathematics/science department (see Appendix D, Table D3.5)
- collaboration with a subject teacher (see Appendix D, Table 3.7)

Regression analysis then identified which groups of HLTAs and school-level characteristics correlated to responses to each of these items (for further explanation of this analysis see Appendix D).

[21] The significance of relationships with some background variables needs to be treated with caution where the numbers in the subgroup are small. The significance of such results may be affected by the small number of people in the subgroup rather than there being a strong relationship between the group and the outcome itself. See Appendix D for full explanations of each factor. For the regression analyses, only variables that have a statistically significant relationship with the outcome (at the 5 per cent level) are reported. The variables are reported in order, with those showing the strongest relationship reported first.

4.8 Time spent supporting pupils with SEN and/or emotional and behavioural difficulties: regression analysis

4.8.1 More time spent supporting pupils with SEN and/or emotional and behavioural difficulties

Regression analysis revealed that, when compared to their counterparts, the following groups spent significantly more time supporting pupils with SEN and/or emotional and behavioural difficulties:

- those who were more frequently working with pupils who had shortfalls in their understanding of mathematics/science
- those line managed by the SENCO
- those who belonged to the group who reported that working as a mathematics/science HLTA had positively impacted on them
- those line managed by more than one person
- those who did not state what type of contract they had
- those from schools in rural areas

4.8.2 Less time spent supporting pupils with SEN and/or emotional and behavioural difficulties

Regression analysis also revealed that, when compared to their counterparts, the following groups spent significantly less time supporting pupils with SEN and/or emotional and behavioural difficulties:

- those who worked in grammar schools
- those who reported to feel more of an integral part of the mathematics/science department

4.9 Time spent supporting pupils who had shortfalls in their understanding of mathematics/science: regression analysis

4.9.1 More time spent supporting pupils who had shortfalls in their understanding of mathematics/science

Regression analysis revealed that, when compared to their counterparts, the following groups spent significantly more time supporting pupils who had shortfalls in their understanding of mathematics/science:

- those who reported that they frequently supported pupils with SEN and/or emotional and behavioural difficulties
- those who reported to feel more of an integral part of the mathematics/science department
- those who said that they frequently worked in collaboration with a subject teacher
- those who were able to use more of their subject specific skills and knowledge

4.9.2 Less time spent supporting pupils who had shortfalls in their understanding of mathematics/science

Regression analysis also revealed that, when compared to their counterparts, the following groups spent significantly less time supporting pupils who had shortfalls in their understanding of mathematics/science:

- those who belonged to the group who reported that working as a mathematics/science HLTA had more positively impacted on them

Extent to which HLTAs' felt an integral part of the mathematics/science department: regression analysis

More integral part of the mathematics/science department

Regression analysis revealed that, when compared to their counterparts, the following groups felt they were a significantly more integral part of their mathematics/science department:

- those who spent most of their time working in mathematics or science
- those who belonged to schools that undertook more activities to promote the importance of the mathematic/science HLTA role
- those who were able to use more of their subject specific skills and knowledge
- those who worked in schools other than grammar schools, comprehensives, or middle schools
- those line managed by more than one person
- those who worked in schools with higher levels of pupils eligible for Free School Meals

Collaboration with a subject teacher: regression analysis

More time spent working collaboratively with a teacher

Regression analysis revealed that, when compared to their counterparts, the following groups spent significantly more time working in collaboration with a subject teacher:

- those who were more frequently working with pupils who had shortfalls in their understanding of mathematics/science
- those who belonged to the group who reported that working as a mathematics/science HLTA had more positively impacted on them
- those who reported to feel more of an integral part of the mathematics/science department
- those who were contracted for 52 weeks per year
- those from schools in the North West
- those who worked in secondary schools other than grammar schools, comprehensives, or middle schools
- those who were science HLTAs

Less time spent working collaboratively with a teacher

Regression analysis revealed that, when compared to their counterparts, those who had a TA contract as opposed to an HLTA contract spent less time working collaboratively with a teacher.

5. Impact of mathematics/science HLTAs

Key findings

- The areas where headteachers felt that mathematics/science HLTAs were making the greatest contribution to their schools were: improving pupil outcomes in mathematics/science (90 per cent); supporting the work of specialist mathematics/science teachers (87 per cent), and; contributing to meeting school improvement targets (85 per cent).
- The mathematics/science HLTA role was judged by around two-thirds of headteachers to make little or no contribution to: coping with staff shortages (68 per cent) and supporting the work of non-specialist mathematics/science teachers (63 per cent).
- Overall, there appeared to be a high degree of agreement amongst HODs, teachers and HLTAs about the types of contribution mathematics/science HLTAs made to pupils in mathematics and science. Specifically, they agreed that HLTAs' main contribution was to pupils' understanding of mathematics and science topics, and to improving their achievement and opportunity for personalised learning.
- The case study interviewees described the positive impacts of the mathematics/science HLTA status on departments, teachers, pupils and HLTAs themselves. Enriched provision and increased support for pupils and teachers in the delivery of subjects, as well as greater flexibility in staffing were described. It was noted that the HLTA had a significant impact on pupils' attainment (including 'faster progression'); their greater enjoyment of and engagement with the subject; their increase in confidence and their improved behaviour. HLTAs themselves reported a strong sense of professional and personal growth.
- The areas where HODs felt that mathematics/science HLTAs were making the greatest contribution to teachers in their department was in terms of 'improving the quality of teaching of specialist mathematics/science teachers' (94 per cent ranked this in their top three).
- Perhaps surprisingly, less than a quarter of HODs felt that 'improvements to the quality of teaching of non-specialist mathematics/science teachers' had been one of the main contributions of the subject HLTA. This is in line with other findings that suggest supporting non-specialist teachers was not a major consideration in supporting the status (Chapter 3) or in the deployment of HLTAs (Chapter 4).
- Between two-fifths (40 per cent) to a half of teachers (52 per cent) reported that HLTAs 'to some extent' or 'to a great extent' supported them by: reducing their stress levels; reducing their workload; helping to provide more class resources/materials; and

by enabling them to explore different teaching styles with students.

- The majority of HODs (75 per cent), teachers (93 per cent) and HLTAs (92 per cent) felt that mathematics and science HLTAs had been able to use and apply their subject knowledge training in mathematics and science 'to some extent' or 'to a great extent'.
- The methods that HODs reported using to the greatest extent to assess and evaluate the impact of mathematics/science HLTAs were: the views of class teachers working with mathematics/science HLTAs (77 per cent); mathematics/science HLTA job satisfaction (76 per cent), and; monitoring impacts on pupils' learning/performance (75 per cent).
- Regression analysis revealed that, when compared to their counterparts, working as a mathematics/science HLTA had a significantly more positive impact on those HLTAs who belonged to schools that undertook more activities to promote the importance of the mathematic/science HLTA role.

5.1 Introduction

This chapter explores headteachers', HODs', teachers' and HLTAs' views of the impacts of the mathematics/science HLTA status and role. Specifically, this chapter presents information on the role's:

- overall contribution to the school (5.2)
- contribution to pupils (5.3)
- contribution to teachers (5.4)
- impact on mathematics/science HLTAs themselves (5.5)
- added value (5.6)

This chapter also explores the use and application of HLTAs' subject knowledge (5.7), and schools' assessment and evaluation of the role's impact (5.8).

5.2 Contribution to the school

Headteachers were asked to indicate the extent to which mathematics and science HLTAs made a positive contribution to their school, by responding to a list of

"As a TA, she offered an extra pair of hands, but as an HLTA she takes on far more responsibility, for example working with small groups of often challenging pupils who have particular needs. Now as a TA I would never put her in that position." (Headteacher)

pre-defined impacts. The findings are presented in Table 5.2a below

Table 5.2a Headteachers' views on the extent to which mathematics and science HLTAs make a positive contribution to the school

Response	Not at all	A little	To some extent	To a great extent	Don't know	No Response
A) Contribution to meeting school improvement targets	1%	10%	39%	46%	1%	3%
B) Workforce reform and remodelling	11%	16%	33%	36%	1%	4%
C) Contribution to improving pupil outcomes in mathematics/science	1%	6%	30%	60%	1%	3%
D) Coping with staff shortages in mathematics/science	44%	24%	16%	11%	1%	4%
E) Contribution to professional development of support staff	9%	23%	25%	38%	1%	4%
F) Reducing teacher workload	23%	22%	40%	11%	1%	4%
G) Supporting the work of specialist mathematics/science teachers	2%	5%	25%	62%	1%	4%
H) Supporting the work of non-specialist mathematics/science teachers	46%	17%	17%	11%	3%	5%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=186

Table 5.2a shows that:

- The areas where headteachers felt that mathematics/science HLTAs were making the greatest contribution to the school were: improving pupil outcomes in mathematics/science (90 per cent); supporting the work of specialist mathematics/science teachers (87 per cent), and; contributing to meeting school improvement targets (85 per cent).

- To a lesser extent, they also regarded the role of mathematics/science HLTAs as contributing to: workforce reform and remodelling (69 per cent); professional development of support staff (63 per cent), and; reducing teacher workload (51 per cent).
- The mathematics/science HLTA role was judged by around two-thirds of headteachers to make little or no contribution to: coping with staff shortages (68 per cent) and supporting the work of non-specialist mathematics/science teachers (63 per cent).

5.3 Contribution to pupils

The survey asked HODs, teachers and mathematics and science HLTAs to identify the top three ways in which the mathematics/science HLTA had made a positive contribution to pupils in mathematics and/or science. Respondents were asked to select from a list of pre-defined options, and were also given the option to identify 'other' impacts. The responses of HLTAs, teachers and HODs are presented together in Table 5.3a below.

"He helps us individually and gives us the help we need." (Year 11 student)

"'I think that our attitude has changed a lot, and some of us have got attitude problems as we can get too mouthy. Since we've been working with the science HLTA *we've calmed down a lot. We've changed, I don't know why. she just makes us feel more confident'."* (Year 9 student)

"*She's changed me around, because I used to hate maths and she's just changed me around at maths, so I'm really good at maths now, to do my GCSEs.*" (Year 11 student)

Table 5.3a HLTAs', teachers' and HODs' rankings of the top three ways mathematics/science HLTAs make a positive contribution to pupils in mathematics and science

	% ranked in top three ways contribute to pupils		
	HLTAs	**Teachers**	**HODs**
Improved opportunities for practical and/or innovative lessons	24	28	26
Improved opportunities for personalised learning/meeting different learning needs and styles	58	80	77
Enhanced pupil enthusiasm	48	32	25
Enhanced pupil understanding	88	86	88
Improved pupil achievement/attainment	70	71	83
Encouraged pupils to continue on to higher level study in mathematics/science	8	4	1
Other (open)	4	4	3
	N=343	*N= 157*	*N=109*

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Responses have been filtered to include only those respondents who answered the question correctly.
Due to percentages being rounded to the nearest integer, they may not sum to 100

Table 5.3a shows that:

- All three respondent types identified the same top three ways in which the mathematics/science HLTA had made a positive contribution to pupils in mathematics and science (although there was some slight variation in the ordering of these factors by the teachers and in the frequency with which they were selected in the top three). **The main contribution of mathematics/science HLTAs to pupils was in terms of:**
  - enhanced pupil understanding in mathematics/science
  - improved pupil achievement/attainment in mathematics/science
  - improved opportunities for personalised learning/meeting different learning needs and styles

"The most powerful thing is that the children know this person, it's someone they see as part of the maths team. It means we've got that consistency." (Head of Mathematics)

"The intervention work with year 9 students is clearly helping them make progress and they have gained confidence." (Assistant Headteacher)

- About a quarter of all HODs, teachers and HLTAs ranked the contribution of HLTAs to 'improve opportunities for practical and/innovative lessons' as being in their top three.
- There were, however, differing views about the prevalence of the contribution of HLTAs to 'enhancing pupil enthusiasm'. HODs and teachers tended to agree - about a quarter to a third of each ranked this in their top three. Whereas, nearly half of the HLTAs (48 per cent) felt that they had made this contribution and ranked it in their top three.
- HODs were the least likely to rank 'encouraged pupils to continue to higher level study in mathematics/science' in their top three (one per cent), compared to four per cent of teachers and eight per cent of HLTAs.

"The HLTA has been able to devise an innovative curriculum that meets the students' needs and gives them very targeted intervention, so that they are able to return to mainstream classes." (Assistant Headteacher)

Overall, there appeared to be a high degree of agreement amongst HODs, teachers and HLTAs about the types of contribution mathematics/science HLTAs made to pupils in mathematics and science. Specifically, they agreed that HLTAs' main contribution was to pupils' understanding of mathematics and science topics, and to improving their achievement and opportunity for personalised learning.

A minority of HODs, teachers and HLTAs also identified 'other' contributions that mathematics/science HLTAs made to pupils in mathematics and science (Appendix B3, Table B3.20a, Appendix B1, Table B1.27d, Appendix B4, Table B4.12). These included:

- enhanced behaviour management (e.g. support for students with behavioural difficulties, reduce negative impact of disengaged students)
- consistency in taking cover lessons (e.g. continuity for classes if teaching staff unavailable)
- enhanced intervention support (e.g. additional support for pupils, small group work, booster classes coordinator, impact on SEN pupils,)
- enhanced teaching and learning (e.g. alternative teaching strategies and approaches, greater opportunities for differentiation, opportunities to enhance staff-student relationships).

Analysis of responses to this question by subject area revealed some subtle differences in the views of mathematics and science specialists about the top three contributions of mathematics/science HLTAs on pupils.

- Science HODs, science teachers and science HLTAs were all more likely to report that HLTAs helped 'improve opportunities for practical and/or innovative lessons', than their mathematics counterparts (e.g. differences of 12, 9 and 14 per cent respectively). There is likely to be more scope for science, as opposed to mathematics lessons, to be of a practical nature and therefore it seems appropriate that science HLTAs can have a greater contribution here.
- Mathematics HODs, mathematics teachers, and mathematics HLTAs were all slightly more likely to rate impacts on 'improved pupil achievement and attainment' than their science counterparts (e.g. differences of 7, 7 and 11 per cent respectively).
- Science HODs ranked impacts on enhanced pupil understanding (24 per cent) in the top three slightly less than mathematics HODs (31 per cent).
- Mathematics teachers were slightly more likely to report that HLTAs had helped 'improved opportunities for personalised learning' (64 per cent) than science teachers (56 per cent).

Additional analysis revealed that the responses of those HLTAs line managed by HODs, SENCOs and 'other' staff were reasonably consistent on most of the impact items (Appendix B1, Table B1.27). However, HLTAs line managed by a HOD were more likely to rank 'improved opportunities for practical and/or innovative lessons' in their top three (30 per cent) compared to those HLTAs line managed by a SENCO (19 per cent).

By contrast, SENCO line managed HLTAs were more likely to rank 'improved opportunities for personalised learning/meeting different learning needs and styles' in their top three (63 per cent) than HOD line managed HLTAs (53 per cent). This finding may reflect a greater affinity of SENCO line managed HLTAs to their more traditional learning support focus on individual learning needs.

5.4 Contribution to teachers

The views of HODS

The survey asked HODs and teachers to identify the top three ways in which the mathematics/science HLTA had made a positive contribution to teachers in mathematics and science. Respondents were asked to select from a list of pre-defined options, and were also given the option to identify 'other' impacts. The responses of HODs are presented in Table 5.4a below.

Table 5.4a HODs' rankings of the top 3 ways mathematics/science HLTAs make a positive contribution to teachers in mathematics and science

	Rank 1		Rank 2		Rank 3		No response	
	N	%	N	%	N	%	N	%
A) Improved the quality of teaching of non-specialist mathematics/science teachers	8	7	13	12	5	5	82	76
B) Improved the quality of teaching of specialist mathematics/science teachers	37	34	34	32	30	28	37	34
C) Reduced teacher workload	12	11	11	10	25	23	60	56
D) Help to protect PPA time	0	0	3	3	5	5	100	93
E) Enabled other teaching styles to be explored	25	23	16	15	22	20	45	42
F) Enable collaborative CPD/learning	7	7	11	10	15	14	75	69
G) Enhanced resource development	16	15	23	21	23	21	46	43
H) Other	6	6	1	1	6	6	95	88

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Responses have been filtered to include only those respondents who answered the question correctly.
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=108

Table 5.4a shows that:

- The areas where HODs felt that mathematics/science HLTAs were making the greatest contribution to teachers in their department was in terms of 'improving the quality of teaching of specialist mathematics/science teachers' (24 per cent ranked this in their top three).
- Over half of HODs also reported that mathematics/science HLTAs made a positive contribution to: enabling other teaching styles to be explored' (58 per cent) and 'enhancing resource development' (57 per cent).
- Just under half (44 per cent) of the HODs ranked the contribution to 'reducing teacher workload' amongst the top three and nearly a third (31 per cent) identified 'enabling collaborative CPD/learning' as a key impact.

- Perhaps surprisingly, less than a quarter of HODs felt that 'improvements to the quality of teaching of non-specialist mathematics/science teachers' had been one of the main contributions of the subject HLTA. This is in line with other findings that suggest supporting non-specialist teachers was not a major consideration in supporting for the status (Chapter 3) or in the deployment of HLTAs (Chapter 4).
- Helping to protect teachers PPA time was very seldom identified as one of the top three ways mathematics/science HLTAs supported teachers (8 per cent).

A small number of HODs (n=13) identified other ways in which HLTAs had supported teachers in their department. Their responses included: raising standards, increased individual pupil support to improve pupil understanding, and encouraging and enabling teachers to be more creative/take risks (Appendix B3, B3.21)

Analysis by subject area revealed a substantial difference in relation to the tendency to rank 'reduced teacher workload' in the top three; science HODs were considerably more likely to rank this item (54 per cent) than mathematics HODs (40 per cent).

The views of teachers

Mathematics and science teachers were also asked to rate the extent to which mathematics/science HLTAs had made a positive contribution to them as a teacher. The findings are presented in Table 5.4b below.

"Quite often the maths HLTA will pick up on something that I've missed with a particular pupil and alert me to that. He *really understands foundation level pupils and their ability needs, so he was very supportive to me as a teacher".* (Mathematics Teacher)

"The HLTA is fantastic in class, is willing to do absolutely anything, very supportive with the students and very patient. She picks up on what is needed and doesn't need me to tell her what to do; she is very much independent in her role. It's like having a second teacher in the class". (Mathematics Teacher)

Table 5.4b Teachers' views on the extent to which mathematics and science HLTAs make a positive contribution to them as a teacher

Method	Not at all	A little	To some extent	To a great extent	Don't know	No response
a) Improved the quality of my teaching as a mathematics/science teacher	15%	17%	41%	25%	1%	1%
b) Reduced my workload in mathematics/science	28%	25%	33%	13%	0%	2%
c) Reduced my stress levels	20%	24%	25%	27%	2%	2%
d) Helped me to produce more class resources/materials	24%	32%	27%	17%	0%	1%
e) Helped me to protect my PPA time	68%	9%	7%	5%	7%	4%
f) Enabled me to explore other teaching styles	25%	30%	31%	9%	1%	3%
g) Collaborative CPD/learning	31%	26%	24%	9%	6%	3%
h) Other (open)	4%	0%	1%	2%	3%	91%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009,Due to percentages being rounded to the nearest integer, they may not sum to 100,N=212

Table 5.4b shows that:

- Two-thirds of teachers felt that HLTAs made a positive contribution 'to some' or 'to a great extent' in terms of 'improving the quality of their teaching', which is in agreement with the main contribution identified by the majority of HODs above.
- Between two-fifths (40 per cent) to a half of teachers (52 per cent) reported that HLTAs 'to some' or 'to a great extent' supported them by:
  - reducing their stress levels
  - reducing their workload
  - helping to provide more class resources/materials
  - enabling exploration of different teaching styles.
- As with HODs, teachers reported that HLTAs made least impact helping them to protect their PPA time (77 per cent of teachers rated this as having little or no impact).

- Overall, teachers responses allude to the possibility of some rather disparate experiences as one-third to often around a half of the teachers indicated no impacts or only little impacts in response to each of the respective areas.

Additional analysis revealed that mathematics teachers were slightly more likely than science teachers to report that HLTAs helped to reduce their stress levels (55 and 47 per cent respectively ranked this item in the top three) (Appendix B4, Tables B4.13a and B4.13b).

A minority of teachers (n=12) identified other ways in which the mathematics/science HLTA supported them. These included: helping with revision sessions; enabling more fun/engaging practical lessons; providing an extra pair of hands; and helping to organise field trips (Appendix B4, Table B4.13).

5.5 Impacts on mathematics/science HLTAs

The survey asked mathematics and science HLTAs to rate the extent to which achieving the status had impacted on them in a range of possible areas. The findings are presented in Table 5.5a below

"She is more knowledgeable and confident as a person, both in her maths confidence and teaching confidence." (Mathematics Teacher)

Table 5.5a Mathematics and science HLTAs' ratings of the impacts on themselves as a result of achieving the status

Method	Not at all	A little	To some extent	To a great extent	Don't know	No response
A) Helped my career development/promotion	21%	14%	30%	32%	2%	2%
B) Helped improve my job satisfaction	11%	13%	30%	45%	1%	2%
C) Increased my recognition within the school	19%	22%	31%	23%	2%	2%
D) Increased my subject knowledge	9%	13%	37%	38%	1%	2%
E) Made me think about being a teacher	35%	16%	17%	24%	5%	2%
F) Other (open)	3%	<1%	1%	5%	2%	89%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=409

Table 5.5a shows that:

- Overall, the impacts mathematics and science HLTAs reported experiencing the most[22] were improved job satisfaction (75 per cent) and increased subject knowledge (75 per cent).
- To a slightly lesser extent, mathematics and science HLTAs also reported that the status had: helped career development/promotion (62 per cent); increased their recognition within the school (54 per cent), and, to a lesser extent still; made them think about being a teacher (41 per cent).

[22] Includes 'to some extent' and 'to a great extent'

"It's such a difference I didn't realise it would make such a change to my work and I feel much more involved in the school." (Science HLTA)

A minority of HLTAs (n=24) identified other impacts as a result of the status (Appendix B1, Table B1.28a). These mainly consisted of greater confidence, including in subject knowledge and teaching skills, increased pay and/or responsibilities, and being better able to support department and other TAs. However, some comments also conveyed negative impacts or a lack of impact. These comments included: having no recognition of the status in job role or pay (e.g. working as TA, no/little additional remuneration); feeling that the status was being exploited (e.g. working as unqualified teacher); feeling that the role was restricted (e.g. no opportunity to work with higher ability students); and a loss of focus on the learning support role (e.g. no longer used to support SEN only).

Further analysis by subject area revealed no striking differences between the impacts reported by mathematics and science HLTAs (Appendix B, Tables B1.28b and B1.28c). However, mathematics HLTAs tended to report slightly more impacts on their career development (64 per cent), job satisfaction (76 per cent) and recognition within school (58 per cent) than science HLTAs (59, 70 and 49 per cent respectively). Both reported impacts on subject knowledge to the same extent. Science HLTAs indicated slightly greater impacts of the status in terms of thinking about becoming a teacher. Added to the earlier finding that more science HLTAs hold bachelor's degrees or higher level qualifications than their mathematics counterparts (see Chapter 2), many science HLTAs could be suitable candidates for teacher training.

Analysis of HLTA responses by line management type revealed consistent differences. In relation to all of the above impacts, a higher proportion of HLTAs line managed by a HOD rated impacts to 'a great extent' than SENCO line managed HLTAs (e.g. differences of between nine and 24 per cent) [see Tables B1.28d and B1.28e in Appendix B1]. Higher proportions of HLTAs line managed by 'other' members of staff also often rated a greater extent of impacts than SENCO line managed HLTAs. This finding provides evidence that mathematics/science HLTAs experience greater impacts on themselves as a result of achieving the status when they are line managed by a subject leader.

5.5.1 Impact of the mathematics/science HLTA role: what the case studies said

When speaking about the impact of the mathematics/science HLTA status on departments, interviewees highlighted a number of valued additionalities, focusing on enriched provision and increased support for pupils and teachers in the delivery of subjects, as well as greater flexibility in staffing. Benefits for the department associated with the role included:

- the positive impact overall on pupil achievement (e.g. at Key Stage 3) .
- improved quality of teaching when the HLTA was involved
- greater flexibility for the department and the capacity to offer more individual pupil or group support
- the HLTA providing new insights into pupil learning and support needs, and additional knowledge of pupil learning styles; being responsible for a 'cross fertilisation of ideas' within and across departments
- greater flexibility on practical elements of subject - when computer suites, laboratories etc were required
- better support for less experienced staff within the department (e.g. NQTs)
- enhanced standards of cover and the minimizing of such demands on teachers
- allowing teachers themselves the opportunity for exploration and development of teaching and learning practices (such as CPD and observing each other's practice)

Overall, the view that the HLTA status was a significant, distinct and 'holistic' role in the department was evident, with significant benefits for the department as a whole. The impact of the HLTA specifically on teachers also surfaced in the interviews. In more than one school, the view from teaching staff was that working with the HLTA was like having a 'second teacher in the classroom', (rather than 'an extra pair of hands'). Particular benefits of mathematics/science HLTA support for teachers included:

- the opportunity for teachers themselves to differentiate learning tasks more and to work with specific pupils to gauge understanding
- withdrawal giving better learning opportunities to those pupils in the HLTA's group and the rest of the class
- a reduction in classroom behaviour challenges and disruption
- co-teaching increasing the teacher's own knowledge of teaching styles and approaches
- more professional dialogue , which aided lesson preparation and teaching

There was consensus across all case-study schools and all interviewees (including pupils) that the HLTA had a significant impact on pupils. Improvements in learning attainment, (including 'faster progression') were described, but interviewees also highlighted pupils' greater enjoyment of and engagement with the subject; their increase in confidence and their improved behaviour. This was linked to the skills and talents of the HLTA themselves; to the value of learning in small group or one-to one situations; and to the constancy and continuity of HLTA support which aided relationships , set boundaries, and provided security and familiarity for pupils. Pupil interviewees identified this range of impacts and often pinpointed underlying factors. They noted how the HLTA teaching approach recognised their learning needs and provided more support (*'she helps us the whole way'; 'she gets to know me better and so knows the help I need)* and that small group work particularly:

- made it easier to concentrate and stay on task
- made them feel comfortable , confident and able to ask questions
- made learning fun and helped them recognise the importance of the subject
- made them feel they were *'good'* at the subject
- helped them calm down and improve *'attitude problems'*.

Overall, teaching staff, managers and pupils praised the inter-personal skills of the HLTA, their abilities to motivate students and their highly effective pedagogical approaches. Previous life experiences and support teaching roles all contributed to these qualities.

In a very few cases, interviewees referenced how the role had impacted on parents. There were accounts of parents asking if their child could be in the small groups run by an HLTA

Finally, the case studies explored the impact of the status on HLTAs themselves. Here, responses covered several aspects, focusing on a strong sense of professional and personal growth, as well as a recognition of the contribution their work was making to the teaching and learning within the department and school. Since achieving the status, impacts for HLTAs included:

- more autonomy and greater opportunity to be creative in devising and delivering learning opportunities
- providing more and improved support in the classroom, with a greater input to lessons and planning for teaching and learning
- more recognition/status and a higher profile within the department; a greater sense of being part of a team; clarity about their role in the school
- more responsibility (such as for assessment of pupils and for managing other support staff)
- a greater pedagogical skill set and a clear work focus because of their subject specialism
- more variation compared to their previous support role
- more confidence; more self-recognition and pride in their own abilities
- more opportunity to observe pupils' progress and to have a greater input to pupils learning and thus achieving their potential.

5.6 Additionality of the mathematics/science HLTA role

The survey asked headteachers, HODs and teachers to respond to an open question about the impact of mathematic/science HLTAs in comparison to other HLTAs (i.e. non-subject specialists).

Headteachers (n=80), HODs (n=118) and teachers (n=164) provided responses to this question and conveyed their views about some of the key benefits of the mathematics/science HLTA role (Appendix B4, Table 4.14, Appendix B3, Table 3.24, Appendix B2, Table 2.7a). Generally, **the frequency with which additional impacts of the mathematics/science HLTA role were identified indicates strong support for the additionality of their status.** Some responses made more general points about the impact of the role, for example having '*great benefit/impact*'. However, the majority of comments identified the importance of the 'specialist' nature of the role, explaining that it provides focus, and a breadth of relevant skills. These skills included: subject knowledge skills; higher level teaching and learning skills, and; SEN and learning support expertise. These skills were felt to result in a range of additional impacts, including:

- **Impact on mathematics/science learning**:
  - pupil understanding (e.g. greater ability to answer students' questions, provide subject information, aid subject learning, more specialised,

focused role, able to understand, explain terminology, knowledge of curriculum and skills required and that need to be developed)

- raising achievement/attainment (e.g. ability to support specific mathematical needs, conveys enthusiasm for subject, improved student learning/experiences, enhanced performance of pupils, consistently improving mathematics results, improved pupil confidence, motivation, enjoyment)
- opportunities for practical lessons (e.g. subject knowledge means more able to assist with lessons involving a practical component).

- **Impact on teaching and learning:**
  - level of support (e.g. additional support available to pupils, better pupil/staff ratios, support with class and behaviour management)
  - teaching skills (e.g. appreciation of pedagogy)
  - capacity for differentiation and personalisation (e.g. opportunities for small group work, individual support and differentiated teaching, aid to personalised learning, provision of small, focused group situations)
  - intervention support for SEN/lower ability/underachieving students (e.g. provide targeted intervention, assists with teaching of bottom set, enhanced learning experience of entry level learners, enables students to participate/engage in subject)
  - feedback and assessment (e.g. providing better feedback on students needs).

- **Impact on teachers/departments**:
  - capacity to take responsibility/contribute (e.g. proactive, able to work more independently, confidence to work without supervision, able to delegate more tasks, greater contribution to department, greater involvement/contribution to lessons)
  - development of resources
  - enables teachers to work in different ways (e.g. deal with behaviour issues, work with individual students)
  - departmental performance (e.g. support for areas with recruitment difficulties, school improvement, attainment, clear lines of accountability)
  - enhanced cover provision and flexibility in department (e.g. lessons covered by someone knowledgeable and able to help, consistency in cover)
  - support for other teaching support staff (e.g. supports other TAs)

5.7 Use and application of subject knowledge

The survey asked HODs, teachers and mathematics/science HLTAs to rate on a scale of 1 to 4 (with 1 being 'not at all' and 4 being 'to a great extent'), the extent to which HLTAs had been able to use and apply their subject knowledge in the department and classroom (Appendix B1, B3 and B4, Tables B1.22, B3.22 and B4.17).

The views of HODs

Three quarters of HODs (75 per cent) felt that the mathematics/science HLTAs had been able to use and apply their subject knowledge training in their respective department 'to some extent' or 'to a great extent'. However, a significant minority (21 per cent) reported that mathematics/science HLTAs had not been able to apply their subject knowledge training or had only applied it to a small extent. When asked to give an explanation for these responses, HODs referred to the different roles, responsibilities and tasks that mathematics/science HLTA had taken on since achieving the status. These activities included:

- teaching (e.g. teaching whole groups, small groups, team teaching)
- intervention work (e.g. working with GCSE c/d borderline students, specific intervention programmes, teaching small groups of lower ability pupils, booster classes, additional support for individuals and whole classes, enrichment sessions, revision sessions, one-to-one support)
- advising on/supporting SEN (e.g. supporting experienced staff to teach SEN pupils, providing differentiated resources, acting as liaison for pupils with special needs)
- applying general subject knowledge (e.g. understanding concepts, misconceptions and topics associated with the subject)
- resource development (e.g. preparation of resources)
- pupil assessment (e.g. setting and marking homework and tests)
- contributing to departmental discussions and planning, and supporting staff development (e.g. training another mathematics/science HLTA, sharing good practice and ideas with other colleagues).

HODs also gave indications as to the possible reasons why mathematics/science HLTAs had not been able to use their subject training:

- Mathematics/science HLTA not working in a subject specific HLTA role (including, seldom works in the role, not attached to department etc.)

- Lack of whole-school awareness of having a mathematics/science HLTA and/or of the role
- Lack of time for joint planning with teacher colleagues.

The views of teachers

The majority of mathematics and science teachers (93 per cent) agreed with HODs that HLTAs had been able to use and apply their subject knowledge in the classroom 'to some extent' or 'to a great extent'. Most teachers reasoned, like HODs, that the different roles, responsibilities and tasks that mathematics and science HLTAs performed meant that they had to regularly draw on their mathematics/science subject knowledge.

The views of HLTAs

Perhaps the most important measure of the extent to which mathematics and science HLTAs were able to use and apply their subject knowledge, was the view of HLTAs themselves. The majority (92 per cent) reported that they had been able to use and apply their subject knowledge in the classroom 'to some extent' or 'to a great extent'.

Overall

The fact that the HODs' views of the extent to which HLTAs were able to use their subject knowledge differed to that of the teachers and HLTAs, may reflect the different perceptions of teaching staff to the contribution HLTAs make at the classroom level and at the departmental level. Or they may simply reflect the fact that the teachers who work with HLTAs observe them using their subject knowledge more frequently than HODs.

Across all three respondent types, there was evidence of sizeable differences in the responses to this question depending on subject type. Mathematics HODs, teachers and HLTAs were considerably more likely than science respondents to indicate that subject knowledge had been used and applied in the department or classroom to 'a great extent' (e.g. differences of 18, 27 and 14 per cent respectively). This difference is particularly marked according to teachers' responses.

Mathematics and science HLTAs' responses were analysed by type of line management (AppendixB1, Table B1.22a). HLTAs managed by a HODs were more likely to indicate that they had been able to apply their subject

knowledge in the classroom to 'a great extent' (83 per cent) compared to HLTAs line managed by a SENCO (71 per cent) and more so still than those line managed by 'other' staff (58 per cent). This finding may indicate that where mathematics/science HLTAs are line managed by the subject head they are able to make a greater contribution to mathematics and science in terms of applying their subject training and skills.

5.8 Assessment and evaluation of impact

HODs were asked to indicate to what extent they were using a range of methods to assess and evaluate the impact of mathematics/science HLTAs from a list of pre-defined options. The findings are presented in Table 5.8a below.

Table 5.8a Methods used to assess and evaluate the impact of mathematics/science HLTAs

Method	Not at all	A little	To some extent	To a great extent	Don't know	No response
A) Performance review process	19%	16%	36%	19%	7%	4%
B) Monitoring impacts on pupils' learning/performance	5%	14%	35%	40%	2%	4%
C)Mathematics/science HLTA job satisfaction	9%	8%	45%	31%	4%	2%
D) Pupils' views	16%	27%	34%	19%	2%	2%
E) Class teachers views (working with mathematics/science HLTA)	5%	13%	31%	46%	2%	2%
F) HLTA's line managers views	13%	15%	25%	34%	10%	4%
G) Parents' views	42%	24%	19%	5%	7%	3%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=168

Table 5.8a shows that

- The methods that HODs reported using to the greatest extent to assess and evaluate the impact of mathematics/science HLTAs were: the views of class teachers working with mathematics/science HLTAs (77 per cent); mathematics/science HLTA job satisfaction (76 per cent), and; monitoring impacts on pupils' learning/performance (75 per cent).
- To a lesser extent, HODs also reported using: HLTA's line manager views (59 per cent); performance review process (55 per cent), and; pupil views (53 per cent).
- The method used to the least extent was parents' views (24 per cent).

Further analysis by subject type revealed slight differences in the patterns of HODs' responses (Appendix B2, Tables B2.23a and B2.23b). Most noticeably, a higher proportion of heads of mathematics reported using parent views to some or a great extent (30 per cent) than the heads of science (12 per cent). Slightly higher proportions of science HODS identified the use of mathematics/science HLTA job satisfaction (82 per cent) and HLTA's line manager's views (66 per cent) in comparison to mathematics HODs (74 per cent and 57 per cent respectively). Conversely, heads of mathematics were slightly more likely to report the use of pupil views (55 per cent compared to 47 per cent).

5.9 Regression analysis: impact of mathematics/science HLTAs

Further analysis[23] revealed sets of correlated items which related to:

- the impact of the status on HLTAs (see Appendix D, Table D3.1)
- HLTAs' use of their subject specific skills and knowledge (see Appendix D, Table 3.6)

Regression analysis then identified which groups of HLTAs and school-level characteristics correlated to responses to each of these items (for further explanation of this analysis see Appendix D).

[23] The significance of relationships with some background variables needs to be treated with caution where the numbers in the subgroup are small. The significance of such results may be affected by the small number of people in the subgroup rather than there being a strong relationship between the group and the outcome itself. See Appendix D for full explanations of each factor. For the regression analyses, only variables that have a statistically significant relationship with the outcome (at the 5 per cent level) are reported. The variables are reported in order, with those showing the strongest relationship reported first.

Impact of HLTA status

More positive impact of the mathematics/science HLTA status

Regression analysis revealed that, when compared to their counterparts, working as a mathematics/science HLTA had a significantly more positive impact on the following groups:

- those who belonged to schools that undertook more activities to promote the importance of the mathematic/science HLTA role
- those who said that they frequently worked in collaboration with a subject teacher
- those who reported that they frequently supported pupils with SEN and/or emotional and behavioural difficulties
- those who reported working the most hours per week
- those who were aged between 35 to 44 years old
- those who were able to use more of their subject specific skills and knowledge

Less positive impact of the mathematics/science HLTA status

Regression analysis also revealed that, when compared to their counterparts, working as a mathematics/science HLTA had a significantly less positive impact on those staff who were more frequently working with pupils who had shortfalls in their understanding of mathematics/science and those who had a TA contract as opposed to an HLTA contract.

Subject specific skills and knowledge

More able to use subject specific skills and knowledge

Regression analysis revealed that, when compared to their counterparts, the following groups felt they were more able to use their subject specific skills and knowledge:

- those who spent most of their time working in mathematics or science
- those who reported to feel more of an integral part of the mathematics/science department
- those who belonged to schools that undertook more activities to promote the importance of the mathematic/science HLTA role

- those who belonged to the group who reported that working as a mathematics/science HLTA had more positively impacted on them
- those who said that they frequently worked in collaboration with a subject teacher
- those from larger schools
- those who were more frequently working with pupils who had shortfalls in their understanding of mathematics/science.

5.11.2 Less able to use subject specific skills and knowledge

Regression analysis revealed that, when compared to their counterparts, those line managed by someone other than the head of department or SENCO and those who reported working the most hours per week were less able to use their subject specific skills and knowledge.

6. CPD and support

Key findings

- On the whole, mathematics and science HLTAs appeared to be interested in taking up staff development activities.
- Two out of five mathematics/science HLTAs (43 per cent) had participated in subject specific training. It was more common for mathematics HLTAs compared to science HLTAs to receive such training.
- HODs responded more positively than HLTAs themselves about the level of support and development opportunities provided to mathematics/science HLTAs. The greatest difference in opinion related to subject specific training opportunities.
- Overall, one in five teachers (23 per cent) felt the specialist HLTAs they worked with would benefit from additional subject specific training. Science teachers were more likely to confirm that the mathematics/science HLTAs they worked with required additional subject specific training.
- Just under half (45 per cent) of all mathematics/science HLTAs reported that they required additional support or professional development. As with responses from teachers, around one in five mathematics/science HLTAs confirmed that they needed to develop their subject specific knowledge.
- Compared to HLTAs managed by HODs or subject leaders, those managed by SENCOs were more likely to have participated in training relating to specific pupil needs (42 per cent compared to 31 per cent), but less likely to receive performance reviews (53 per cent compared to 66 per cent) or mentoring and coaching (22 per cent compared to 36 per cent), and were less likely to have participated in training relating to mathematics or science (36 per cent compared to 66 per cent).
- Seven out of ten headteachers intended to provide CPD for their mathematics/science HLTAs over the next 12 months.
- Over 30 per cent of teachers reported that they required additional training or guidance about how to work with mathematics/science HLTAs. It was more common for teachers to request additional training rather than guidance.
- One fifth of mathematics/science HLTAs (22 per cent) reported that they had attended joint training with a subject teacher. Just under half of the heads of department (46 per cent) reported that mathematics/science HLTAs' CPD was coordinated with subject teachers with whom they worked.

6.1 Introduction

This chapter draws on the survey findings and case study data in order to look at the CPD opportunities and support provided to mathematics and science HLTAs (since achieving mathematics/science HLTA status). The views of teaching staff who have worked with these HLTAs are also explored. Section 6.2 examines the type of CPD and support provided to mathematics and science HLTAs since achieving the status. Section 6.3 looks at HLTAs' further CPD and support requirements and schools' planned provision. Section 6.4 details the CPD and support requirements for teachers working with mathematics and science HLTAs. Finally, Section 6.5 considers the requirements for joint training between teachers and mathematics/science HLTAs.

6.2 CPD and support provided to mathematics/science HLTAs

6.2.1 The HLTAs' perspective

In the questionnaire survey, mathematics/science HLTAs were asked to confirm what types of support and professional development opportunities had been provided to them post-status. The responses to these questions are presented in Table 6.2a below.

Table 6.2a Types of support and professional development opportunities provided to mathematics/science HLTAs as reported by mathematic/science HLTAs

	Yes		No		No response	
	N	%	N	%	N	%
Performance review	249	61	122	30	38	9
Training related to behaviour management	193	47	165	40	51	13
Subject-specific training	175	43	180	44	54	13
Training related to specific pupil needs	157	38	195	48	57	14
Training relating to pedagogy and teaching approaches	138	34	207	51	64	16
Mentoring and coaching	114	28	230	56	65	16
Structured development activities with the subject teacher	98	24	240	59	71	17
Attending training with the subject teacher	90	22	246	60	73	18
Other	44	11	130	32	235	58

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100 N=409

Table 6.2a shows that:

- The most commonly provided type of support was 'performance review', with three in five (61 per cent) mathematics/science HLTAs reporting they had received this type of support.
- Almost half (47 per cent) of the mathematics/science HLTAs had been provided with training relating to behaviour management
- About four out of ten (43 per cent) respondents received subject specific training or training related to specific pupil needs
- Close to a third of respondents had participated in professional development related to pedagogy and teaching approaches (34 per cent) and mentoring and coaching (28 per cent).
- About one in five of the HLTAs had either participated in structured development activities with a teacher (24 per cent) and/or attended training with a subject teacher (22 per cent).

A minority of mathematics/science HLTAs (n=44) reported receiving 'other' types of support and professional development (Appendix B1, Table B1.16a). Additional analysis revealed that the most common responses were:

- school INSET
- completing a foundation degree in teaching and learning
- participation in department training/meetings
- voice training courses
- observations.

Additional analysis revealed some differences between the views of mathematics and science HLTAs. Responses that differed by five percentage points or more between the mathematics and science HLTAs are detailed below (for other responses see Appendix B1, Tables B1.16b and B1.16c):

- compared to science HLTAs, mathematics HLTAs more frequently reported that they had received a performance review (64 per cent compared to 55 per cent)
- mathematics HLTAs more frequently reported receiving subject-specific training than science HLTAs (46 per cent compared to 37 per cent)
- when compared to science HLTAs, mathematics HLTAs slightly more frequently reported attending training with a subject teacher (25 per cent compared to 18 per cent) and/or participating in structured development activities with a teacher (26 per cent compared to 21 per cent).

Overall, these findings suggest that mathematics HLTAs were more likely than their science counterparts to have undertaken joint training with a teacher, to have received subject specific training or to have been part of the performance review process.

Analysis revealed some differences in the support offered to mathematics and science HLTAs depending on who they were line managed by (Appendix B1, Tables B1.16d and Tables B1.16e). For example, compared to HLTAs managed by HODs or subject leaders, those managed by SENCOs were:

- more likely to have participated in training relating to specific pupil needs (42 per cent compared to 31 per cent)
- less likely to receive performance reviews (53 per cent compared to 66 per cent) or mentoring and coaching (22 per cent compared to 36 per cent)
- less likely to have participated in training relating to their specific subject (36 per cent compared to 66 per cent) or training related to pedagogy and teaching approaches (26 per cent compared to 47 per cent)
- less likely to have participated in training with a subject teacher (16 per cent compared to 33 per cent) or structured development activities with a subject teacher (18 per cent compared to 32 per cent).

In the survey, mathematics/science HODs were asked to select the types of support and professional development they had provided to mathematics/science HLTAs. The responses to this question are presented in Table 6.2b.

Table 6.2b Types of support and professional development opportunities provided to mathematics/science HLTAs as reported by mathematic/science HODs

	Yes	No	No response
Subject-specific training	80	10	10
Performance review	79	13	9
Training related to behaviour management	63	22	15
Mentoring and coaching	61	22	17
Training related to specific pupil needs	60	23	17
Training relating to pedagogy and teaching approaches	60	25	16
Other	7	5	89

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
N=168

As outlined in Table 6.2b, the most common types of support and professional development that HODs reported providing to mathematics/science HLTAs were, in descending order: 'subject specific training' (80 per cent), 'performance review' (79 per cent) and behaviour management (63 per cent). Three out of five HODs (60 per cent) also reported that training or support had been provided to the mathematics/science HLTA relating to: mentoring and coaching, specific pupil needs, pedagogy and teaching, and behaviour management. Tables 3.17b and 3.17c in Appendix B3 show that the responses given by mathematics and science HODs did not differ greatly from one another, except in relation to subject specific training, where more science HODs reported this had been offered to their HLTAs (85 per cent compared to 69 per cent).

A small number of HODs (n=11) suggested 'other' ways in which they provided development activities for support staff (Appendix B3, Table 3.17a). Additional analysis revealed that the most common responses included:

- training from SENCO
- CPD opportunities via learning support department
- INSET training on coursework moderation
- IWB/Moodle training
- regular meetings with head of department
- HLTA participates in all school based mathematics CPD
- HLTA reviewing resources to use with pupils and assessment of pupils' work.

Table 6.2c below compares the differences in responses between HODs and mathematics/science HLTAs in relation to the types of support and professional development that have been provided to the HLTAs.

Table 6.2c Types of support and professional development opportunities provided to mathematics/science HLTAs as reported by mathematic/science HODs and HLTAs

	HODs % Yes	HLTAs % Yes
Performance review	79	61
Mentoring and coaching	61	28
Subject-specific training	80	43
Training related to specific pupil needs	60	38
Training relating to pedagogy and teaching approaches	60	34
Training related to behaviour management	63	47
	N=168	N=409

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100

As is evident in Table 6.2c, a greater percentage of HODs compared to the mathematics/science HLTAs perceived that the HLTAs had been provided with support and professional development opportunities relating to all six types listed in the questionnaire.

The greatest difference was in relation to subject specific training where 80 per cent of HODs said they provided this, compared to 43 per cent of HLTAs who said it was provided for them. However, there was some level of agreement between HODs and mathematics/science HLTAs as both reported that performance review was one of the most common forms of support and professional development provided for HLTAs.

Headteachers, HODs and teachers were all asked to what extent their school had provided support for the development of mathematics/science HLTAs (including CPD, performance review, planning time, learning support) and their responses are detailed in Table 6.2d below.

Table 6.2d To what extent do you feel your school has provided support for the development of mathematics/science HLTAs?

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No response
Headteachers	**5%**	**9%**	**34%**	**48%**	**1%**	**3%**
All HODs	**10%**	**23%**	**39%**	**20%**	**5%**	**2%**
Mathematics HODs	9%	25%	37%	20%	5%	3%
Science HODs	12%	18%	43%	20%	6%	0%
All teachers	**7%**	**21%**	**26%**	**20%**	**23%**	**2%**
Mathematics teachers	6%	23%	27%	22%	20%	3%
Science teachers	10%	16%	26%	18%	30%	1%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Mathematics teachers N=138 , Science teachers N=74, Total Teachers N=212
All HODS N=168, Math HODS N=119, Science HODs N=49
Headteachers N = 186

As shown in Table 6.2d a greater percentage of headteachers (48 per cent) compared to either HODs (20 per cent) or teachers (20 per cent) reported that their school had 'to a great extent' provided support for the development of mathematics/science HLTAs. It is also of interest to note that, overall, one out of four teachers (23 per cent) did not know about the support that their school provided their mathematics/science HLTA, with nearly a third of science teachers (30 per cent) acknowledging this.

6.2.2 CPD and support: what the case studies said

When asked about the kinds of CPD and support that had been available to the HLTAs post-status, overall, across the case-study schools, the following range of professional development opportunities was cited:

- performance review and being part of the school's performance management cycle
- inclusion in departmental CPD, either the maths/science department or the SEN department (or both)
- inclusion in training for the school's support staff

- subject specific training , such as 'science for non-specialists', undertaking a GSCE or certificate-level qualification
- SEN specific training (such as a course on dyslexia, speech and language)
- co-working with the HLTA's mentor (either from subject or SEN department); on-going informal support from specialist teachers.

One case study reported how the HLTA had attended an HLTA conference and subsequently set up a local HLTA network: in some other schools, this was advocated as a valuable support and training opportunity in the future. Those HLTAs who did not attend their subject specialism's departmental CPD events saw this as an opportunity they would have valued. Learning from discussion and working alongside their mentors and other teaching staff was often cited as particularly useful.

Future subjects for training and development which the HLTA interviewees said they would welcome included:

- working with specific age groups (KS3 or KS4)
- working with specific types of learner such as 'underachieving boys or *'border line-pupils.. those at C-D level*'; those of *'higher ability'* or the Gifted and Talented
- courses on specific Special Needs
- behaviour management
- management training (due to responsibilities for managing TAs)
- a health and safety qualification
- working with a whole class
- subject top-up courses and the development of their subject knowledge.

In addition, some HLTAs noted they would value opportunities for joint planning and training together with teachers as part of their professional development.

Put together, this audit shows how the case-study HLTAs were already undertaking or aspiring to professional development opportunities that would provide them with new pedagogical skills, subject knowledge and specific specialist expertise pertaining to a range of different types of learner who require additional and differentiated support. These HLTA aspirations indicate

the professionalism associated with the role and the rich variety of teaching activity they can and wish to contribute to their school and its students.

6.3 Further CPD and support requirements and provision

In the questionnaire survey, teachers who worked with a mathematics/ science HLTA were asked whether this person required any additional subject specific training. The responses to this question are outlined in Table 6.3a below.

Table 6.3a Do you think this mathematics/science HLTA requires additional subject specific training?

Response	Mathematics teachers		Science teachers		Total	
	N	%	N	%	N	%
Yes	22	16	26	35	48	23
No	83	60	27	37	110	52
Don't know	31	23	20	27	51	24
No response	2	1	1	1	3	1
		N=138		N=74		N=212

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009

Overall, around half of the teacher respondents (52 per cent) reported that the mathematics/science HLTA they worked with did not require additional subject-specific training. Compared to science teachers, mathematics teachers were almost twice as likely to confirm that the HLTA they worked with did not require additional subject specific training (60 per cent compared to 37 per cent). **About a quarter of teachers (23 per cent) reported that the mathematics/science HLTA they worked with required additional subject specific training. This was more commonly reported by science compared to mathematics teachers (35 per cent compared to 16 per cent).** It is of interest to note that almost a quarter of teachers who responded said they did not know if the mathematics/science HLTA they worked with required additional subject specific training.

HLTAs themselves generated a similar pattern of responses when asked whether they required more subject knowledge to support pupils effectively (see Table 6.3b below).

Table 6.3b To what extent do mathematics/science HLTAs agree that they require more subject knowledge to support pupils effectively in the specialist subject?

Respondents	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	No response
All mathematics/ science HLTAs	4%	18%	23%	32%	19%	5%
Mathematics HLTAs only	3%	15%	24%	36%	18%	6%
Science HLTAs only	5%	24%	21%	27%	21%	3%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Overall N=409, Mathematics N = 253, Science N=156

As shown in Table 6.3b, 22 per cent of mathematics/science HLTAs agreed or strongly agreed that they needed more subject knowledge. As with the responses from teachers, more science HLTAs compared to mathematics HLTAs reported a need to develop their subject specific knowledge. The different line management arrangements of mathematics/science HLTAs appeared to have an influence here. Mathematics/science HLTAs managed by their subject specific heads of departments were more likely than those managed by a SENCO to agree or strongly agree that they required more subject specific knowledge (27 per cent compared to 21 per cent) (Appendix B1, Tables B1.26d and B1.26e).

HLTAs were also asked if they required further support or professional development opportunities. Their responses to this question can be seen in Table 6.3c.

Table 6.3c Do mathematics/science HLTAs feel they require additional support or professional development opportunities?

Response	Mathematics		Science		Total	
	N	%	N	%	N	%
A) Yes	113	45	80	51	193	47
B) No	119	47	58	37	177	43
C) No response	21	8	18	12	39	10
	N=253		N=156		N=409	

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100

As shown in the table, just under half (47 per cent) of the mathematics/science HLTAs reported that they required additional support or professional development. A slightly higher percentage of science HLTAs (51 per cent) compared to mathematics HLTAs (45 per cent) reported a need for further support or professional development. It is also of interest to note that mathematics/science HLTAs managed by their subject specific heads of department were more likely than those managed by a SENCO to confirm that they required additional support or professional development (50 per cent compared to 41 per cent) (Appendix B1, Table B1.17b).

The requirement for additional support by mathematics/science HLTAs is further confirmed by the response of over one in ten (12 per cent) HLTAs who either disagreed or strongly disagreed with the statement that they were given adequate support to deliver tasks they had been given by teachers (Appendix B1, Table B1.26).

When mathematics/science HLTAs were asked in what areas they would like further support and development opportunities to cover, the three most common responses in descending order were:

- subject specific courses/training
- behaviour and classroom management
- improving skills in teaching/teaching approaches

Table 1.17a in Appendix B1 provides full details of all the other 'free text' responses mathematic/science HLTA provided in regard to their support and professional development needs.

This section has shown that **there is a requirement by mathematics/science HLTAs for further support and professional development.** When headteachers were asked about the schools' intentions in relation to support and professional development for mathematics and science HLTAs over the next 12 months, they provided the following responses:

- to provide CPD for mathematics/science HLTAs (70 per cent of head teachers)
- to provide performance review for mathematics/science HLTA (60 per cent of head teachers).

To see the full range of headteachers' responses in relation to their schools' wider intentions for the next 12 months in relation to their mathematics/science HLTAs see Table B2.9 in Appendix B2.

6.4 Training and guidance requirements for teachers working with mathematics/science HLTAs

The teacher questionnaire asked whether respondents felt they had received sufficient training and also whether they required further training or guidance on how to work with mathematics/science HLTAs (Tables 6.4a and 6.4b).

Table 6.4a Extent to which teachers agreed with the statement: 'I have had enough training on how to work with mathematics/science HLTAs'

Respondent	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	No response
All teachers	6%	24%	31%	29%	10%	1%
Mathematics teachers	5%	28%	27%	29%	10%	1%
Science teachers	7%	18%	38%	28%	10%	0%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Overall N=212, Mathematics teachers N=138, Science teachers N=74

As shown in Table 6.4a, almost four out of ten teachers (39 per cent) disagreed or strongly disagreed with the statement 'I have had enough training on how to work with mathematics/science HLTAs'. Table 6.4b shows that a slightly

smaller proportion (30 per cent) did not agree that they had been provided with enough guidance on how to work with mathematics/science HLTAs.

Table 6.4b Extent to which teachers agreed with the statement: 'I have had enough guidance on how to work with mathematics/science HLTAs'

Respondent	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree	No response
All teachers	8%	33%	28%	24%	6%	1%
Mathematics teachers	7%	39%	23%	25%	5%	1%
Science teachers	10%	22%	38%	23%	8%	0%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Overall N=212, Mathematics teachers N=138, Science teachers N=74

Overall, there appears to be a greater requirement for additional training, rather than guidance, for teachers working with mathematics/science HLTAs. Additional analysis revealed that the training and guidance requirements for teachers were similar regardless of whether they taught mathematics or science (Appendix 4 Tables 4.11a and 4.11b).

HODs were also asked their opinions on the guidance/training requirement for teachers working with HLTAs. Over 45 per cent of HODs either strongly agreed or agreed with the statement that there is a lack of guidance/training for teachers working with HLTAs (see Appendix B3, Table B3.14). The pattern of responses was similar for heads of both mathematics and science departments (see Appendix B3, Tables B3.14a and B3.14b).

Overall, the findings from the surveys suggest that there is a requirement for further guidance/training for teachers working with mathematics/science HLTAs and that the availability of this guidance/training could be lacking. This finding is particularly relevant when over a quarter of headteachers reported that they intended to provide training/guidance for teachers working mathematics/science HLTAs in the next 12 months (Appendix B2, Tables B2.9).

6.5 Joint training for mathematics/science HLTAs and teachers

The previous sections in this chapter have indicated that there is a need to provide training/guidance to some mathematics/science HLTAs and to the teachers who work with them. As detailed in Section 6.2, one in five mathematics/science HLTAs had undertaken training with a subject teacher. The surveys further explored with HODs and teachers the extent to which the HLTAs' CPD is coordinated with the teachers with whom they work (see Table 6.2d).

Table 6.2d To what extent is the mathematics/science HLTA's CPD coordinated with the teachers with whom they work?

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No response
All HODs	**24%**	**24%**	**33%**	**13%**	**4%**	**2%**
Mathematics HODs	24%	22%	35%	13%	4%	3%
Science HODs	24%	29%	29%	14%	4%	0%
All teachers	**37%**	**15%**	**25%**	**3%**	**18%**	**3%**
Mathematics teachers	36%	15%	27%	1%	19%	3%
Science teachers	41%	15%	20%	3%	16%	3%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
All HODS N=168, Mathematics HODS N=119, Science HODs N=49
All teachers N=212, Mathematics teachers N=138, Science teachers N=74

As shown in Table 6.2d HODs (46 per cent) were more likely than teachers (28 per cent) to state that mathematics/science HLTAs' CPD was coordinated with the subject teachers, either to some or to a great extent. A quarter of HODs (24 per cent) and over a third of all teachers (37 per cent) reported that the mathematics/science HLTAs' CPD was not at all coordinated with the teachers with whom they worked. It is likely that some mathematics/science HLTAs and their associated subject teachers will continue to participate in joint training, as over a third of headteachers confirmed that they intended to provide this joint training for mathematics HLTAs in the next year and a quarter of headteachers also confirmed this for their science HLTAs (Appendix B2, Tables B2.9).

7. Development of the mathematics/science HLTA role

Key findings

- Around two thirds of headteachers (67 per cent) have completed a whole school review of staffing to decide on the number of HLTA posts they can offer.
- Almost half of all headteachers (47 per cent) and mathematics/science HLTAs (49 per cent) reported that the HLTAs' skills and interests had been matched 'to a great extent' to the needs of the school. In comparison, less than a third of HODs (30 per cent) confirmed that the school had 'to a great extent' matched the needs of the department to the skills and interests of the HLTA.
- Mathematics/science HLTAs line managed by a SENCO compared to those managed by a HOD or subject leader were more likely to report that their skills and interests had not been matched to the needs of the school (13 per cent compared to three per cent).
- About a quarter of mathematics/science HLTAs (23 per cent) reported that they had not been consulted about undertaking their specialist role. Mathematics HLTAs were more likely to report they had been consulted regarding undertaking their specialist role.
- About six out of ten mathematics/science HLTAs (62 per cent) reported that they had been allocated to a subject department. There was an association with line management arrangements, whereby HLTAs managed by a HOD more commonly reported that they had been allocated to a subject department than those managed by a SENCO.
- A quarter of HODs reported that mathematics/science HLTAs had not been allocated a mathematics/science line manager. It was more common for mathematics compared to science HODs to report that the mathematics/science HLTAs had been allocated a mathematics/science line manager.
- One out of five teachers (20 per cent) and HLTAs (22 per cent) reported that the mathematics/science HLTA roles and responsibilities had not been defined; this was a higher proportion than reported by headteachers (six per cent) or HODs (ten per cent).
- The majority of headteachers (80 per cent), teachers (71 per cent), mathematics/science HLTAs (67 per cent) and HODs (55 per cent) reported that the roles of mathematics/science HLTAs had been differentiated 'to some extent[24]' from the roles of other TAs and HLTAs.
- A greater percentage of headteachers (48 per cent) compared to either HODs (20 per cent) or teachers (20 per cent) reported that their school had provided support for the development of mathematics/science

[24] Includes response items 'a little', 'to some extent', and 'to a great extent'

HLTAs 'to a great extent'.

- The most common intentions for headteachers for the next 12 months regarding their mathematics/science HLTAs were to provide CPD and performance reviews.
- When asked about how the mathematics/science HLTA role could be developed in the future, case-study interviewees (including headteachers and HODs) advocated: *'top-up courses'* and other opportunities for developing mathematics and science knowledge; regional networks for HLTAs to share practice; exemplification of good practice; and specific training for HLTAs and teachers together on how to implement the role.
- Regression analysis revealed that, when compared to their counterparts, those HLTAs who reported feeling more of an integral part of the mathematics/science department belonged to schools that undertook significantly more activities to promote the importance of the mathematics/science HLTA role.
- The extent to which the key elements of the NFER good practice model for HLTAs (Wilson *et al.,* 2007) was being implemented, appears to depend on the HLTA's subject specialism and their line management arrangements.

7.1 Introduction

This chapter draws from the survey findings in order to look specifically at reviewing and developing the previous HLTA good practice model (Wilson *et al*., 2007) and at future plans for mathematics/science HLTAs. Section 7.2 will re-examine the model of good HLTA planning, deployment and development practice to increase its relevance to mathematics/science HLTAs. Section 7.3 looks at the future plans of schools to further develop and utilise mathematics/science HLTAs.

7.2 Development of good practice

Wilson *et al*. (2007) conducted previous research regarding the deployment and impact of support staff who had achieved HLTA status and developed a practice orientated model to facilitate the development of the HLTA programme. The previous study on HLTAs set out a model of good practice in HLTA planning, deployment and development. The model indentified the following six steps for schools to consider:

1. Take a whole school review of staffing, including deciding on the number of HLTA posts and matching the needs of one's school with HLTA interests and skills.
2. Consult with HLTAs about a specialist role, for example a subject, pastoral, SEN or intervention role.
3. Allocate HLTAs to staff teams and develop teamwork, including identifying a 'close' line manager.
4. Define role requirements and responsibilities, including differentiating HLTA from TA roles.
5. Raise awareness of the HLTA role among staff and parents.
6. Support and develop HLTAs in their role, including continuing professional development, performance reviews, resource allocation (especially planning time) and role/career development.

In the questionnaire surveys for the current project, headteachers, teachers, HODs and mathematics/science HLTAs were asked a number of questions related to these six key steps. It is important to note that the NFER model was never designed to assess the effectiveness with which schools were deploying and developing HLTAs, but rather its purpose was to provide guidance which schools could draw upon when considering how best to deploy HLTAs. Thus, while the questions were designed to explore the extent to which these steps were being followed in schools, respondents were not asked directly whether or not they were following the model.

Questions relating to each of the six steps shall now be considered in turn.

7.2.1. Good Practice Model Step 1:

The first step of the good practice model was to:

Take a whole school review of staffing, including deciding on the number of HLTA posts and matching the needs of one's school with HLTA interests and skills.

In the questionnaire survey, headteachers and HODs were asked to confirm the extent to which a whole school review of staffing had been undertaken to decide on the number of HLTA posts required. The responses to this question are presented in Table 7.2a.

Table 7.2a The extent to which a whole school review of staffing had been undertaken to decide on the number of HLTA posts

Respondents	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	28%	22%	26%	19%	2%	3%
HODs	41%	19%	22%	5%	12%	2%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N=168

Table 7.2a shows that:

- Overall, almost half of headteachers (45 per cent) and just over a quarter of HODs (27 per cent) reported they had undertaken a whole-school review of staffing to some or a great extent.
- However, a notable proportion of HODs (41 per cent), and to a lesser extent headteachers (28 per cent), reported they had not undertaken such a review.

Additional analysis revealed that more science HODs reported that whole schools reviews had been undertaken to decide on the number of HLTA posts, than their mathematics counterparts (33 compared to 24 per cent) (Appendix B3, Tables 3.25a and 3.25b).

In the questionnaire survey, headteachers, HODs and mathematics/science HLTAs were asked to confirm the extent to which HLTAs' skills and interests had been matched to those of their school/department. The responses to this question are presented in Table 7.2b.

Table 7.2b The extent to which a HLTAs' skills and interests had been matched with those of the school/department

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	8%	16%	25%	47%	1%	3%
HODs	15%	16%	32%	30%	6%	2%
Mathematics/Science HLTAs	9%	11%	29%	49%	1%	2%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Mathematics/science HLTAs=409

The findings show that just under a half of the mathematics/science HLTAs (49 per cent) and headteachers (47 per cent) confirmed that the HLTAs' skills and interests had been matched 'to a great extent' with those of the school. It is of interest to note that a smaller proportion of HODs (30 per cent) agreed 'to a great extent' that their department's needs had been matched to the HLTA's interests and skills.

At a subject level, **mathematics HLTAs compared to science HLTAs more often reported that their interests and skills had 'to a great extent' been matched to the needs of their school** (57 per cent compared to 38 per cent) (Appendix B1, Tables B1.19a and B1.19b). However, in practice there was little variation between the responses of mathematics and science HODs, with around three out ten HODs reporting that they felt 'to a great extent' that their school had matched the skills/interests of HLTAs to the needs of their departments (mathematics HODs = 32 per cent and science HOD = 27 per cent) (Appendix B3, Tables 3.25a and 3.25b).

Additional analysis suggests that the extent to which mathematics and science HLTAs report that their interests and skills have been matched to the needs of their schools appears to depend on the HLTA's line management arrangements (first discussed in Chapter 4). **Mathematics/science HLTAs line managed by a SENCO compared to those managed by a HOD or subject leader were more likely to report that their skills and interests had not been matched to the needs of the school** (13 per cent compared to three per cent) (Appendix B1, Tables B1.19c and B1.19d).

In summary, almost half of all headteachers (47 per cent) and mathematics/science HLTAs (49 per cent) reported that the HLTAs' skills and interests had been matched 'to a great extent' to the needs of the school. On the other hand, less than a third of HODs (30 per cent) confirmed that the school had 'to a great extent' matched the needs of their department to the skills and interests of the HLTA.

7.2.2. Good Practice Model Step 2:

The second step of the good practice model was to:

Consult with HLTAs about a specialist role, for example a subject, pastoral, SEN or intervention role.

In the questionnaire survey, headteachers, HODs and mathematics/science HLTAs were asked to confirm the extent to which the HLTAs had been consulted about undertaking the specialist mathematics/science role. The responses to this question are presented in Table 7.2c.

Table 7.2c The extent to which the HLTAs had been consulted about undertaking the specialist mathematics/science role

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	8%	6%	28%	52%	2%	5%
HODs	10%	13%	31%	39%	6%	2%
Mathematics/Science HLTAs	23%	16%	25%	33%	1%	3%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Mathematics/science HLTAs=409

Table 7.2c shows that:

- Overall, the majority of headteachers (80 per cent), just under three quarters of HODs (70 per cent) and over half of HLTAs (58 per cent) reported that HLTAs had been consulted about undertaking the status to 'some' or 'a great extent'.
- However, just under a quarter (23 per cent) of all mathematics/science HLTAs and around one in ten headteachers (eight per cent) and HODs (10

per cent), reported that HLTAs had not been consulted about undertaking the specialist mathematics/science role.

- Headteachers (52 per cent) more often reported that HLTAs had been consulted 'to a great extent' about undertaking the specialist role compared to HODs (39 per cent) and HLTAs (33 per cent).

Additional analysis revealed that mathematics HLTAs compared to science HLTAs were more likely to report that they had been consulted 'to some extent' or 'to a great extent' about undertaking the specialist HLTA role (65 per cent compared to 48 per cent) (Appendix B1, Tables B1.19a and B1.19b). This reported difference between the mathematics and science HLTAs is particularly interesting as it does not seem to reflect the views of mathematics and science HODs. A similar proportion of both mathematics and science HODs reported that they had consulted 'to some extent' or 'to a great extent' with HLTAs about them undertaking a specialist role within their department (69 percent compared to 72 per cent) (Appendix B3, Tables 3.25a and 3.25b).

It is also of interest to note that mathematics/science HLTAs managed by a SENCO (34 per cent) were more likely than those managed by HODs or subject leaders (14 per cent) to report that they had not been consulted about undertaking the specialist role (Appendix B1, Tables B1.19c and B1.19d).

7.2.3. Good Practice Model Step 3:

The third step of the good practice model was to:

Allocate HLTAs to staff teams and develop teamwork, including identifying a 'close' line manager.

In the questionnaire survey, headteachers and HLTAs were asked to confirm the extent to which the HLTAs had been allocated to mathematics/science departments and to a mathematics/science line manager. The responses to this question are outlined in Table 7.2d and Table 7.2e.

Table 7.2d The extent to which the HLTAs had been allocated to mathematics/science departments

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	7%	7%	20%	61%	2%	3%
Mathematics/Science HLTAs	14%	7%	14%	62%	1%	3%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, Mathematics/science HLTAs=409

Table 7.2d shows that:

- Around three out of five headteachers (61 per cent) and mathematics/science HLTAs (62 per cent) reported that they had 'to a great extent' been allocated to a mathematics or science department.
- HLTAs were more likely than headteachers to report that they had not been allocated to a mathematics or science department (14 per cent compared to seven per cent).

Additional analysis revealed that **it was more common for mathematics HLTAs compared to science HLTAs to report that they had been allocated to a subject department** (78 per cent compared to 71 per cent) (Appendix B1, Tables B1.19b and B1.19c).As would be expected, mathematics/science HLTAs managed by a HOD or subject leader compared to a SENCO more frequently reported that 'to a great extent' they had been allocated to a subject department (83 per cent compared to 46 per cent) (Appendix B1, Tables B1.19c and B1.19d).

Table 7.2e The extent to which the HLTAs had been allocated to a mathematics/science line manager

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	12%	8%	14%	61%	2%	3%
HODs	25%	11%	14%	42%	5%	3%
Teachers	14%	8%	18%	45%	14%	1%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Teachers N =212

Table 7.2e shows that:

- Overall, three-quarters of headteachers (75 per cent), around two-thirds of teachers (63) and over half of HODs (56 per cent) reported that HLTAs had been allocated to a mathematics/science line manager.
- It was more common for HODs (25 per cent) to report that HLTAs had not been allocated to a mathematics/science line manager compared to both headteachers (12 per cent) and teachers (14 per cent).

Additional analysis revealed that it was more likely for mathematics compared to science HODs to confirm that mathematics/science HLTAs had not been allocated a mathematics/science line manager (27 per cent compared to 20 per cent) (Appendix B3, Tables 3.25a and 3.25b).

Overall, the findings suggest that a notable proportion of HLTAs may not have been allocated a line manager from their subject specialism, with a quarter of HODs reporting that their HLTAs had not been allocated a mathematics/science line manager.

7.2.4. Good Practice Model Step 4:

The fourth step of the good practice model was to:

Define role requirements and responsibilities, including differentiating HLTA from TA roles

In the questionnaire survey, headteachers, HODs, teachers and mathematics/science HLTAs were asked to confirm the extent to which the mathematics/science HLTAs' roles and responsibilities had been defined. The responses to this question are outlined in Table 7.2f.

Table 7.2f The extent to which the HLTAs' roles and responsibilities had been defined

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	6%	11%	24%	55%	1%	3%
HODs	10%	23%	30%	30%	5%	2%
Teachers	20%	26%	37%	12%	4%	1%
Mathematics/Science HLTAs	22%	13%	35%	28%	1%	2%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Teachers N =212, Mathematics/science HLTAs=409

Table 7.2f shows that:

- The majority of headteachers (79 per cent), mathematics/science HLTAs (63 per cent), and HODs (60 per cent) reported that the HLTAs' roles and responsibilities had been defined 'to some extent' or 'to a great extent'.
- Fewer teachers compared to the other respondents reported that HLTAs' roles and responsibilities had been defined 'to some extent' or 'to a great extent' (49 per cent).
- A similar proportion of teachers (20 per cent) and mathematics/science HLTAs (22 per cent) reported that HLTAs' roles and responsibilities had not been defined at all. This was a higher proportion than reported by headteachers (six per cent) or HODs (10 per cent).

Additional analysis revealed that almost **twice as many science HLTAs (30 per cent) compared to mathematics HLTAs (17 per cent) reported that their roles and responsibilities had not been defined at all** (Appendix B1, Tables B1.19a and B1.19a).This difference between the subjects was not replicated with the subject HODs or the subject teachers (Appendix B3, Tables 3.25a and 3.25b, Appendix B4, Tables 4.18a and 4.18b).

Whether a mathematics/science HLTA feels that their roles and responsibilities have been defined appears to relate to the HLTA's line management arrangements. **Mathematics/Science HLTAs line managed by a SENCO compared to those managed by a HOD or subject leader are more likely to report that their roles and responsibilities had not been defined** (32 per cent compared to 12 per cent) (Appendix B1, Tables B1.19c and B1.19d).

In a follow-up question, headteachers, HODs, teachers and HLTAs were asked to confirm the extent to which the mathematics/science HLTAs roles had been differentiated from the roles of other HLTA and/or TA roles. The responses to this question are presented in Table 7.2g.

Table 7.2g The extent to which the roles of mathematics/science HLTAs had been differentiated from the roles of other HLTAs and TAs

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	18%	10%	30%	32%	6%	3%
HODs	24%	13%	23%	20%	18%	3%
Teachers	13%	19%	28%	24%	15%	1%
Mathematics/Science HLTAs	28%	14%	23%	30%	2%	4%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Teachers N =212, Mathematics/science HLTAs=409

The findings suggest that three out of ten headteachers (32 per cent) and mathematics/science HLTAs (30 per cent) compared to around one in five HODs (20 per cent) and about a quarter of teachers (24 per cent) reported that the roles of mathematics/science HLTAs had been differentiated from the

roles of other TAs and HLTAs 'to a great extent'. Around one in five headteachers (18 percent) and HODs (20 per cent) reported that their school had not differentiated at all between the roles of mathematics/science HLTAs and other HLTAs and TAs.

Additional analysis revealed that **of the 28 per cent of mathematics/science HLTAs who reported that their role had not been differentiated from the roles of other HLTAs and TAs, a greater proportion were science HLTAs compared to mathematics HLTAs** (41 per cent compared to 19 per cent) (Appendix B1, Tables B1.19a and B1.19b).This subject-related split could also be seen in the responses of teachers, with 20 per cent of science teachers compared to nine per cent of mathematics teachers reporting that the HLTA role had not been differentiated from the roles of other HLTAs and TAs Appendix B4, Tables 4.18a and 4.18b). No such differences existed between mathematics and science HODs (Appendix B3, Tables 3.25a and 3.25b).

Mathematics/science HLTAs line managed by a SENCO (compared to those managed by a HOD or subject leader) were much more likely to report that their role had not been differentiated from other HLTA or TA roles (42 per cent compared to 15 per cent) (Appendix B1, Tables B1.19c and B1.19d).

In summary, a similar and notable proportion of teachers (20 per cent) and mathematics/science HLTAs (22 per cent) reported that HLTA roles and responsibilities had not been defined. These were higher proportions than those reported by headteachers (six per cent) and HODs (ten per cent). In terms of whether the mathematics/science HLTAs was differentiated from the roles of other TAs and HLTAs, this was reported to occur 'to a great extent' by three out of ten headteachers (32 per cent).

7.2.5. Good Practice Model Step 5:

The third step of the good practice model was to:

Raise awareness of the HLTA role among staff and parents.

In the questionnaire surveys, headteachers, HODs, teachers and HLTAs were asked to confirm the extent to which awareness of the mathematics/science HLTA roles had been raised among staff and parents. The responses to these questions are presented in Tables 7.2h and 7.2i.

Table 7.2h The extent to which awareness of the mathematics/science HLTA role had been raised among staff

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	9%	20%	48%	19%	1%	3%
HODs	14%	25%	33%	21%	5%	2%
Teachers	18%	29%	33%	13%	7%	1%
Mathematics/Science HLTAs	25%	20%	29%	22%	1%	11%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Teachers N =212, Mathematics/science HLTAs=409

Table 7.2h shows that:

- The majority of headteachers (67 per cent) and about half of the HLTAs (51 per cent), HODs (49 per cent) and teachers (45 per cent) reported that 'to some extent' or 'to a great extent' awareness of the mathematics/science HLTA role had been raised among parents.
- A notable minority of headteachers (9 per cent), HODs (14 per cent), teachers (18 per cent) and particularly HLTAs (25 per cent) reported that awareness of the role had not been raised at all.

Table 7.2i The extent to which awareness of the mathematics/science HLTA role had been raised among parents

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	29%	37%	26%	4%	2%	3%
HODs	41%	27%	13%	4%	13%	2%
Teachers	31%	26%	19%	7%	16%	1%
Mathematics/Science HLTAs	48%	17%	14%	8%	11%	2%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Teachers N =212, Mathematics/science HLTAs=409

Table 7.2i shows that:

- The most common response from all respondents regarding raising awareness of mathematics/science HLTAs among parents was that their schools had done this 'not at all'.
- Headteachers (37 per cent) most frequently reported that awareness raising with parents regarding the mathematics/science HLTA role had occurred 'a little'.
- HODs (41 per cent), teachers (31 per cent) and mathematics/science HLTAs (48 per cent) were most likely to report that raising awareness of the mathematics/science HLTA role among parents had not occurred in their school.

Additional analysis revealed that **science HODs, science teachers and science HLTAs, were all more likely than the corresponding mathematics respondents to confirm that awareness of the HLTA role amongst school staff and parents had been raised** (Appendix B3, Tables 3.25a and 3.25b, Appendix B1, Tables B1.19c and B1.19d, Appendix B4, Tables 4.18a and 4.18b). Furthermore, mathematics/science HLTAs line managed by a SENCO compared to those managed by a HOD or subject leader were more likely to report that awareness of the HLTA role among staff had not occurred (35 per cent compared to 19 per cent) (Appendix B1, Tables B1.19c and B1.19d).Line management arrangements of the mathematics/science HLTAs did not greatly affect their responses regarding the extent to which they reported that awareness of their role had been raised among parents.

To develop a further understanding of the extent in which awareness raising of the HLTA role among staff had occurred, teachers were asked the extent to which the school had:

- discussed their needs for support in the classroom with them
- clarified their expectations of the mathematics/science HLTA role

Analysis revealed that about a quarter of all teachers reported that neither of the issues mentioned above had been discussed with them. Science teachers compared to mathematics teachers more frequently reported that their classroom needs (28 per cent compared to 21 per cent) and expectations of the mathematics/science HLTA role (32 per cent compared to 23 per cent) had not been discussed with them (Appendix B4, Tables 4.18a and 4.18b).

In summary, the findings appear to suggest that more could be done to raise awareness of the HLTA role amongst both school staff and parents, with only a minority of respondents reporting that this had been done 'to a great extent'.

7.2.6. Good Practice Model Step 6:

The sixth step of the good practice model was to:

Support and develop HLTAs in their role, including continuing professional development, performance reviews, resource allocation (especially planning time) and role/career development.

In the questionnaire surveys, headteachers, HODs and teachers were asked to confirm the extent to which the school had provided support for the development of mathematics/science HLTAs. The responses to this question are presented in Table 7.2j.

Table 7.2j The extent to which the school has provided support for the development of mathematics/science HLTAs (e.g. CPD, performance reviews, planning time)

Respondent	Not at all	A little	To some extent	To a great extent	Don't know	No Response
Headteachers	5%	9%	34%	48%	1%	3%
HODs	10%	23%	39%	20%	5%	2%
Teachers	7%	21%	26%	20%	23%	2%

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Due to percentages being rounded to the nearest integer, they may not sum to 100
Headteachers N=186, HODs N =168, Teachers N =212

As outlined in Table 7.2j, a greater proportion of headteachers (48 per cent) compared to either HODs (20 per cent) or teachers (20 per cent) reported that their school had 'to a great extent' provided support for the development of mathematics/science HLTAs.

Analysis of the within-school responses revealed both positive and negative correlations between the views of HLTAs, HODs, teachers and headteachers (see Appendix C, Tables C3-C9). This finding suggests that HLTAs, HODs, teachers and headteachers from the same school were not always in agreement about whether or not their school had undertaken different activities in relation to supporting the HLTA role.

7.3 Future plans

In the questionnaire surveys, headteachers were asked to confirm whether they intended to take a number of actions in relation to mathematics/science HLTAs in the next 12 months. The responses to this question are presented in Table 7.3a below.

Table 7.3a Headteachers' intentions for the next 12 months regarding their mathematics/science HLTAs

Action	Mathematics HLTAs	Science HLTAs
To review the need for more mathematics/science HLTAs	39% (n=73)	34% (n=63)
To establish more mathematics/science HLTA posts/positions	18% (n=34)	17% (n=32)
To support more (HL)TAs to become mathematics/science HLTAs	25% (n=47)	23% (n=42)
To recruit more mathematics/science HLTAs	12% (n=23)	9% (n=17)
To deploy mathematics/science HLTAs to mathematics/science roles	22% (n=41)	17% (n=32)
To provide extra time for teachers and mathematics/science HLTAs to plan together	32% (n=59)	20% (n=37)
To provide guidance/training to teachers working with mathematics/science HLTAs	39% (n=73)	26% (n=49)
To provide joint teacher and mathematics/science HLTA training	36% (n=67)	25% (n=48)
To provide performance review for mathematics/science HLTAs	60% (n=112)	44% (n=81)
To provide CPD for mathematics/science HLTAs	70% (n=131)	48% (n=90)

Source: NFER paper and online survey of mathematics and science HLTAs, headteachers, HODs and teachers in schools, 2009
Multiple response question - totals may not sum to 100

As detailed in Table 7.3a, the three most common intentions reported by headteachers in relation to their mathematics HLTAs were to provide:

- CPD (70 per cent)
- performance review (60 per cent)
- guidance/training to teachers working with mathematics/science HLTAs (39 per cent) and to review the need for more HLTAs (39 per cent).

The three most common intentions reported by headteachers in relation to their science HLTAs were to:

- provide CPD (48 per cent)
- provide performance review (44 per cent)
- review the need for more HLTAs (34 per cent).

7.4 The development of the HLTA role: what the case studies said

When asked about how the mathematics/science HLTA role could be developed in the future, case-study interviewees (including headteachers and HODs) advocated the following CPD activities:

- *'top-up courses'* and other opportunities for developing mathematics and science knowledge
- courses for teachers to be open to HLTAs also
- regional networks for HLTAs to share practice
- exemplification of good practice, including resources, *'external documentation'*
- specific training for HLTAs and teachers together on how to implement the role.

In several schools, the issue of further remuneration and advancement for HLTAs surfaced, with one school suggesting the role c/should be seen as a *'stepping stone'* to a teaching qualification by being designated 'training on the job'. However, most of the HLTA interviewees were not seeking this route, preferring to augment their specific skill-set as part of further developing their role. The benefit of creating joint planning time for teachers and HLTAs together was again noted in this respect.

Put together, the messages emerging from our case study schools suggest that, as the potential of the mathematics/science HLTA role emerges, it requires an investment in development activities that recognise and promote the distinctive contribution being made by this relatively new addition to the children's workforce in school. As the case studies occasionally highlighted how some teachers were not always clear or convinced about the role, the benefits and potential of a mathematics/science HLTA may well be something that schools themselves could also further disseminate among their own workforce and community.

7.5 Regression analysis of the development of the mathematics/science HLTA role

Further analysis[25] revealed sets of correlated items which related to the importance of the HLTA role (see Appendix D, Table D3.2) Regression analysis then identified which groups of HLTAs and school-level characteristics correlated to responses to each of these items (for further explanation of this analysis see Appendix D).

Importance of HLTA role

Regression analysis revealed that, when compared to their counterparts, the following groups of HLTAs reported belonging to schools that undertook significantly more activities to promote the importance of the mathematics/science HLTA role:

- those who belonged to the group who reported that working as a mathematics/science HLTA had more positively impacted on them
- those who reported feeling more of an integral part of the mathematics/science department
- those who belonged to schools with the highest level of achievement
- those who were line managed by someone other than the head of department or SENCO
- those who were more frequently working with pupils who had shortfalls in their understanding of mathematics/science.

Fewer activities to promote the importance of the HLTA role

Regression analysis also revealed that, compared to their counterparts, the following groups of HLTAs were significantly more likely to belong to schools that undertook fewer activities to promote the importance of the mathematics/science HLTA role:

- those who had a TA contract as opposed to an HLTA contract

[25] The significance of relationships with some background variables needs to be treated with caution where the numbers in the subgroup are small. The significance of such results may be affected by the small number of people in the subgroup rather than there being a strong relationship between the group and the outcome itself. See Appendix D for full explanations of each factor. For the regression analyses, only variables that have a statistically significant relationship with the outcome (at the 5 per cent level) are reported. The variables are reported in order, with those showing the strongest relationship reported first.

- those who were science HLTAs
- those who worked in schools other than grammar schools, comprehensives, or middle schools
- those from larger schools.

8. Concluding comments

8.1 Research context

The overarching aim of the research was to provide insight into the mathematics and science HLTA programme in order to inform the next stages of the HLTA initiative and its funding arrangements for 2009/10. This chapter provides some key messages regarding: deployment and line management; the impacts of the HLTA role; and the promotion and continued development of the role.

8.2 Deployment and line management

Key message

The survey and case-study findings revealed a diverse range of deployment and line management arrangements. Specialist teaching roles carried out by the HLTAs included behaviour management and learner support, and specialist intervention work. Schools and departments appeared to adapt the role of the HLTA to meet their particular needs, priorities and organisational structures to reflect the skills and prior experience of the HLTAs themselves. Notably, almost half of the HLTAs responding to the survey reported that they were line managed by the SENCO, while about four out of ten said they were line managed by a HOD. The findings suggest that for many HLTAs, their line managers were not part of the department to which they were attached.

Many HLTAs responding to the survey reported that they most frequently worked with pupils who found mathematics or science challenging and supported pupils with emotional and behavioural difficulties. This is not surprising, given that many HLTAs progress from TA or learning support roles where these skills have been developed. HLTAs often provided support to a whole class, but sometimes to small groups or on a one-to-one basis. It was also notable than many HLTAs reported leading the delivery of lessons without a teacher.

Observations and interviews in the nine case-study schools showed a wide range of teaching tasks as well as other support activities undertaken by

HLTAs. These included: withdrawing students, which involved the HLTA teaching small groups independently outside the classroom, co-teaching in the same classroom environment with the subject teacher; and supporting individual pupils in the classroom. Covering lessons and producing resources were also referenced as HLTA roles, as well as being a form tutor, cover organiser, managing other support staff and running additional extra-curricular activities. Put together, these suggest not only innovative approaches to subject delivery but also a wider contribution to the department and school.

Visits to the case-study schools also confirmed the range of line management arrangements identified through the surveys. Overall, HLTA line management arrangements appeared to be fluid and in the process of evolving, as schools and departments work out what is the most effective arrangement for their particular circumstances.

8.3 Impacts of the HLTA role

Key message

HLTAs were perceived to have a range of positive impacts on mathematics and science departments, teachers and pupils. Respondents agreed that one of the main contributions of the role was to pupils' understanding of mathematics and science topics, and to providing opportunities for personalised learning. Many HLTAs also reported that attaining the HLTA status had benefited them personally, by way of promotion, improved job satisfaction, greater confidence, and by recognising their contribution within the school.

When speaking about the impact of the mathematics/science HLTA status on departments, case-study interviewees and survey respondents highlighted a number of valued additionalities, focusing on enriched provision and increased support for pupils and teachers in the delivery of subjects, as well as greater flexibility in staffing. Additional departmental benefits associated with the role included: helping to plan lessons and develop support materials, improved quality of teaching when the HLTA was involved, and the positive impact overall on pupil achievement.

The majority of teachers reported that they felt that HLTAs made a positive contribution to improving the quality of their teaching, while many agreed that having an HLTA support them had helped to reduce their stress levels and workload. However, teachers' responses to the survey also allude to the possibility of some rather disparate experiences. For example, one-third to often around a half of the teachers indicated no impacts or only little impacts in response to the areas probed in the survey.

There was broad consensus across case-study schools and survey participants that HLTAs had a significant impact on pupils. Improvements in learning attainment, (including 'faster progression') were described, but interviewees also highlighted pupils' greater enjoyment of and engagement with mathematics and science; their increase in confidence and their improved behaviour.

HLTAs themselves reported a strong sense of professional and personal growth. There was also evidence to suggest that some HLTAs saw the role as a stepping stone to becoming a teacher. For example, two out of five HLTAs responding to the survey said the role had made them think about becoming a teacher (although this was not often the view of case-study respondents). This was particularly the case amongst science HLTAs. Added to the finding that more science HLTAs appeared to hold bachelor's degrees or higher level qualifications than their mathematics counterparts, and many science HLTAs could be suitable candidates for teacher training.

8.4 The promotion and continued development of the role

Key message

The majority of HLTAs responding to the survey were happy with the level of support and guidance they were receiving, although many thought that more could be done to raise awareness of the HLTA role amongst both school staff and parents. There was evidence to suggest that both HLTAs and teachers would benefit from additional guidance and training on how best to work with one another, although headteachers appeared to be proactive in this regard. Many headteachers reported that they intended to provide HLTAs with a structured programme of professional development over the next 12 months, and in the same period, planned to

provide guidance and training to teachers working with mathematics/science HLTAs on how to effectively work with and deploy them.

While the majority of HLTAs felt that they were receiving the support and guidance necessary to carry out their role, a notable minority felt they would benefit from further subject knowledge training. In addition, some HLTAs noted they would value opportunities for joint planning and training together with teachers as part of their professional development.

In several case-study schools, the issue of further advancement for HLTAs surfaced, with one school suggesting the role c/should be seen as a 'stepping stone' to a teaching qualification by being designated 'training on the job'. However, most of the HLTA interviewees were not seeking this route, preferring to augment their specific skill-set as part of further developing their role. The benefit of creating joint planning time for teachers and HLTAs together was again noted in this respect.

The case-study and survey findings suggest that many HLTAs were undertaking or aspiring to professional development opportunities that would provide them with new pedagogical skills, subject knowledge and specific specialist expertise pertaining to a range of different types of learner who require additional and differentiated support. These HLTA aspirations indicate the professionalism associated with the role and the rich variety of teaching activity they can and wish to contribute to their school and its students.

Put together, the messages emerging from our case study schools and survey findings suggest that, as the potential of the mathematics/science HLTA role emerges, it requires an investment in development activities that recognise and promote the distinctive contribution being made by this new addition to the teacher workforce. As the case studies occasionally highlighted how some teachers were not always clear or convinced about the role, the benefits and potential of a mathematics/science HLTA may well be something that schools themselves could also further disseminate among their own workforce and community.

Overall, the study has found that schools valued the contribution mathematics and science HLTAs were making to school life. Schools that had embraced the role had found their mathematics/science HLTAs were helping to support pupils with specific and varied needs, contributing to pupils' understanding of mathematics and science topics, and improving their achievement and opportunity for personalised learning. These are messages that could be promoted and celebrated at the national, regional and individual school level.