

Approaches to research & development for 'great pedagogy' and 'great CPD' in teaching school alliances : teaching schools R&D network national themes project 2012-14

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National College for
Teaching & Leadership

Approaches to research & development for ‘great pedagogy’ and ‘great CPD’ in teaching school alliances

Teaching schools R&D network national themes project 2012-14

Research Report

Spring 2015

Dr Bronwen Maxwell and Prof Toby Greany with Kath Aspinwall, Prof Graham Handscomb, Sarah Seleznyov and Prof Tim Simkins - University College London Institute of Education and Sheffield Hallam University

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The case studies were undertaken by Professors Graham Handscomb and Tim Simkins, Dr Bronwen Maxwell, Sarah Seleznyov and Kath Aspinwall. The research was led by Dr Bronwen Maxwell, Sheffield Hallam University (SHU) and Professor Toby Greany, University College London Institute of Education (UCL IOE).

Executive summary

This report summarises the findings of research into the implementation of collaborative research and development (R&D) within teaching school alliances (TSAs). The five alliances that are the focus of this study all undertook collaborative R&D projects over a two year period (2012-2014) linked to one of two themes: 'what makes great pedagogy?' (theme 1) or 'what makes great professional development that leads to consistently great pedagogy?' (theme 2). This work was part of a wider national project involving 66 alliances in total: the alliances received funding as well as support and facilitation from externally commissioned experts. The five alliances in this study were selected to offer a reasonable spread in terms of focus, approach and geography.

Three distinct models of collaboration can be distinguished across the five cases (with one case study displaying a mixture of several models):

- **discrete R&D projects:** these are located within a single school or academy trust. They might involve significant within-school collaboration between participating staff but limited cross-school collaborative work.
- **multi-strand partnerships for R&D:** these straddle multiple schools and have a common overarching project focus. Each individual school then chooses its own specific focus and approach within the overall theme. There may be some common data collection tools as well as cross school collaboration to share learning across the project.
- **collaborative model for R&D:** these are characterised by a jointly developed focus and a common approach to investigating this focus across the participating schools. There are high-levels of cross-school collaboration, decision making and evaluation of learning.

Each of the three models of collaboration responded to the needs and stage of development of the alliance within which it was adopted. The collaborative example studied did appear to have the greatest success in terms of teacher impact, quality of evidence generated and degree of wider knowledge mobilisation, although there were other factors within this example – such as strong engagement from a local higher education institution (HEI) and the local authority - that may also have been important.

The following themes emerged from an analysis of the five cases:

- Collaborative R&D across an alliance of schools is enhanced by high levels of trust and shared agendas between schools, but can also be a way to build such trust and shared agendas.
- There was variation across the alliances in the extent to which external research evidence was used to inform the development of interventions and to support ongoing development.

- Participating in collaborative R&D can be motivating and developmental for staff. It can help to build new pedagogic skills and understanding as well as wider skills and confidence, such as how to engage with research and how to evaluate impact. It can also help build trust and openness between peers, so that they can critique their own and each other's work and thereby improve their thinking and practice. There is some evidence that this may in turn create wider impacts, in terms of school improvement and improved pupil outcomes. However, the level of participation in R&D by staff that were not directly leading the projects varied.
- The process of undertaking enquiry can play a significant role in enabling teachers to develop a deeper understanding of learning and practice and lead to attitude and practice changes. However, validly measuring the impact of small-scale interventions in the school environment, where multiple concurrent improvement strategies are being deployed, was found to be challenging.
- Collaborative R&D can allow for a strong sense of ownership of issues and solutions by participants and so is not a top down process. However, it does seem to require a well facilitated process with a focus on drawing on existing evidence, collecting and reviewing baseline data (including from pupils), and a commitment to evaluating impact. Most of the examples studied involved repeated cycles of innovation and evaluation, whether on an annual or more frequent basis.
- Facilitating the development of collaborative R&D requires a number of skills and qualities, including strong organisational skills and an ability to take people with you.
- Collaborative R&D requires leadership support. This has two aspects: an active commitment to sponsoring teacher participation in evidence-informed improvement coupled with practical resources to make this possible, such as time.
- Collaborative R&D in the case study alliances benefited from external support, both from the national teams and, in two cases, local HEIs. This external support helped to provide structure and challenge as well as additional capacity and access to new knowledge. However, it is notable that 44 per cent of the alliances more widely that responded to the survey had not drawn on external expertise.
- Three of the research case studies had experienced some instability in terms of turnover of key project staff / senior leaders and / or the teaching school being de-designated during the course of the project. The impact of this instability was not necessarily negative: for example, it enabled new staff and ideas to enrich the project in one case.

- The degree to which R&D was embedded within the alliance and the degree of formality of governance of R&D varied across the cases. One alliance was taking a notably strategic approach to developing R&D capacity, for example through the identification of research and innovation champions in each school. Other alliances acknowledged that R&D remained underdeveloped compared to other aspects of teaching school work, although the general sense was that it had grown in importance and become more embedded over the course of the project.
- The two most frequently mentioned barriers to R&D across all projects were: the lack of time for teachers to meet and to engage in R&D (particularly across schools) and logistical barriers, such as travelling times between schools. Other barriers included: competing demands on schools and teachers, competitive cultures within alliances and lack of infrastructures within schools to support collaborative R&D.
- While the impact of collaborative R&D on participating staff appears clear, it is much less clear that the knowledge and evidence generated can or does impact on wider staff across an alliance who have not had direct involvement. The extent and apparent effectiveness of knowledge mobilisation efforts differed within the five alliances, but all will need to pay further attention to this if they are to realise the maximum benefits.

Three priorities for future development emerge from this research

- i. The level of infrastructure provided to the teaching schools in this project has been significant, for example in terms of work to identify the initial themes, the commissioned national teams to help facilitate the process and synthesise the learning, and the funding for TSAs which made the work possible. Funding and capacity for such work at a national level is increasingly limited, but it seems helpful for the Teaching Schools Council to consider whether and how alliances could be encouraged to engage in larger scale work under common themes since this seems essential for wider impact.
- ii. Many TSAs have significantly developed their capacity for collaborative R&D over the past three years, both through this project and in other ways. Nevertheless, the findings from this project suggest that R&D remains underdeveloped compared to other aspects of alliances' work (see also Gu et al, 2014). This project does not provide simple answers to how Teaching School should move forwards, but it does suggest that Teaching School leaders should focus on how to make R&D work stable and strategic. A thoughtful investment of time and effort in a well-structured and facilitated R&D process would appear to be important to achieving benefits for staff, schools and alliances.

- iii. Universities and other research experts can play an important role in supporting school-led collaborative R&D and ensuring that it is rigorous and effective. While School Direct has not been a focus for the case studies and work reported here, it may be that working with schools on R&D is a way to generate trust and evidence-informed working in ways that benefit initial teacher education (ITE) and other aspects of provision (such as STEM (science, technology, engineering and mathematics) and widening participation) as well as pathways to impact from research. Universities might therefore want to review their existing R&D work with teaching schools and consider whether more could be done to generate sustainable school-university partnerships in this important area.

1. Introduction

1.1 Research context and questions

This project reports the findings of research on the implementation of collaborative research and development (R&D) within teaching school alliances (TSAs). The research was undertaken between February and November 2014 by staff at University College London Institute of Education (UCL IOE) and the Centre for Education and Inclusion Research at Sheffield Hallam University (SHU).

The TSAs that are the focus of this research undertook collaborative R&D projects over a two year period (2012-2014) linked to one of two themes: 'what makes great pedagogy?' (theme 1) or 'what makes great professional development that leads to consistently great pedagogy?' (theme 2). This work was part of a wider national project, through which 66 alliances received funding from the National College for Teaching and Leadership (NCTL) as well as support and facilitation from commissioned teams from the UCL IOE and SHU. A third group of teaching schools received funding and support to focus on the leadership of R&D across an alliance and were supported by the Isos Partnership, Robert Hill and the University of Nottingham (theme 3).

The final report on the wider national project for themes 1 and 2 (Nelson, Spence-Thomas and Taylor, 2015) synthesises data from the impact and final reports produced by the leaders of collaborative R&D projects in each alliance. These alliance findings are compared with two literature reviews - one focused on great pedagogy (Husbands and Pearce, 2012) and another focused on great continuous professional development (CPD) (Stoll, Harris and Handscomb, 2012) - that were provided as a framework for the project. Theme three is reported in Rea, Sandals, Hill & Gu (2015) and a report synthesising findings and learning from all three themes has been produced (Stoll, 2015).

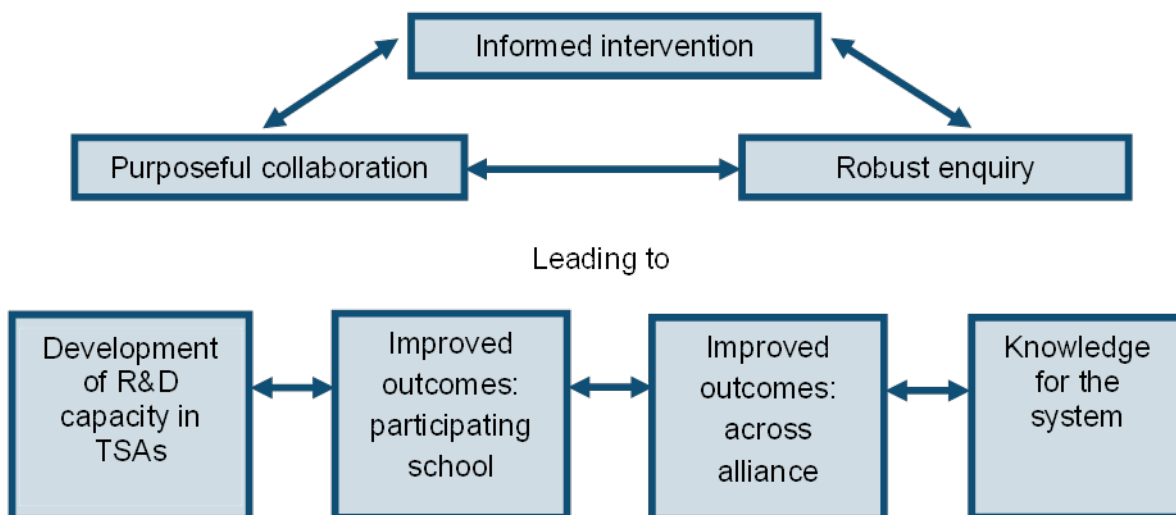
The additional research reported here complements and supplements the wider national programme reports by focussing in more depth on what has been learned about **how** teaching schools undertake school-led R&D. It draws on the perspectives of teacher participants and senior leaders from within five case study alliances, as well as the internal facilitators responsible for leading the project within their alliance. This additional research addresses the following research questions:

1. What has been learnt about how to design and conduct collaborative cross-school R&D that improves outcomes for pupils, professionals and schools?
2. Does the process of conducting collaborative R&D within and between schools impact positively on student learning outcomes, and if so in what ways?
3. How do schools deploy new knowledge or understanding generated through R&D to improve outcomes for staff, pupils, the school, the TSA and the school system?

1.2 Framework for collaborative R&D

TSAs participating in the NCTL R&D themes projects on ‘great pedagogy’ and ‘great professional development’ were encouraged to use the framework for collaborative R&D set out in *Connecting Professional Learning (C2L)* (Harris and Jones, 2011, 2012). As figure 1 illustrates, this can be seen to comprise three interrelated core components, namely: **purposeful collaboration** across schools; an **informed intervention** - that draws on existing practice and research knowledge and practitioners' knowledge of their own context; and **robust enquiry** that systematically measures hard and soft outcomes. This is intended to lead to three key outcomes: development of R&D capacity across the alliance; positive outcomes for participating staff, pupils, schools and their alliances; and knowledge for the system.

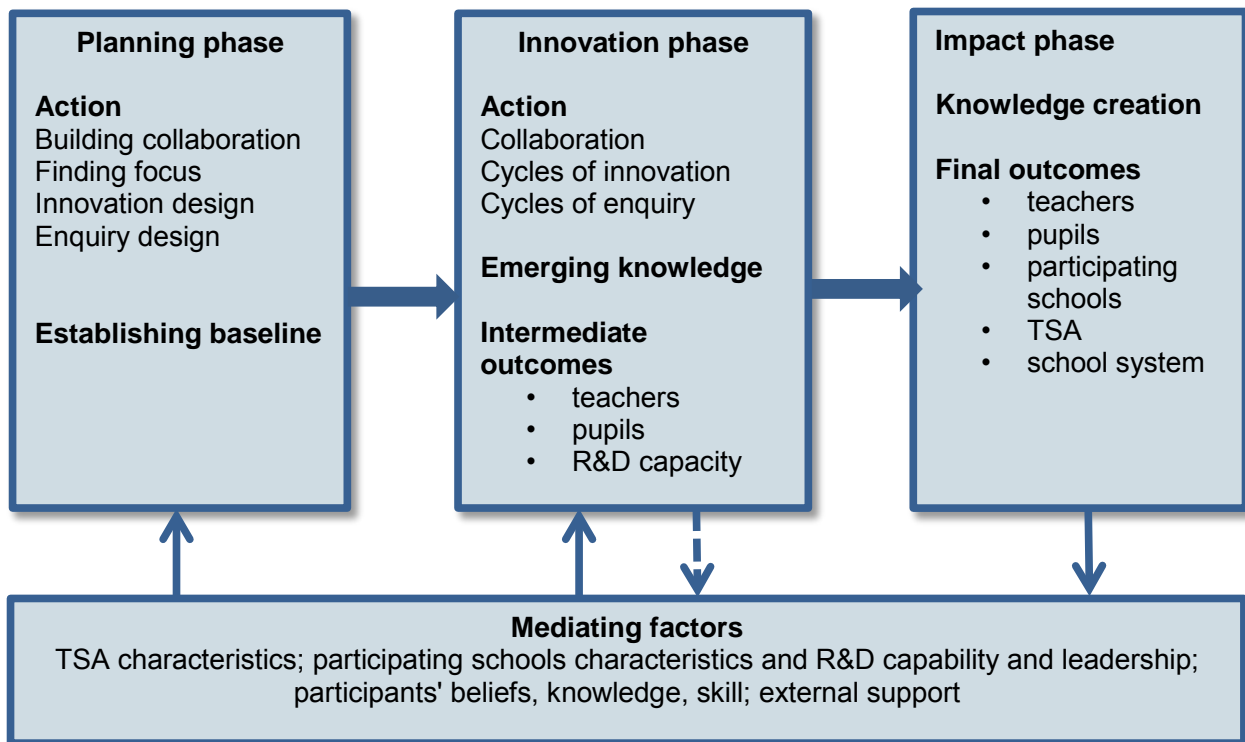
Figure 1: School-led collaborative R&D as conceptualised in the NCTL R&D Themes Project (Maxwell, 2013)



1.3 Methodology

Drawing on the key components and outcomes of the C2L model we developed a tentative logic model (figure 2) to frame data collection and analysis.

Figure 2: Logic model for the NCTL R&D themes projects



The research for this report comprised five alliance case studies. These case studies were selected to provide a spread in terms of project theme, approach to the NCTL project, nature of the alliance and geographical location.

Within each case study alliance interviews and/or focus groups were conducted with: the director of the alliance: the person responsible for leading R&D across the alliance; the NCTL R&D theme project leader (in this report we use the term 'internal facilitator' from C2L to describe this role); those who led the R&D theme project in individual participating schools (who we call 'school project leaders'); a senior leader from a participating school and teacher participants across different schools. In total there were 42 participants across the case studies. A thematic analysis of the case study data was undertaken, the findings were verified with the case study interviewers and the alliance internal facilitators reviewed the draft report.

An online survey (appendix 7) was designed and distributed to the internal facilitators in the five case study alliances, with a request for them to forward this on to staff in all schools across their respective alliances. The survey was designed with routing for all alliance staff, irrespective of whether or not they had been involved in the R&D theme project. In the event, despite various reminders, a significant response was only received from one alliance and is reported as part of that case study (see appendix 3).

A separate online survey was designed (appendix 6) to capture data from teacher participants and senior leaders in all schools participating in the NCTL theme 1 and 2

projects (ie across all 66 alliances, but only the schools participating in the R&D projects, not all alliance members). Since there was no list of participating schools, theme 1 and 2 internal facilitators were asked to distribute the survey link to two teacher participants and a senior leader in each participating school. The questionnaire included some common questions and two routes, one for the teachers and one for senior leaders.

We are unable to ascertain the survey population involved in themes 1 and 2 accurately but estimate it to be in the region of 250-400. Despite a series of follow up reminders, requesting the internal facilitators to distribute the survey if they had not already done so and asking them to encourage completion, the response was low. 57 questionnaires were returned. 42 respondents provided the name of their TSA: these respondents were from 26 different alliances. The spread of responses per alliance is shown in table 1.

Table 1: Themes 1 and 2: Spread of responses across alliances

No. of responses per alliance	No. of alliances with this level of response	Total responses
1	21	21
2	1	2
3	2	6
4	1	4
9	1	9
Totals	26	42

The majority of respondents were from alliances in the south of England (61 per cent) with 22 per cent from the midlands and 17 per cent from the north. There was an even spread of respondents by school phase: 52 per cent of respondents were located in primary schools, 41 per cent in secondary schools and 7 per cent in special schools. The vast majority of respondents held middle or senior leadership positions (93 per cent), with the remaining respondents being teachers with at least three years' experience (figure 3).

There was a reasonable spread of responses by project theme. 56 per cent of respondents were in schools undertaking theme 1 – ‘what makes great pedagogy?’ - while 34 per cent were in schools undertaking theme 2 – ‘what makes great professional development?’ 10 per cent were unable to identify the project theme. Figure 4 provides a breakdown of respondents' roles in relation to the NCTL project. 42 per cent had strategic oversight of the project in their school, 31 per cent had operational leadership of the project and a further 15 per cent were participating in the project, but without overall responsibility.

Figure 3: Themes 1 and 2 Survey: Respondents' school role (n=46)

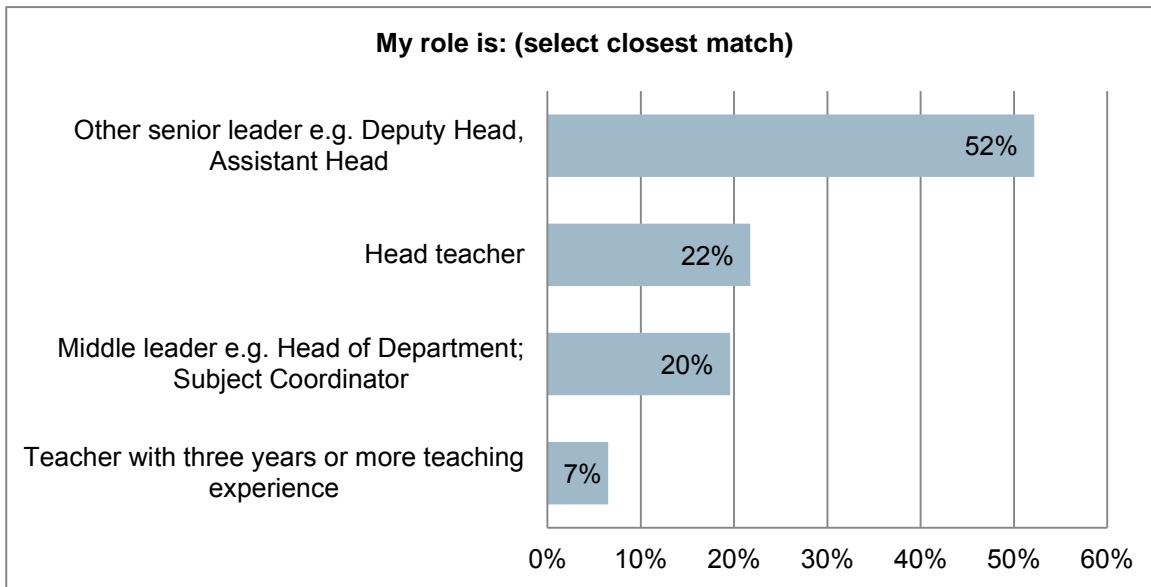
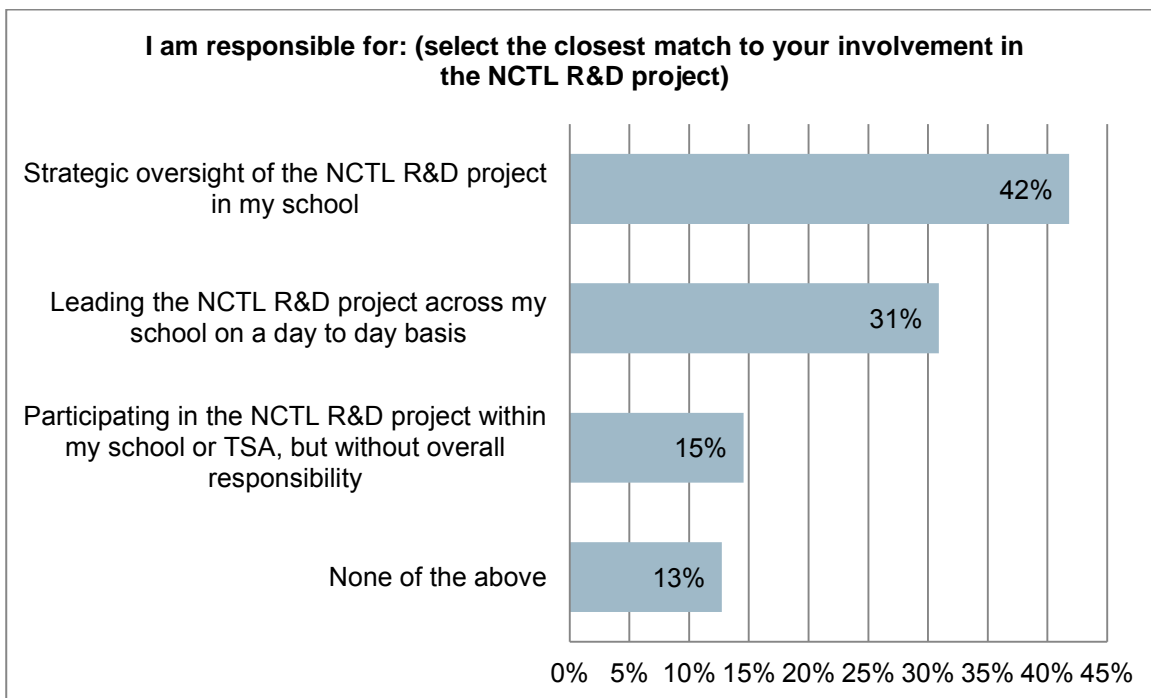


Figure 4: Respondents' role in the project



1.4 Overview of the research cases

Summaries of the case studies are presented in appendices 1-5. As these illustrate, the alliances leading the case study R&D projects varied notably in terms of size, composition, and governance. The teaching schools in all five alliances were designated in the first teaching school cohort and participated over the full period of the project from 2012-14. Table 2 summarises the key features of each alliance.

Table 2: Research case studies: alliance characteristics

Case study	Alliance leadership	Alliance and project membership
Alliance 1 (appendix 1)	Led by a large catholic secondary school in a metropolitan borough, the alliance is also part of a regional grouping of alliances that support each other through collaborative working.	The alliance comprises local primary and secondary schools within a relatively tightly defined geographic area with higher than average levels of deprivation. The project was undertaken by four secondary schools, including the teaching school.
Alliance 2 (appendix 2)	Led by a three form entry primary school in a small unitary authority.	The alliance is made up of around 20 schools in total, although a wider group of schools also accesses the provision available. The project involved three primary schools, a junior school and their local feeder secondary school, with support from an HEI partner.
Alliance 3 (appendix 3)	Multi-academy trust (MAT) led by a secondary school and comprising two primaries, two other secondaries and a post-16 college.	There are 32 partner schools in the alliance across all phases and spread across the region in which the teaching school is located. The project was located in five schools within the MAT.
Alliance 4 (appendix 4)	Led by a primary school.	The alliance is currently made up of 68 primary schools spread over a large geographical area. Six schools participated in the project.
Alliance 5 (appendix 5)	Jointly led by two secondary schools (although one school was de-designated and replaced by another during the course of the project).	The alliance comprises seven secondary schools, 3 special schools and 25 primary schools spread across a wide geographical area. Three separate projects were developed. The first two ran during both years of the project (ie 2012-14) and involved the lead boys' secondary school working with its feeder primary schools. The third project ran during the second year (2013-14) and involved two special schools.

Formal alliance membership does not appear to place a boundary on collaborative activity - alliance 2 frequently works with schools beyond the formal alliance membership, and in alliance 1 the project was led in the second year by a school which was not an alliance member.

A summary of the national themes addressed and the project foci in the case studies is shown in table 3.

Table 3: National project themes and project focus in case studies

Theme	Case study	Focus
What makes great pedagogy?	1	Sixth form pedagogy.
	2	Pedagogy and transition in mathematics from key stage 2 to key stage 3.
	3	Interventions to support pupils with emotional and behavioural special educational needs.
What makes great professional development that leads to consistently great pedagogy?	4	Impact of lesson study methodology in primary mathematics.
	5	Three separate projects focussed on impact of collaborative enquiry and lesson study through: boys' writing (project A), independent learning (project B) and specific pupil interventions in special schools (project C).

In the discussion of the alliance R&D projects that follows it is important to note that alliances 4 and 5 were engaged in dual-layered projects. They were researching a particular approach to professional development - alliance 4 was trialling lesson study and alliance 5 collaborative professional enquiry – but with a focus on specific pedagogical strategies and pupil groups.

1.5 Report structure

The report is structured around the three research questions set out above. To provide in depth insights we draw primarily from the thematic analysis of the five case studies. This is supplemented where appropriate with findings from the survey of participating teachers and leaders in the 'great pedagogy' and 'great professional development' R&D themes national project.

2. What has been learnt about how to design and conduct collaborative cross-school R&D that improves outcomes for pupils, professionals and schools?

2.1 Models of cross-school collaboration for R&D

C2L (Harris and Jones, 2012) was offered to alliances as a model for undertaking collaborative R&D by the national research partners. Drawing from research on effective professional learning and leadership, the model advocates cross-school collaboration at all stages of enquiry, from finding a focus, through designing and implementing the project, baselining and measuring impact and dissemination. Within C2L, leadership is distributed and the project leader is positioned as an internal facilitator.

Across the cases different models of collaboration are evident, with the model adopted in alliance 2 aligning most closely with C2L. As vignette 1 of alliance 2 (for summary case study see appendix 2) illustrates, collaboration is characterised by **high-levels of cross-school collaboration, decision making and joint activity**. As such we categorise this as a **collaborative model for R&D**.

Vignette 1: A collaborative model for R&D: alliance 2

All the way I think it has been remarkably collaborative; it's been very democratic.

HEI partner

The core group established themselves very quickly at the start of the project and met regularly. They collected significant baseline data from pupils and staff to understand the issues. These hinged on staff – particularly less experienced teachers - in the secondary school not taking account of previous learning and providing insufficient challenge for pupils, particularly those who had attained level 5 and above at key stage (KS) 2. The local HEI partner played an important role in designing survey instruments, collating the data and ensuring ethical considerations were addressed.

Decisions on priorities for action were made through group discussion with individuals taking the lead for different aspects depending on their expertise:

So the things that we worked on in the first year... came from a lot of collaborative discussions, and then we looked at places where we had expertise. So we knew, for example, that changing attitudes towards maths, if we could improve that would have a massive effect on pupil progress at [school 1], and a [teacher participant]

who works at [school 3] had introduced some Guy Claxton¹ ideas of learning muscles and the learning characters to really promote growth mindset at her school; so then she then took a lead on training up us and the other local feeder schools in those kind of practices.

school project leader

As the quote above illustrates there was a strong **collaborative dynamic** between schools. There are many other examples of this in the data, including this point made by a teacher participant:

I don't really feel like it's a bridging project anymore; I feel like we are now almost overlapping; in schools like in some ways the bridge is no longer necessary anymore.

Participants felt that the project was 'creative and experimental' and they had a strong sense of ownership:

There was an agenda but not outcome defined, so that I felt like I was really involved. So if someone said like 'we could try this and I said from my end that is not going well, it would be better to do this'. It did feel like a kind of negotiating, a chipping away, a kind of sculpting it from what everyone's experiences were.

teacher participant

All teachers valued going out to feeder schools, observation and partnership working and so an emphasis was placed on this in the second year of the project, focussing particularly on coaching partnerships.

The link to positive outcomes for pupils was made by the teachers, who had a rich sense of the range of activities going on. This gave a 'holistic approach to transition' which was woven together to make a real difference to how children experienced transition.

Vignette 1 illustrates the potential power of fully collaborative models for R&D to drive improvement - as well as enabling the sharing of knowledge across schools. The dynamic created from this can open up spaces for creativity and innovation. A virtuous cycle appears to have been established whereby collaboration has enabled the project to succeed and in turn relationships are being sustained through the project. Part of the reason this collaborative approach was possible in alliance 2 may be the fact that the participating schools were in a pyramid (ie secondary school and feeder primaries) with a shared interest in transition issues.

Alliances 1 and 4 (summary case studies in appendices 1 and 4 respectively) can be categorised as **multi-strand partnerships for R&D**. Both projects had an **overarching common project focus**, although **individual schools chose the specific foci of work within their school** and **collaborative activity was primarily - although not exclusively - located within rather than across schools**. In alliance 1, schools chose their own interventions to trial and devised their own approaches to measuring impact. In alliance 4, the use of common proformas for undertaking lesson study and recording outcomes provided stronger commonalities in approaches across the schools, making it closer to the fully collaborative model.

Even though much of the collaborative activity was located within schools in these multi-strand partnership projects, the participants were nevertheless very positive about the benefits of the cross school collaboration that did take place. The school project leaders in alliance 1 talked very positively about cross-school meetings providing an opportunity to share information, gain new ideas, and a space to think - as well as reassurance that other schools faced similar pedagogical issues. The following conversation between two school project leaders illustrates this point:

When you were talking about feedback I was sitting back and thinking 'yes that's exactly what we found' (school A project leader) ...and it's not very often in our profession that you get that chance to listen to each other and think 'yes' – and pick up some good ideas (school B project leader) .. even if it is only a reassurance – that what is happening in one school is the same as what is happening in another school as we are meeting the same kinds of students (School A project leader).

Similar positive outcomes were highlighted by teachers in alliance 4:

It helps to know we're part of a cross TSA project and the sharing of information and meeting up with others helps. We get ideas from other schools.

Multi-strand R&D projects, like fully collaborative projects, appear to offer mechanisms for sustaining improvement. There was considerable enthusiasm in alliance 1 for continuing the project - as the director of the alliance explained "R&D creates new questions to investigate which leads to bringing others on board". Equally, levels of teacher participation and distributed leadership had grown over the course of the project in this alliance. For example, in one school the core group of teachers involved in year 1 moved on to lead their own R&D strands in year 2, sharing their learning and further exploring the impact of feedback strategies in subjects with similar characteristics.

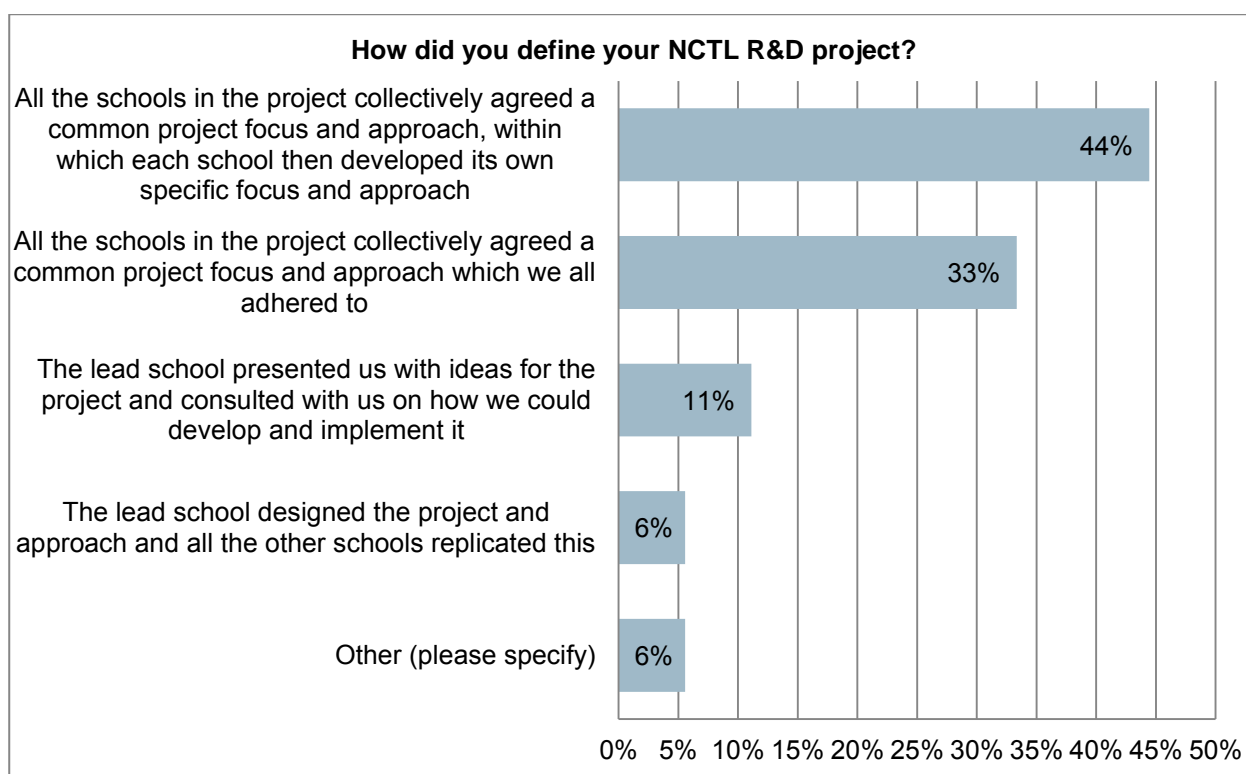
The approach taken in alliance 3 (summary case study in appendix 3) was very different and we categorise this as a **discrete R&D project led by the teaching school**. The project was small in scale and reach, involving the educational psychologist and a small

number of teachers from the targeted and specialist team across alliance schools. This more narrowly focused approach can largely be seen to have been determined by the nature of the project selected (see appendix 3).

Multiple models of collaboration for R&D were evident in alliance 5 (case study in appendix 5) where the internal facilitator set up three separate collaborative projects. For example, two groups that involved the lead school working with feeder primary schools had many characteristics of a fully collaborative approach to R&D, however an R&D project set up with two special schools at some distance from the lead school can more aptly be categorised as a within-school R&D project led by the two headteachers.

Looking more widely across the alliances in themes 1 and 2 (figure 5) 33 per cent of survey respondents had participated in an R&D project underpinned by a fully collaborative model. 44 per cent of respondents had participated in a project underpinned by a multi-strand model where they had been engaged in agreeing the common focus and only 6 per cent of respondents had participated in a discrete project led by the teaching school. A further 11 per cent of respondents had participated in a project where the focus had been set by the lead school, but the survey question does not allow us to ascertain whether they then undertook a multi-strand project or a project led by the teaching school.

Figure 5: Themes 1 and 2 survey: models of collaboration (n=18)



2.2 Culture of collaboration

As would be expected, the ease with which internal facilitators were able to build collaboration and gain buy in depended on the broader context within the alliance - and particularly the extent to which there was a culture of competition or collaboration. For example, alliance 1 is located in a region with a strong tradition of collaboration where the internal facilitator and most of the school project leaders had previously worked together on improvement projects. Alliance and school leaders were supportive of the project and ensured that time and resources were put in place to support project activity. As a consequence there were high levels of commitment across the participating schools and there was strong momentum and motivation to continue the project. In addition, project funding had provided an important 'oiling of the wheels' in terms of buying people's time to participate.

Likewise, in alliance 2 the quality and depth of the collaborative involvement within the project drew significantly from an existing tradition of collaborative working and established networks. In contrast, in alliance 5 there was a history of competition, particularly between the local secondary schools. It was noted that "people are quite protective" and "local jealousies get in the way" and that senior leaders' resistance had made it hard to engage secondary schools in collaborative R&D - although there were some indications that the willingness of secondary schools to engage was beginning to improve. In addition, the secondary heads in this case study adopted a 'hands-off' approach, which had led to R&D projects not being as embedded as they could have been. This was also partly seen to be a consequence of secondary schools being larger and more complex organisations with their own in-house CPD.

2.3 Leadership of collaborative R&D

The case studies provide important insight into the crucial importance of leadership at all levels in enabling effective R&D - this spans senior leadership within the alliance and schools, the internal facilitator, school project leaders, and, as projects grew, teacher group leaders.

There were strong similarities in the approach to leadership in alliances 1, 2 and 4, where the internal facilitator adopted a facilitating and coordinating role - much in the way envisaged in C2L (Harris and Jones, 2012). A similar facilitating and coordinating role was played at the school level by the school project leaders in these alliances. The internal facilitators and school project leaders were highly valued by the senior leaders in these alliances for their skills and ability in ensuring that the project was implemented and supported. Senior leaders within these alliances and senior leaders in most of the schools took on an enabling role through arranging the provision of staff time and

resources. Vignette 2 illustrates the importance of leadership at all levels in securing success.

Vignette 2: R&D Project leadership in alliance 1

The internal facilitator in alliance 1 saw his role as:

Facilitating the leads in other schools to develop an effective research and development model – facilitating leadership.

The role of the school project leader was summed up by a leader in a participating school:

Just a central person who could coordinate more than anythingI wasn't an expert, I didn't feel it was my job to lead... it was 'three heads are better than one' so let's work on it together and I'll organise meeting times – I'll organise where we go with the next step... I can be the link with SLT (senior leadership team) if we need time off timetable... if I notice some good courses that are relevant to this project I'll ask if we can have time off timetable to do those – so that sort of thing.

Both the director of the alliance and the headteacher in the lead school stressed that the internal facilitator's leadership skills were a crucial factor underpinning the project's success. This included having an ability to 'make things happen' and skills in 'getting people on side'.

Interestingly, the internal facilitator attributed the success of the project to the quality of the individual project leaders within participating schools and their willingness to be accommodating during the period of turbulence created by the change in the directorship of the alliance and in the leadership of the project. It helped that he had worked with the school project leaders on previous projects, "so getting them onside was a little bit easier".

The director of the alliance attended the cross-school project meetings to 'listen' - and saw her role as enabling the project to happen by providing resources to enable time and meetings. Similarly the headteacher of the lead school saw their role as an enabling one.

As more teachers became engaged project leadership was further distributed in some of the participating schools as members of the original core team of teachers led sub-groups.

The internal facilitator in alliance 5 also saw his role as facilitating and coordinating. Due to the less collaborative culture within the alliance he spent considerable time and effort in getting schools on board and appears to have been more 'hands-on' in supporting the individual collaborative school projects than the internal facilitators in alliances 1, 2 and 4. For example, he worked directly with headteachers to help them identify and choose their focus and methodology: “[the Internal Facilitator] overviewed everything, everything came through him” (TSA R&D leader). The high reliance on the energy and effort put in by the internal facilitator raises issues of project sustainability, and indeed when changes in the alliance led to the level of input from the internal facilitator being reduced there was a loss of momentum in one of the three projects. Vignette 3 demonstrates the impact of different leadership approaches on the collaborative enquiry projects in this alliance.

Vignette 3: The impact of leadership on collaborative R&D: alliance 5

Project A, a collaboration between the teaching school and a group of primary schools, appears to have had no identified leader within the teacher group, although a senior leader believed it was being led by a head of department within the group. The project focus was developed by the alliance internal facilitator working with headteachers and in the initial stages he worked closely with the teacher group implementing the project: “[the internal facilitator) was quite heavily involved at the beginning – he gave it the impetus”. However, when he was unable to continue providing this level of support, due to the de-designation of his school as a teaching school, this project lost momentum: teacher participants have only met once in the current year as “it’s kind of petered out – we’ve come up against a time brick wall”.

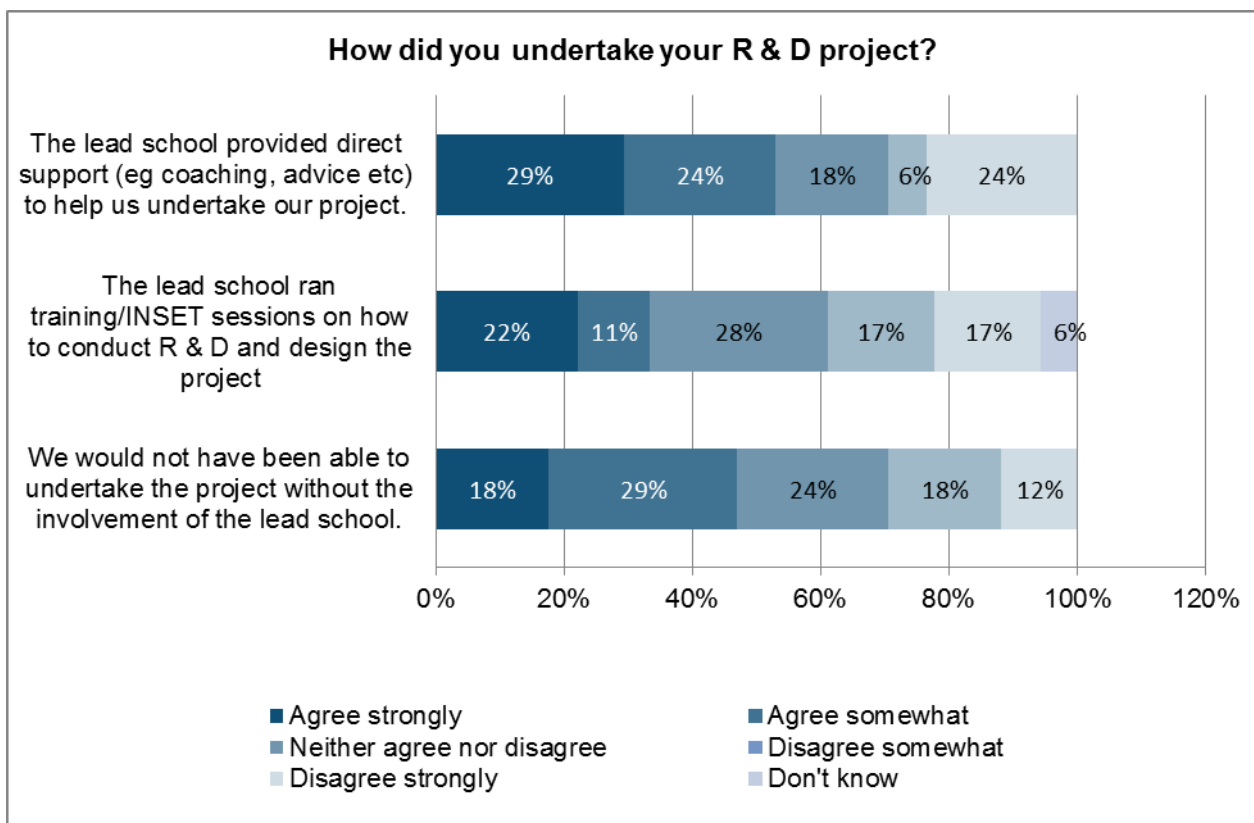
In contrast, project B had a teacher who acted as leader for the group, who reminded teachers of meetings and wrote minutes. This project appears to have maintained its momentum and met regularly across the duration of the project despite the internal facilitator having to reduce his support.

Project C involved pairs of teachers working together under the supervision of a headteacher across two special schools, with limited input from the internal facilitator. The momentum in this project seems to have been maintained thus far, although the project started a year later than the other two so is harder to judge. The headteacher in one school “kept track of what we’re all doing and made sure we’re up to speed, just showing a general interest really”. She was also hands-on in providing advice and guidance on the project focus and possible evidence to gather. Teacher participants identified the role of their headteacher as an advocate and facilitator who was crucial to the success of the project, they felt “lucky to have an involved and positive headteacher who encourages us to take risks, evaluate and reflect”.

The distinct focus of the project in alliance 3 led to a rather different leadership approach, with two project leaders. The first was the nominated internal facilitator - who undertook a primarily administrative role comprising two elements: “keeping the project going, informing people, writing reports”; and gathering evidence. The second was the education psychologist, who led on project implementation. As the education psychologist explained, my role is “to do my job and to make sure I’m measuring the validity of my role and measuring the impact on pupils”. The leaders consulted and shared findings with the special educational needs (SEN) group that meets across the wider multi-academy trust, but because there was less direct involvement from wider staff in the project the need for shared leadership appears to have been less important.

Our survey of theme 1 and 2 projects (figure 6) illuminates the role of the lead school in supporting R&D projects. As our case studies have illustrated, the lead school is not always the teaching school. It is important to note here that the survey was only sent to leaders and participants beyond the lead school.

Figure 6: Theme 1 and 2 Survey: Support from the lead school (n=18)



Just over half of the respondents (53 per cent) reported that the lead school had provided direct support, such as providing coaching or advice to help them undertake the project. More formalised training sessions designed to support schools undertaking R&D were made available to a third of respondents (33 per cent). The participating schools had mixed views on the necessity of support from the lead school: 47 per cent of respondents agreed or agreed strongly with the statement 'we would not have been able to undertake

the project without the involvement of the lead school', whereas 30 per cent disagreed or strongly disagreed. The reliance of nearly half of the respondents on support from the lead school does however support the necessity for teaching schools, or another school identified by the teaching school, to take a lead in developing expertise in R&D across the alliance.

2.4 Developing and sustaining a focus

Establishing and sustaining a clear focus appears to be essential to the success of collaborative enquiry projects. The overarching focus of the projects in alliances 1, 2 and 4 were set before applying for the funding to participate in the project - and were seen by participating schools to address key areas of concern. In alliance 2 the participating schools were consulted before the application was made and in alliance 1 the focus was identified by the director of the alliance as a 'natural' progression from a previous collaborative project.

The broader purposes of the project in alliance 4 (researching and extending the use of lesson study and measuring change in CPD cultures) was developed by the director of the alliance in conjunction with two other local alliances and a HEI. The overarching curriculum focus on primary mathematics was identified by the director of the alliance and was intended to: develop the expertise of non-specialist maths teachers; develop a positive culture of maths achievement; and narrow the attainment gap between key groups. The combination, from the outset, of a clear **process** - lesson study - and a clear **curriculum** focus – mathematics - in this alliance appears to have helped keep the project on track and enabled a smooth transition from one internal facilitator to another.

Even where participating teachers, school project leaders and the internal facilitator had not been involved in selecting the overarching focus, if they were highly involved in shaping the specific direction of the project they could still feel a strong sense of ownership of the project. This was true to differing degrees in alliances 1, 2 and 4. For example, in alliance 4 the exact focus (ie aspect of mathematics, year group etc.) was independently decided within each participating school. One headteacher interviewee felt this helped - "it's essential to let the teachers decide on what they want to focus on for themselves. They need to feel ownership".

However, the internal facilitator in alliance 1 highlighted difficulties that can arise in sustaining a common focus within a multi-strand partnership for R&D as schools mediate the ideas developed in the cross-school group:

It's almost that sometimes that idea does change according to school priorities maybe... sometimes it can cause things to move forward, sometimes it might

cause things to pretty much end or not be as fruitful as what was said in the first place.

Alliance 5, like alliance 4, was undertaking a theme 2 project - 'what makes great professional development'. While the professional development focus - collaborative enquiry - was identified at the start, the pedagogical focus was developed through a two stage process mediated by the internal facilitator. Firstly, an audit was designed by the internal facilitator and undertaken with headteachers in a face-to-face meeting. This led to the identification of the broad themes of the project. The school project leaders then worked with their colleagues involved in the individual projects to further refine and develop the collaborative enquiry projects - this was perceived by participants as a very collaborative activity – “we decided as a group really”.

Vignette 4 describes the process through which alliance 2 used data to refine their focus with support from their HEI partner.

Vignette 4: Finding a focus in a fully collaborative model of R&D: alliance 2

In alliance 2 the focus of the project was influenced by development activity taking place prior to being involved in the project, so that by the time they consulted partners they had already identified their research question: 'what makes effective pedagogy and transition (KS2-KS3) in mathematics?' The lead school and its partners then had worked with a HEI partner, who had analysed attainment data and found that teachers, particularly less experienced teachers, were misjudging pupils' starting points when they went to secondary school: 'they were expecting pupils to be working at the national average of level 4, whereas in fact they were coming in to secondary at level 5.' The internal facilitator pointed out as a consequence, some parents, after sending their children to the lead school at primary, then sent their children to independent schools at secondary because “they did not think the offer of state schools at secondary was good enough – based on hearsay and anecdotal reports”.

The internal facilitator felt that the research focus was intuitively understood among the partners as being an area of concern and explained that partners developed a strong sense of ownership as:

We all agreed that we wouldn't design the detail of the project until we had done the baseline collection and what we had to negotiate was – well what is that going to look like; what's manageable for us to do as a baseline data collection.

The collaborative group worked with their HEI partner to examine preliminary baseline data - a survey of year 6 and 7 pupils.

They explained that this helped them refine the focus and begin to shape the direction of the project:

The main things were the attitudes towards mathematics and the differences between primary and secondary, which led us down the Growth Mindset¹ route.

From this, further refining led to the identification of three foci for the project:

- pupil attitudes and mindsets
- teaching pedagogy and improvement of year 6 and 7 teaching
- the issue of pupils re-learning on transition to secondary and improving transference of information.

2.5 Use of research evidence

There was variation across the alliances in the extent to which research evidence was used to inform the development of interventions and to support the ongoing development of the interventions adopted. Vignette 5 illustrates how the use of research evidence in Alliance 4 supported the development of the interventions trialled and led to improvements in mathematics subject knowledge for non-specialist teachers in primary school.

Vignette 5: Using research evidence to support positive outcomes in alliance 4

The three teachers interviewed in alliance 4 all spoke of the importance of starting with research and finding out what is already known before moving into planning - they found it important to look at enough research:

to feel secure in what we were planning.

Sometimes approaches were abandoned and they would go back to the research - this became embedded in practice across the school and has become routine. Teachers found this a very positive experience and reported that they felt more confident in their subject knowledge:

It [subject knowledge] is more secure and integrated

This enabled the project to have greater impact.

In alliance 2 research literature was used to refine the focus of the project and decide on appropriate interventions. Here the HEI partner played an important mediating role by pointing the core group to current literature on transition, particularly related to mathematics education. As the HEI partner explained:

I felt I was able to help them to see what was out there and what they might have to read to give them some sort of background.

The core groups of teachers in each school in alliance 1 also drew on research evidence; particularly in year one when they were engaged in short cycles of trying out a range of strategies. The teaching school had a long established practice of working parties reviewing and critically analysing professional and research evidence and looking at how it applied to their students – albeit without rigorous measurement of the impact of changes made as a result of the activity. In contrast, prior to the project, using research evidence was not embedded as a routine practice within the other participating schools. Allocation of time for reading activity was an important factor that enabled the use of research evidence to become embedded in these schools. For example, one teacher participant who had adapted ideas about feedback from research articles to the KS5 context noted that she had been given quite a lot of time and emphasised that ‘that was important as the discussion and time to read all the research articles gave me lots of ideas’.

It is important to note that formal research evidence was only one of a number of sources that teachers drew on to identify and shape their interventions and that tracing the link between research evidence and practice is complex. Other sources included the identification of existing effective practice in one or more of the participating schools. For example, in alliance 1 differentiation practices already embedded in key stages 3 and 4 in the Teaching School provided a key source of ideas which shaped the interventions the participants chose to trial in that school. In turn, some of these KS3 and 4 differentiation practices emanated from earlier use of evidence to develop practice within the teaching school.

In alliance 5 there were mixed views about the commitment of participating teachers to engage with research evidence. The internal facilitator reported that teachers were reluctant to read research - a view only partially supported by the teachers themselves, who reported that they relied on the internal facilitator to tell them about relevant research but they did also read research themselves and used that knowledge to shape their projects.

This raises the question of the how the internal facilitator can best facilitate the use of evidence. In alliance 5 the internal facilitator took responsibility for providing evidence as a way of trying to engage teachers. In alliances 1 and 4 sourcing of evidence was undertaken more collaboratively and appeared to result in a stronger sense of mutual

responsibility that led to, at least, the core participants being committed to doing the reading and feeding back their ideas. Alliance 2 made a deliberate decision to work with an HEI partner to strengthen their research, including the use of evidence.

In our theme 1 and 2 survey all respondents claimed to have utilised existing research to support their project: 33 per cent agreed strongly and 67 per cent agreed with the statement that 'we drew on existing research to inform our project' (n=18).

2.6 Intervention and enquiry: approaches and experiences

C2L advocates the use of cycles of innovation and enquiry, underpinned by the use of research evidence to inform the development of interventions. In all the research case study alliances, with the exception of alliance 3, repeated cycles of innovation and enquiry characterised the model of enquiry adopted. The cycle of enquiry activity evident across the alliances was summed up by the participants in one collaborative enquiry project in alliance 5 – “we had meetings once a term in a sort of cycle: we met, we decided on an intervention, we applied it, we did it, we evaluated it, we met again”.

Frequency of meetings both across and within schools varied. While either termly or half-termly meetings were mentioned most frequently, the internal facilitator in alliance 1 argued that to achieve impact on teaching and learning they needed more regular interaction.

It has to be frequent ...meetings once per half term are not enough – it needs to be weekly or fortnightly.

Vignette 6 charts teachers' experiences of engaging in cycles of intervention and enquiry in alliance 4.

Vignette 6: Using a lesson study approach to intervention and enquiry in alliance 4

In alliance 4 a lesson study approach to enquiry was adopted. The teachers interviewed were visibly energised by the process of joint enquiry and say they have become much more interested in research: both that carried out by others and the action research in their own and their colleagues' classrooms. Interviewees believed strongly that the shared nature of the work, including the initially alarming element of mutual observation, has led them to feel better informed, more competent and professional. This came over very strongly in the interviews.

In one school where lesson study was already being used the project had added impetus - the focus on starting with research then planning together before implementation and observation has become much more developed.

At first staff were nervous about the element of joint observation, particularly where one teacher was more experienced than the other. As the headteacher explained:

We had to stress that this was an equal partnership not a demonstration of greater skill.

Participants have devised ways to manage these anxieties. For example by: undertaking the first cycle with someone they trust; planning preceding the decision about who teaches and who observes (some teachers drew straws just before the lesson): and teaching together and moving in and out of the observation role. The most helpful factor had been realising that it is the children's learning that is the key focus. All those interviewed said that teacher talk about practice had been noticeably enhanced by the lesson study process.

The internal facilitator has found this project to be more supportive than other things they have done both in his own school and in others:

Having a shared goal of progress and improvement. There's more of a coaching element. Everyone's finding out at the same time. We don't know what the outcome is going to be.

He finds it differs from other school improvement where it's very much, "you need to do this... this project is more unknown, more fluid."

One teacher participant stressed how valuable she had found working on three consecutive lesson study cycles to develop the teaching of fractions. One cycle was helpful but three made it more possible to understand the factors that were enhancing or blocking children's learning and to develop new strategies to help.

Like teachers in alliance 4, the participants in one of the collaborative enquiry projects in alliance 5 also valued working alongside their peers and being able to put into practice the coaching skills which they had been trained in some time ago but had never used. They also described increased confidence in their own teaching and a sense of involvement: "you feel like you have ownership of it, you've got something you can grasp hold of and put your energy into". Participants in another collaborative enquiry in alliance 5 recounted how new ideas emerged as part of the enquiry process: "they grew out of what had come from the action research".

In alliances 4 and 5, where the teachers were undertaking lesson study, all teachers engaged directly in enquiry activities. This appears to have been particularly powerful in changing teachers' perspectives and practices. For example, teachers in alliance 5, who were new to R&D, talked about the enquiry process enabling them to 'step away from the norm' and helping them have 'radical realisations' about their children's needs – "you

need to break out of the box and do what works”. The participants reported that the opportunities, for the first time, to analyse data beyond attainment data (eg attitudinal and behavioural data), to observe their own classes and discuss their observations with peers, as well as to visit local schools to observe in class, had been particularly helpful in this process. The director of the same alliance pointed out the important role the enquiry process plays in enabling schools to focus on pupil progress. Vignette 7 from alliance 1 provides compelling evidence of the power of enquiry to change teacher beliefs and practices - as well as highlighting the importance of gathering student voice within R&D.

Vignette 7: Impact of using student voice as an enquiry tool in alliance 1

Within alliance 1 student voice was captured in different ways and for different purposes in each of the schools. For example, in one school a pupil voice questionnaire was used at the beginning and end of the first year of the project with the intention of finding out whether there had been a shift in students’ perceptions of what was happening in the classroom. In another school a student questionnaire was used at the beginning to see things from the students’ perspective to illuminate the issues to be addressed. In another school a questionnaire followed by student interviews was used for the same purpose for all students in the sixth form, not just the pupils in the intervention groups.

Pupil voice was very important in shaping the projects in all schools as the internal facilitator pointed out:

[Pupil voice] directed the research and allowed things to happen and change and to alter the direction of the research.

All the interviewees emphasised the link between enquiry that captured student voice and changes in teachers' beliefs and practices as the following quotes from different interviewees illustrate:

What was really good about speaking to the pupils is it made us realise that our preconceptions of what they think are wrong and also we thought perhaps that is just what they think it is and they don't really understand – but actually they really do and they are very very good at explaining it – they could explain the reasoning behind what they said. The power of that was really important ...and it changed our thinking: “it's not that you just don't like it you have got very, very good reasons – you know why you don't like it and you know why other things work”.

school project leader

Information from [the student survey] suggested that students did not put any value on peer assessment and this was strongly reflected in the interviews we had as well... which was not really what we expected to find – we thought they would quite like that sort of assessment... as teachers we put a lot of time into those strategies and it was a surprise to find the kids didn't like them at all – they found them completely useless.

school project leader

One teacher participant explained how the combination of using student voice and collaborating with other teachers had been pivotal in trying different strategies to improve sixth form pedagogy:

When we came back and spoke to each other – it was that light bulb moment of “they didn't get it wrong, we got it wrong” and that power of talk among people was strong as it changed your viewpoint of what you thought... rather than saying we are going to try this because I think it's a good idea, it became much more, actually they didn't like this and they think this works so we'll try their techniques as well as ours and then listen to what they have to say about what we try with them and see whether they think it works or not.

In one school the student voice enquiry revealed that student perceptions of differentiated homework was different to that of teachers. The students believed that if they were doing grade C homework they were never going to get to an A – in response the teachers changed their approach and incorporated a challenge that any student could have a go at – they found that this pushed A and A* students while also getting some of the C students to rise to the challenge.

Interviewees also recounted other instances of student voice impacting on student outcomes, for examples the deeper dialogue revealed student misconceptions that had been limiting their grades. While there had been a significant rise in sixth form attainment over the course of the project, interviewees thought that while this project had contributed, it was not possible to make a clear attribution as the project ran alongside a range of other improvement strategies.

While all teacher participants across the alliances were directly engaged in trying out the chosen interventions, not all were involved in collaboratively designing or conducting the enquiry as envisaged in C2L. This raises an important question - how crucial is it that **all** teachers are engaged in designing and undertaking enquiry alongside trialling an intervention? In alliance 2 the enquiry was designed and conducted collaboratively by the core group of school project leaders supported by their HEI partner. While one teacher participant had been involved with the work done by the core group and said that she

gained a great deal from being involved in pupil interviews and surveys, the other two teachers interviewed perceived that they had not been involved in using research methods - although one teacher did recall being sent a summary of the findings.

This may indicate that adopting a fully collaborative R&D model may lead to a more restricted engagement of teacher participants in the enquiry element of R&D than in multi-strand projects where a group of teachers in each school are directly involved in designing and conducting enquiry. However, as illustrated in section 2.7 below, multi-strand collaborative R&D can, in some instances, operate without commonly agreed approaches to data collection and analysis across the schools, which may reduce the robustness of the enquiry.

In addition to collaborative enquiry, other approaches to research were also being taken across the alliances. For example, teacher collaborative enquiry focused on pedagogical interventions in alliances 4 and 5 was supplemented by the internal facilitator undertaking a further layer of research collating data to assess the impact of the collaborative enquiry itself. In alliance 4 this was further supplemented by research undertaken by an HEI partner who conducted and analysed a CPD values and practices survey across all participating schools at the beginning and end of the project. This provided a measure of change in attitudes towards CPD and CPD practices, it was also used as the basis of consultancy provided by the HEI to participating schools on developing their CPD approaches.

The blending of different approaches to research in alliances is illustrated in vignette 8.

Vignette.8: Approaches to intervention and enquiry in alliance 3

The project in alliance 3 developed to incorporate two foci. The first focused on in-depth casework which is a core activity undertaken by education psychologists in the targeted and specialist support team (TAST). Systematic data was collected on around 15 pupils across the participating schools “where we felt the impact could be best evaluated”. This built on normal TAST processes involving: the writing of a referral form by the ‘problem holder’ (usually the teacher); an initial consultation involving, usually, the educational psychologist, teacher, pupil and parent; assessment by the educational psychologist; and the development of strategies for the teacher to implement and regularly review.

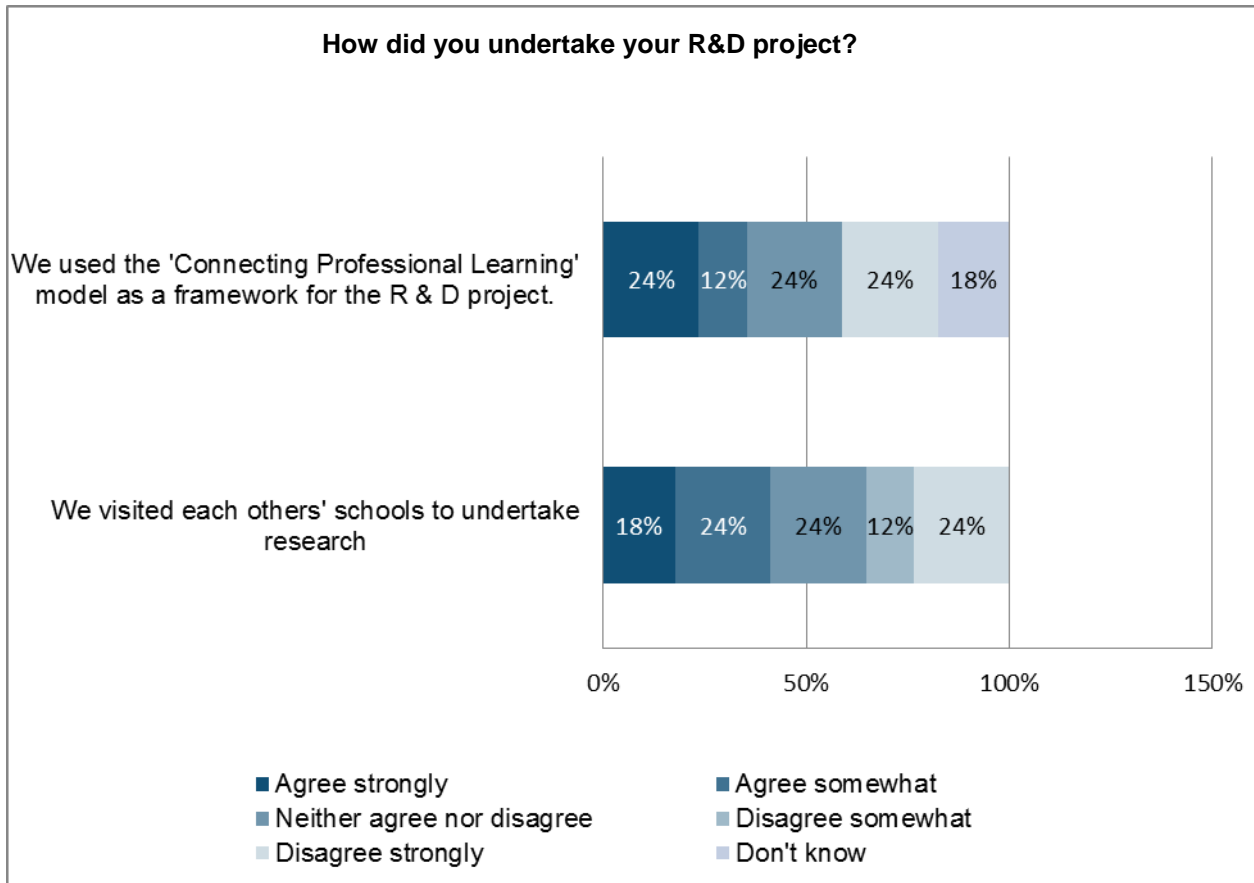
This systematic approach to casework has been complemented in the project by a systematic evaluation process. A proforma has been developed by TAST which will be used to gather information through in-depth interviews by the educational psychologists with all the key individuals who work with the children in the pilot cases. This will include hard data, for example on pupil attainment. This data has not yet been collected, nevertheless, the project leaders felt that the importance of

collaboration has been highlighted, especially the engagement of all stakeholders. The contribution of the project is to make the evaluation process much more systematic.

The second foci was mindfulness work with less able children. The trust is a 'Mindfulness trust' and a number of staff including the project leaders are trained mindfulness teachers. Work has been undertaken with cognitively able pupils in one school with the aim of considering whether the approaches used would be effective with very different children. There are two activities. In the first one, the teacher undertook a pilot study of the application of mindfulness training to eight pupils. One of the educational psychologists produced a diagnostic tool that is being used in a before and after mode with the pupils who are subject to the intervention. The second activity is a randomised control trial study of the impact of mindfulness training introduced at primary level on attainment and progress which one teacher participant was undertaking as part of his doctoral studies.

Our survey provides some broader insights into approaches to intervention and enquiry across themes 1 and 2. 36 per cent of respondents reported using C2L (Harris and Jones, 2012) as a framework for their R&D project, whereas 24 per cent had not used the framework and a further 18 per cent did not know (figure 7). It is important to note here that the lead school may have drawn on the model to shape their approaches and supporting material, but not shared the source with other schools - as illustrated in our case study of alliance 5.

Figure 7: Theme 1 and 2 survey: approaches to intervention and enquiry (n=18)



The survey also indicated the extent to which alliances visited other schools to undertake research: 42 per cent of project participants visited other schools to undertake research, whereas 36 per cent reported that they had not (figure 7).

2.7 The challenges of undertaking robust collaborative enquiry

The alliances were mindful of the need to undertake rigorous enquiry. The internal facilitator in alliance 2 was very aware, from her social science degree background, of the importance of research rigour – “you have to ask the right questions to get the right answer” - and so from the outset they engaged a HEI partner to “make sure that whatever they did was robust and held some water”.

All the alliances undertook systematic data collection and analysis activities. However, some interviewees felt that the evidence they produced could have been more robust, referring for example to evidence as “only being anecdotal”. In alliance 4 the evaluation element of the lesson study process has led to not entirely resolved discussions about the nature of evidence and what can be claimed with confidence. The issue of attributing positive outcomes directly to the project was a concern across interviewees. In alliance 3,

participants reported that 'getting evidence' is hard as there are so many factors that might contribute to changes in pupil behaviour and performance.

The challenges and tensions in undertaking robust collaborative enquiry are illustrated in vignette 9.

Vignette 9: The challenges of undertaking robustness of enquiry in alliance 1

In alliance 1 interviewees recognised the importance of baselining and 'starting with the end in mind':

We knew we were looking at where the starting point was so we would know whether things had improved... so we could look at student voice again... could look at if exam results had improved... clearly seeing where we were, where our starting point was to see clearly if we had had an impact.

school project leader

However the internal facilitator and some participants highlighted a concern with the robustness of the evidence that they were able to collect:

Much evidence was circumstantial... and very difficult to pin it down.

school project leader

A further common concern amongst interviewees was attributing outcomes to the project. For example in one school the end of the project coincided with the highest A level attainment they had ever had – but the school project leader is unsure whether it can directly attributed to the project:

[the link is] very tenuous – but part of the mixing pot.

A teacher participant in the same school, commenting on the schools' intention to adopt a more rigorous approach to enquiry, noted that:

The biggest thing for me is trying to get an evidence base to assess impact –it's tough within teaching – how to assess impact from one particular strand going on in the class.

The interviewees in this school were seeking a simple way of measuring impact and expressed concern that teachers should not be collecting data when they should be teaching. The desire for a simple, but robust approach, to measuring impact was echoed by the internal facilitator.

This internal facilitator, who took on overall project leadership at the beginning of year 2 also thought that a more tightly defined cross school approach would have helped:

The way the project began was probably more open than I would have done – in that I would rather have had a more focused and funnelled approach to the more specific areas of development that all of us could have focused on and used narrower research tools.

Two interviewees from different schools, in different interviews and without any prompting from the interviewer, raised the issue of teachers' perceptions of control groups, explaining that personally they did not feel it ethical to adopt this approach to enquiry:

It's hard to get teachers to have a control group – if they really think it is going to work they want to do it with all classes.

Ethically [using control groups] really doesn't sit very well, you have to use the strategies with two classes.

Although there was concern to develop more robust approaches to enquiry, there was at the same time some questioning of whether it is always necessary:

You know, as a teacher, if something has worked – you have a gut reaction as to whether it has a positive impact. And if you talk to students you know if you have had a positive impact – but with the data it's more difficult.

school project leader

I think sometimes we tie ourselves up with – I know that with research you need to validate ...is it any use is it making any difference – sometime I feel like saying yes it is, I know it is because I see it, I can see the teaching is better.

senior leader in participating school

2.8 Intervention and enquiry tools

The development or acquisition and subsequent use of both intervention and enquiry tools was a crucial element in the success of all projects. Vignette 10 illustrates how developmental activity undertaken collaboratively across schools can enable the sharing of existing resources to underpin common approaches that ultimately lead to positive outcomes for pupils.

Vignette 10: Collaborative use of intervention resources: alliance 2

One school internal facilitator provided a detailed example of how the use of a key policy document shared between schools led to the systematic development of change in practice across the schools. She described how they introduced a new policy in KS3, which involved promoting a growth mindset based on the work of Carol Dweck (2006). This policy was already being used in another school and then was taken up in the school internal facilitator's own secondary school and its primary feeders:

So the pupils would learn about these learning characters in primary schools and then we would use them again in secondary schools to promote learning skills such as being creative, team work, making links; so that is department policy now at my school... teachers are expected to refer to and use the characters as part of their day to day lessons, and myself and [a senior leader] go round and check consistency and give training to new members of staff.

One teacher from a secondary school noted that using the learning characteristics material was a very new experience.

Three secondary schools also shared a transfer sheet to be used with their feeder primary schools, which records students' levels relating to a strand of mathematics. The transfer sheet was completed by primary teachers as a traffic light system and then used by secondary teachers to build on students' prior knowledge, so that they are not re-covering concepts that pupils are already confident in.

The further development of the resources and their use is still ongoing. An evaluation undertaken in one of the secondary schools found that many teachers enjoyed using the learning characters, whilst others needed more input on how they can best utilise them in their lesson and commented that the transfer sheets could be further improved.

The projects in alliances 4 and 5 were supported by the development of frameworks and tools to support the enquiry process. Vignette 11 illustrates the value of tools in providing a structure for R&D projects.

Vignette11: The importance of tools to support enquiry: alliance 4

In alliance 4 Pete Dudley's *Handbook for Lesson Study* (Dudley, 2011) has been core to the process, helping schools to follow a clear process and repeat this for a number of cycles. This ensured that each project followed the key principles of enquiry - 'research–plan–do–evaluate' and that evidence was gathered on the impact on pupils' progress and attitudes towards learning.

Towards the end of the first year of this project, the project schools, together with the headteacher leading the alliance R&D working group, developed a shared format for recording the research-plan-do-evaluate lesson study cycle based on Dudley's materials. This includes headings to develop thinking that will ensure an action research focus on a particular issue so that it is clearer to the staff involved what they need to think about and hypothesise before the lesson study starts. There has been training in using this for headteachers and participating teachers. All the interviewees reported that this has helped to provide some commonality across the project in the way that lesson study has been carried out. It also addressed the concerns of the year 1 internal facilitator who felt that the project work was not sufficiently well defined.

One school project leader found the research–plan–do–evaluate process helpful, particularly the first and last elements:

Research because it's been really good to share it with staff and getting their opinion – not just taking it as read. Evaluation because of drawing it out and agree or disagree about whether it has made an impact and how we are going to change what we do. We've found the rich task work really had made an impact. Teachers can bring out examples and the monitoring suggests that it's had an impact.

As vignette 12 demonstrates the creation of an enquiry resources pack in alliance 5 was particularly important in underpinning the project. It also illustrates the value of national projects, such as this project, in enabling the sharing of resources, and hence, approaches across alliances.

Vignette 12: Development of an enquiry resources pack in alliance 5

As a key strategy for project implementation in alliance 5 the internal facilitator developed and trialled a resource pack to be used by the participating schools. This included a flyer with a plan of the process of enquiry, protocols to be signed, a planning sheet, questionnaires for teachers, guidance on running an R&D project, and interview questions.

The internal facilitator noted the following tools and resources as being particularly important to the project: C2L (Harris and Jones, 2012); process tools such as the impact frames provided by their national research partner for the project; the national teacher enquiry network (NTEN) lesson study materials¹; the input provided by Professor David Hargreaves at an NCTL event at the start of the project; and a questionnaire to assess CPD cultures and values that had been designed by the HEI partner in alliance 4 and shared through this NCTL project.

The internal facilitator had distilled and adapted these materials to support the development of the resource pack. The internal facilitator was able to trial the pack with participating schools during year 1, so that when another school that was geographically distant joined the project in year 2 these resources enabled this to happen more effectively.

Some of the participating teachers also brought tools for use in the project.

2.9 The role of external support

In the research case study alliances two forms of external support were drawn on: local HEI partners and the national research partners commissioned by NCTL to facilitate the overall project.

Alliances 2 and 4 worked closely with their local HEI partners and felt strongly that they were crucial to supporting school-led collaborative R&D. The need for HEI expertise was also advocated by the director of alliance 5, where the original teaching school has long-standing links with a local university on R&D: they stressed that 'teachers are not researchers' and went on to state that schools 'do need the expertise of professional researchers'. Likewise the director of alliance 2 strongly emphasised the importance of the contribution of higher education, recognising that in schools they are not experts in educational research and need HEI support to make sure their enquiries are rigorous and valid and to provide quality assurance.

Vignette 13 illustrates collaborative work with an HEI, describing the reasons for the partnership, the ways in which the HEI partner worked with the alliance and the perceived benefits.

Vignette 13: A collaborative approach to working with a HEI: alliance 2

The HEI partner in alliance 2 is an experienced mathematics educator who prior to the project had already been working with colleagues in mathematics education in secondary schools in the local authority where the alliance is located. The internal facilitator secured the agreement of the HEI partner to participate prior to making the application, as they wanted to:

Make sure that whatever we did was robust and held some water.

The internal facilitator was particularly mindful of Professor David Hargreaves's advice (which was provided to all the alliances at an NCTL event early on in the project):

You need to be the innovators, don't try to be the researcher, get the expert research from the expert.

The HEI partner supported the project in a number of ways including analysing attainment data, designing enquiry tools, providing relevant reading materials, producing student, teacher and parental consent forms and contributing in meetings of the core project team. Prior to gaining the grant, the HEI partner's analysis of attainment data enabled the core group to identify the 'problem' of teachers in secondary schools misjudging the starting levels of students transitioning to their school. Discussion of the findings of an 'attitudes towards mathematics' questionnaire, designed and analysed by the HEI, then enabled further refinement of the project focus and was again used later in the project to measure change. The questionnaire had already been piloted on the target age group by the HEI partner; so they already knew the language would be age appropriate. The school project leader in a school that had recently joined the project remarked on the usefulness of the questionnaire.

In the initial stages the HEI partner pointed the schools to current literature on transition, particularly related to mathematics education.

I felt I was able to help them to see what was out there and what they might have to read to give them some sort of background. (HEI partner)

The HEI partner also gave the project members some reassurance that they were doing the right thing in terms of research design. As the HEI partner reflected, although a number of the teachers may have had a deep research background there was a need to:

Give some reassurance as to the approach needed to answer the questions they wanted to ask.

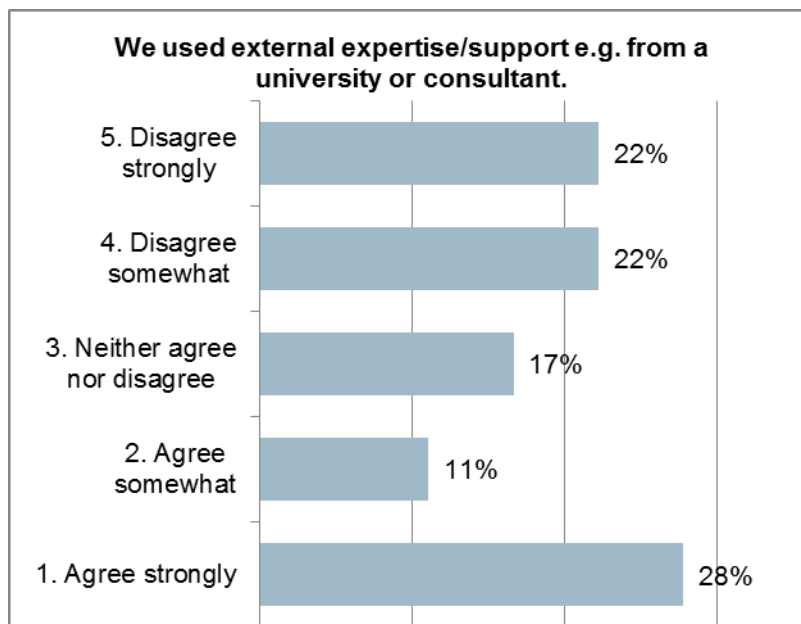
Summing up the general opinion of the project participants, one school project leader said that having an HEI partner as an expert and helping with all their data was 'a massive help to us... and we have learnt a lot about that from her.'

In alliance 4 an HEI partner was also brought on board prior to applying for the project. The HEI supported the alliance in a number of ways including: designing, conducting and analysing a pre and post CPD values and practice survey and facilitating discussions with leadership teams within the schools involved to discuss the findings, providing workshops on lesson study and directly supporting the internal facilitator, and in year 1 attending one of the national project's regional action learning sets with the internal facilitator.

Internal facilitators across the alliances also valued the support provided by the national research partners (UCL IOE and SHU). For example, the internal facilitator in alliance 4 reported that the need to write reports and reviews for the national research partners has 'provided a further level of learning and reflection'. However, while the internal facilitator in alliance 1 thought that their national research partner had been fantastic in terms of providing support to talk through the project, he would have liked more specific guidance on research strategies at the regional action learning sets to support the development of a more robust enquiry approach.

Our survey findings indicate a mixed picture across the theme 1 and 2 projects more broadly in the use of external support. As figure 8 illustrates just over a third of respondents (39 per cent) were engaged in a project that drew on external support from an HEI or other source, whereas 44 per cent made no use of external support (n=18).

Figure 8: NCTL themes 1 and 2 survey: Use of external support (n=18)



2.10 Alliance stability and staffing

Three of the research case studies were affected by changes of staffing, particularly in senior roles, across their alliance. In alliance 5 one of the two teaching schools leading the alliance lost its teaching school status and was replaced by another school. This had an impact on the momentum and activity of the project as the internal facilitator had his dedicated R&D project leadership time removed when his school was de-designated, although he continued to manage the project until it was completed in summer 2014.

In alliance 3, while the director of the teaching school described highly structured processes for project management, the internal facilitator was less clear about some aspects which she put down to the amount of change that the Trust has undergone: it was just being formed when the project started and the internal facilitator was new to her own role. Since then there had been many changes – not least in senior leadership roles as the Trust had expanded.

However, it is important not to make the simple assumption that changes in staffing only have negative consequences. In alliance 1 the director of the teaching school, who was also the internal facilitator, left at the end of year 1 of the project. Following a temporary dip during the transition of leadership the project developed a new energy - as the director of the alliance observed 'this is not the end of a project but the start of another conversation'. The internal facilitator and the teaching school coordinator put this re-energisation, in part, down to changes in leadership and the influx of new staff into the project within the schools.

2.11 Governance of R&D

The degree to which R&D was embedded within the alliance and the degree of formality of governance of R&D varied across the cases. Alliance 4 exemplified a high degree of embeddedness - R&D is governed by a headteacher working group, research champions are being established in all alliance schools and there is significant R&D activity beyond the project. In alliance 3 R&D is included in performance management targets and interviewees were positive about the trust's commitment to R&D activity beyond this project.

In contrast the director and coordinator of alliance 1 felt R&D was underdeveloped, particularly compared to other aspects of the 'big six', although the alliance is committed to prioritising its development over the current academic year. Similarly, although there has been significant R&D activity across alliance 5, the internal facilitator described R&D as the 'poor cousin' and both they and the new alliance R&D lead felt the alliance does not enable the maximum benefit to be derived from R&D projects. This view was contrary to those of the director of the teaching school and senior school leaders who spoke passionately about the importance of R&D in the alliance and the 'genuine willingness and belief in R&D' across the alliance schools that makes it effective, noting that giving time and funding and having dedicated leadership for R&D within the alliance had made a positive difference.

In alliance 3 the internal facilitator and participants valued the autonomy provided by looser governance: “[the Trust] is good in terms of independence [and] not micromanaging... [but] they're there if we need them”. The director of the teaching school also emphasised the way in which the structures grant autonomy and the advantages of this: “[the brief] was open-ended which enabled the joint project leaders to do things their own way... prescription hinders innovation and creativity... a lot, if not most, of the projects are like that...” however, she conceded that it ‘can be scary’ and “it’s important to know who to put in the lead... [people] who have the capability to pull it all together”.

2.12 Value of R&D as a school improvement tool within Alliances

Across all the cases there was a strong belief in and commitment to R&D as an important school improvement strategy. For example the director and senior leaders in alliance 5 talked passionately about how R&D has by far the greatest impact on school improvement in terms of teaching and learning. Key benefits for the alliances adopting R&D approaches to school improvement were identified as enabling fit to context, more productive relationships between lead schools and improving schools, a sense of ownership of improvement by teachers, and creating sustainable improvement.

The benefit of fit to context was illustrated by senior leaders in alliance 2 explaining how R&D differed from other improvement strategies:

The idea of one size fits all we don't sign up to... we just feel that it is better if research is driven by you, within your own school to see if it is something that is going to suit you, rather than just adopting [an initiative] just because it has perhaps worked elsewhere or an initiative from some sort of central body.

The director of alliance 5, felt that R&D approaches help to avoid a more arrogant approach of "I know how to do this, do it like this" and influence the work of specialist leaders of education (SLEs) and national leaders of education (NLEs), although she noted that R&D is not used for some of the more practical quick-fixes schools need. Senior leaders in alliance 2 discussed the potency of R&D as a change tool as it gives teachers ownership, so that instead of being told about new effective practice, they are able to discover it for themselves.

The importance of R&D in underpinning sustainable improvement was emphasised by a headteacher in alliance 1 who had been leading his school on an improvement journey. Setting R&D within a whole school CPD approach based on the principles of joint practice development (JPD) he explained that it 'is the best thing we have ever done as it is the thing above all others I think that is sustaining long term improvement in the school.'

2.14 Relationship of R&D to CPD and JPD

Most often within alliances, R&D was seen as an effective component of CPD. The director of alliance 5 talked about teachers responding really well to evidence-based work which they are 'much more likely to buy into' and in alliance 4 R&D, especially in the form of lesson study, was promoted across alliance schools within the context of CPD. A senior leader in alliance 2, who is also the secondary lead for teaching and learning across the city, saw R&D as part of JPD:

It's been about how we take the best practice from one and how we transfer that across sectors really, and... we do that through network learning communities.

However, not all teachers saw R&D as part of CPD, for example in one school in alliance 5 who were new to R&D, they saw R&D as additional and separate to any other CPD that they were doing. While alliance 3 had initially seen R&D in isolation, the director of the alliance explained that now "we see it as very joined up... there is a relentless focus on how R&D ties into the professional development side". However, the internal facilitator in alliance 5 believes that subsuming R&D into the CPD strand within the alliance has weakened it.

It is also important to note that across the cases there was sometimes some confusion about what R&D is, and at times R&D, CPD and JPD were used conterminously by interviewees. This confusion is summed up by the internal facilitator in alliance 2:

I'm not sure that there is a definition (of R&D) that everyone in the teaching profession understands and agrees upon. So I think action research, research, joint practice development – it's all a bit muddy if I am honest with you.

2.15 Enablers and barriers

The preceding sections have illuminated a number of enablers and barriers influencing collaborative R&D. We have collated and summarised these below:

2.15.1 Enablers

- **Committed, skilled leaders at all levels who undertake an enabling role** - the commitment and skills of senior leaders within alliances and schools, internal facilitators and school project leaders is crucial to establishing and undertaking collaborative R&D. Alliance and schools leaders also need to facilitate the project through the allocation of resources. The internal facilitator and school project leaders need to have the skills to bring people on board and make things happen. As R&D projects grow this needs to be supported by further distributed leadership within schools.
- **Cultures of collaboration within alliances and schools** - where good relationships and collaborative practices are well established within an alliance or school it is easier to establish and sustain collaborative R&D. Equally, R&D provides an open ended way of working, which can help to foster collaboration between schools.
- **School policies and processes** that enable collaborative R&D are important facilitators, for example regular dedicated time set aside for collaborative professional development.
- **Structuring R&D projects to build in high levels of cross-school collaboration** - this creates a collaborative dynamic that not only supports the sharing of knowledge and resources but provides fertile ground for creativity and innovation.
- **HEI support** - which facilitates links to appropriate reading and research ideas, guides enquiry design, data collection and analysis and if appropriate, undertakes aspects of the research.

- **National project funding** - which both raises the status of the project within alliances and provides the resource necessary to support time for teachers to collaborate and, if appropriate, buy in HEI partner or other external support.

2.15.2 Barriers

The two most frequently mentioned barriers across all the case study projects are:

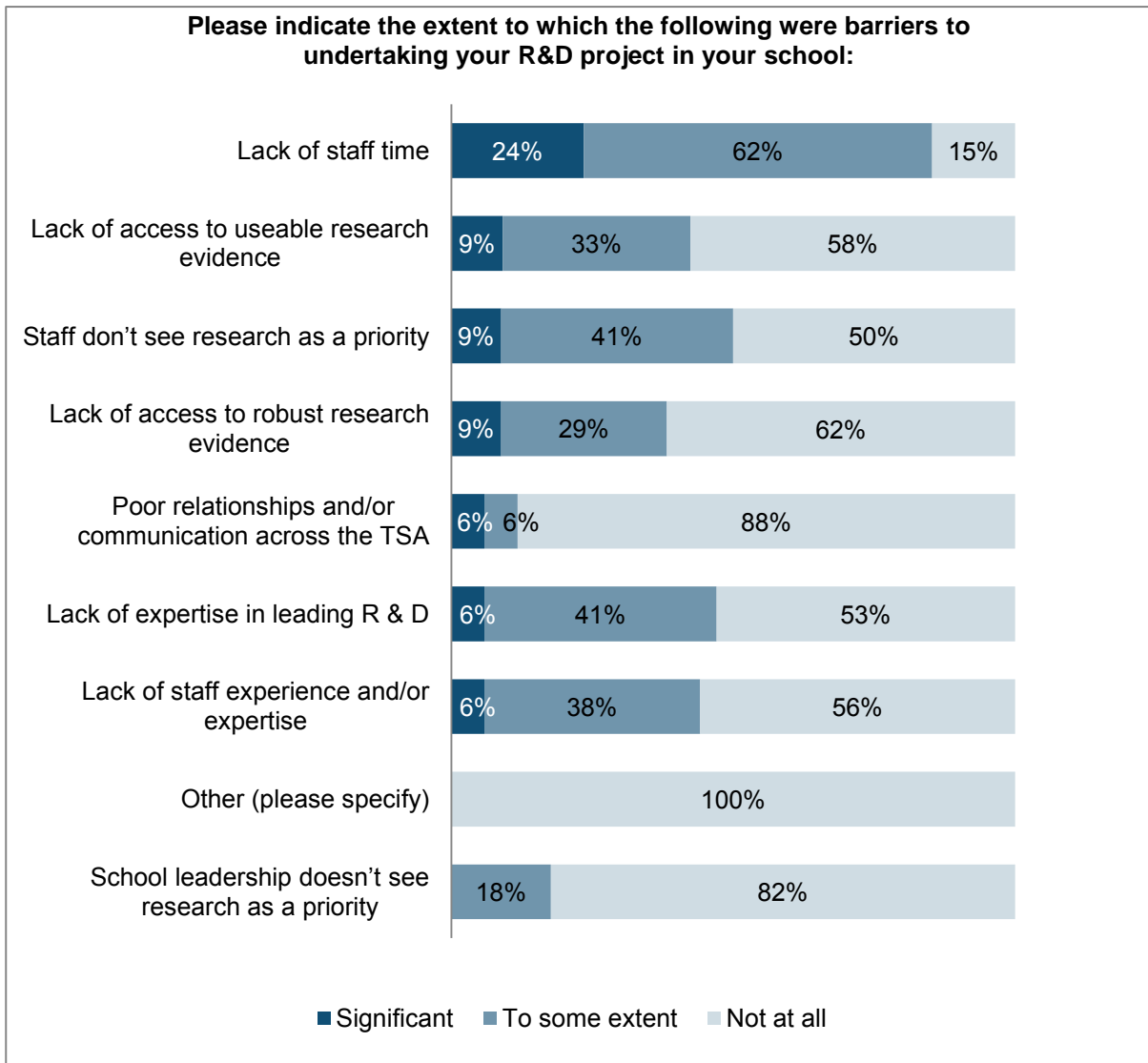
- **Time** - for teachers to meet and to engage in R&D - particularly across schools. This was consistently cited as a key issue.
- **Logistics** - travelling times between schools created further barriers: even when schools were not geographically distant traffic problems meant that that it was difficult to justify cross school activity as an effective use of teachers' time.

Other barriers encountered include:

- **Competing demands on schools and teachers** - interviewees explained how curriculum changes and other pressing policy initiatives could draw attention and energy away from the collaborative R&D project.
- **Competitive cultures within alliances** - that make it difficult to establish collaborative R&D and/or limit the commitment and depth of engagement of project participants.
- **Lack of infrastructures within schools to support collaborative R&D** – this is reflected in the impact of key staff moving on, where some projects then ‘petered out’. However, in some alliances there were concerted efforts to build such infrastructure, for example through dedicated posts and embedding JPD structures and processes.

The theme 1 and 2 survey findings provide further evidence of the barriers to R&D (figure 9). The survey respondents, like the case study interviewees, reported that time was the most significant barrier to undertaking R&D: 24 per cent reported that it was a significant barrier and a further 62 per cent that it was a barrier to some extent. Only 15 per cent of respondents did not perceive time as a barrier.

Figure 9: Theme 1 and 2 survey: barriers to undertaking R&D (n=34)



There was a perception amongst respondents that staff do not see R&D as a priority and that this acts as a barrier: 9 per cent of respondents identified this as a significant barrier and a further 41 per cent reported that it was a barrier to some extent. In contrast, the attitude of school leaders to R&D was not seen to be an important barrier: the majority of respondents (82 per cent) reported that this was not a barrier and none saw this as a significant barrier, although it is important to note here that the majority of survey respondents had a middle or senior leadership role.

There was also some concern that a lack of staff expertise and a lack of R&D leadership expertise were barriers. Slightly under half of all respondents reported that R&D staff and leadership expertise was either a significant barrier (staff 6 per cent; leadership 6 per cent) or a barrier to some extent (staff 38 per cent; leadership 41 per cent).

Access to, and the nature of, existing research evidence was also perceived as a barrier by survey respondents. 9 per cent of respondents reported access to useable research evidence as a significant barrier and 33 per cent saw it as a barrier to some extent. 9 per

cent of respondents also saw lack of access to **robust** research evidence as a significant barrier and 29 per cent saw it as a barrier to some extent.

Few respondents perceived that poor relationships or communications across the alliance was a barrier; only six per cent rated this as a significant barrier and a further six per cent a barrier to some extent.

3. Does the process of conducting collaborative research within and between schools impact positively on student learning outcomes, and if so in what ways?

3.1 Overview

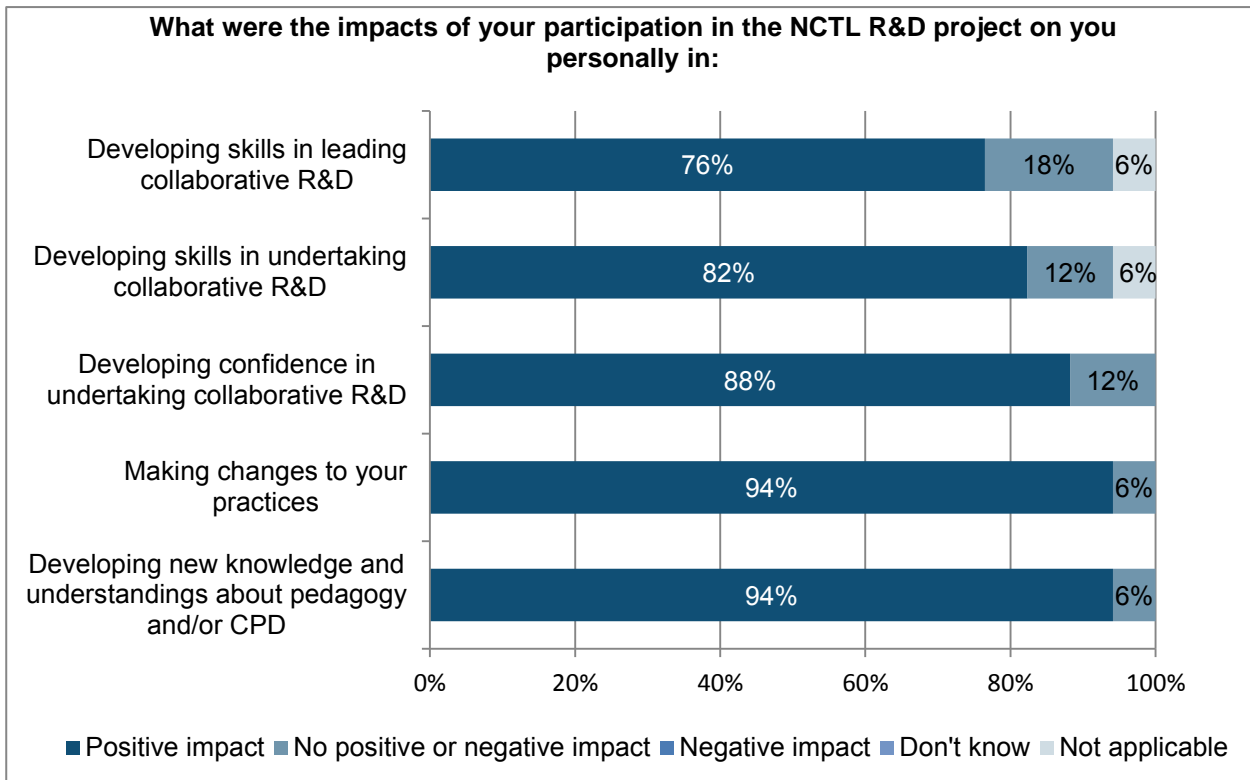
This report does not consider the impact of the specific interventions and approaches trialled and evaluated by the alliances under the 'great pedagogy' and 'great professional' strands. These outcomes are reported the R&D network national themes 1 and 2, final report (Nelson, Taylor and Spence-Thomas, 2015). These are synthesised together with the findings from the third strand on 'great leadership' in *Three greats for a self-improving school system – pedagogy, professional development and leadership: full report* (Stoll, 2015).

The focus here is on whether the process of undertaking R&D itself has an impact, for example by helping teachers to engage with and contextualise existing research and to reflect on their practice in ways which enhance their effectiveness. The logic model underpinning our approach to this research (figure 2) assumes that changes in teachers' attitudes, beliefs, knowledge and behaviours can lead to positive outcomes for students. Such outcomes might include higher levels of enjoyment and engagement and improved knowledge, skills and attitudes towards learning, which may lead to improved progress and ultimately to higher attainment.

The evidence reported in this small-scale study cannot substantiate any causal claims about the impact of participating in R&D. Nonetheless the findings from the case study alliances do indicate that collaborative R&D can have an important impact on participating teachers. In several cases it also appears to have a less direct impact on their pupils, their colleague teachers, their schools and more widely their alliances.

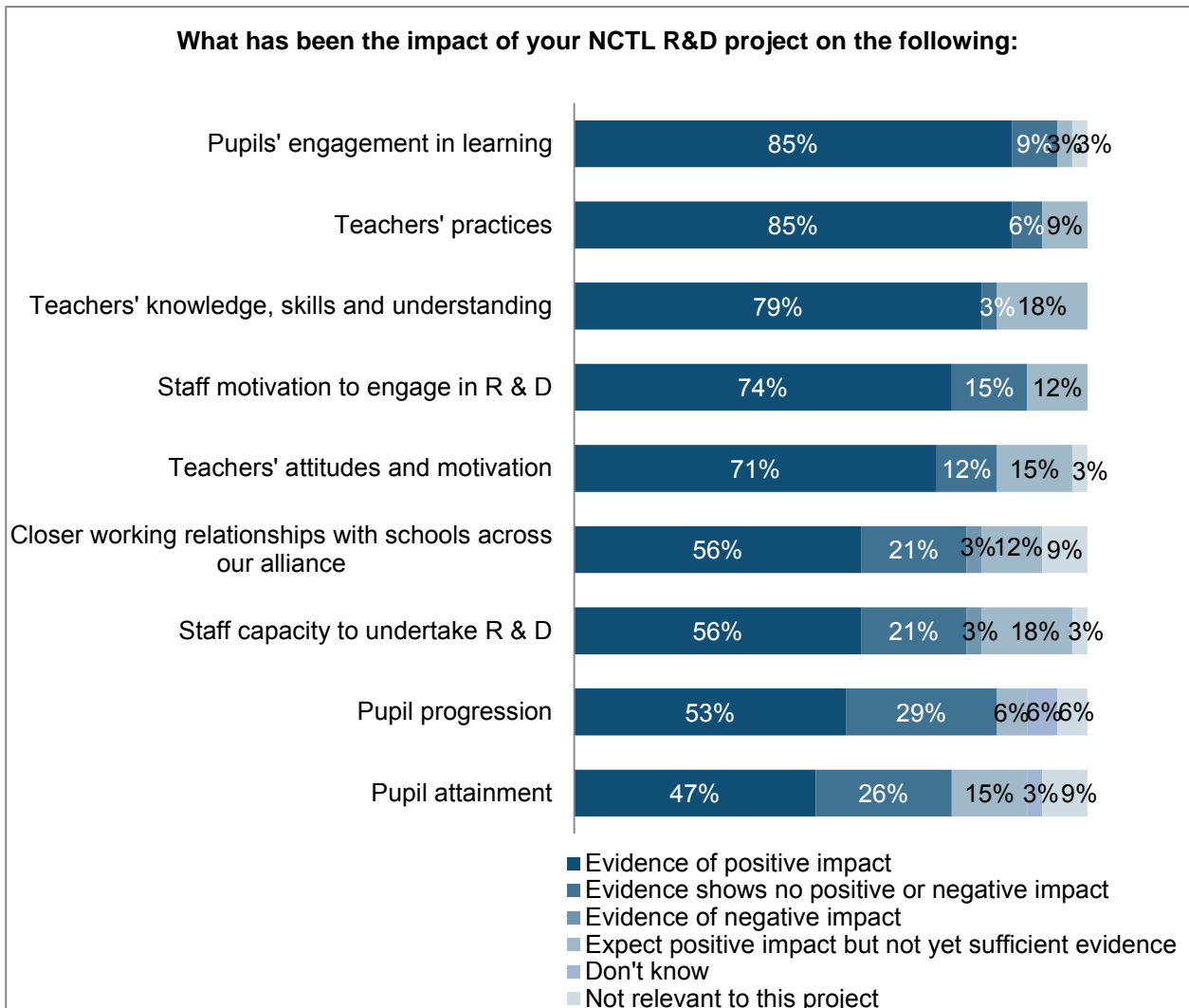
Our survey indicated very high levels of personal outcomes from participating in the R&D project (figure 10). It is important to note the vast majority of respondents to this question had led the project in schools beyond the lead school.

Figure 10: Theme 1 and 2 survey: personal outcomes of project participants (n=17)



In addition to asking participants about personal outcomes, all respondents (participants and school leaders) were asked to assess the impact of the project in their school. The findings are summarised in figure 11 and, together with the findings presented in figure 10, are referred to in the sections that follow. Again this indicates a high level of positive outcomes for teachers, schools and pupils across the project.

Figure 11: Theme 1 and 2 survey: all respondents' perceptions of school outcomes (n=34)



The outcomes reported in the case studies fall into three broad categories: teacher outcomes; school and alliance outcomes; and pupil outcomes; as follows:

3.2 Teacher outcomes

3.2.1 Motivation and development

Whilst the five case study alliances had approached their R&D projects in different ways, it was notable that the staff in all five alliances were positive about the experience. There are numerous examples indicating that staff found the work motivating and developmental:

We learned from watching each other teach, the subject became more enjoyable and felt more straightforward. There was great satisfaction in being able to say 'she's really got it.' It was enriching.

teacher participant, alliance 4

Similarly, the internal facilitator in alliance 4 talked about the 'fantastic opportunity' the project provided in enabling him to see other learning environments and approaches to learning, and in alliance 2 all the teachers enjoyed and valued going out to feeder schools and engaging in observation and partnership working. The director of alliance 5 describes the enjoyment teachers get from involvement in R&D and that this helps them have 'a passion for the job'. She believes involvement in R&D has an impact on teachers' self-esteem and gives them 'a greater belief in what they do'.

Across the case studies enjoyment and motivation was often linked by interviewees to a sense of ownership in developing their own practices. This is illustrated by a teacher participant in alliance 1 who explained that although she is a 'fairly new teacher so trained to be a reflective practitioner and to make changes' what she is now doing is:

Making that leap from “that lesson didn’t go very well – maybe next time I’ll move seats to that lesson” to, “I wonder if there is a completely brand new idea that I might try – let’s go and look for it”. That’s sort of an impulse to take autonomy over that – that’s quite a new feeling for me – so I quite enjoyed doing that.

The survey confirms the positive impact of the project on teacher motivation and attitudes. 83 per cent of respondents strongly agreed (71 per cent) or agreed (12 per cent) that the project had led to improvements in teacher motivation and attitudes. 15 per cent of respondents disagreed somewhat with the statement, which may be related to feelings of time pressure (figure 11).

3.2.2 Beliefs, knowledge, skills and practices

Most participants had also developed specific skills or developed an aspect of their practice as a result of participation. Skill and practice changes across the research case studies are summarised in table 4:

Table 4: Summary of skill and practice development outcomes in the research case studies

Alliance	Skill and practice development	
	Location of impact	Changes reported by interview participants
1	Sixth form teachers	Developed and deployed a range of differentiation and assessment strategies.
2	Primary and secondary mathematics teachers	Developed and deployed shared practices across transition.
3	Members of the targeted and	More systematic approach to case work.

Alliance	Skill and practice development	
	additional support team	
4	Non-specialist primary mathematics teachers	New mathematics strategies adopted e.g. using rich task and existing strategies refined.
5	Teachers in mainstream and special schools	Range of strategies adopted as appropriate to the needs of the students and school.

Vignette 14 traces the link between collaborative enquiry, changes in teachers' beliefs and changes in teachers' practices in alliance 1.

Vignette 14: Impact on teacher outcomes chain - alliance 1

Interviewees in alliance 1 traced a clear link from undertaking enquiry to **changes in their beliefs** about the effectiveness of their existing teaching practices and the ability of their students to explain what helped them learn. One school project leader explained how the combination of enquiry (in this case a student voice questionnaire) and collaborative working led to changes in teacher beliefs:

And then discuss [the student voice survey] in a non-threatening environment really helps to shift the perception of staff... why have they [students] changed over the summer holiday – are they different?... why are you using lecturing?

The importance of the non-threatening environment to enable attitudinal change was stressed - as a school project leader and teacher participant pointed out – “otherwise teachers won’t get involved or won’t be truly honest”.

Changing attitudes led to changes in practice. One school project leader reported that practice in her school had shifted from a largely didactic approach to being as creative with the sixth form as they are with students lower down the school. One teacher participant recounted how she used the student voice enquiry to shape changes to her marking, noting that:

So my teaching has improved because I am more targeted at where I am making my feedback comments... it’s a very small thing but it just tightens up the whole because there is a better understanding of what they might fall down on and where they need to bring up their skills

Across all alliances interviewees made links between **new ideas and knowledge** acquired through collaborative R&D and changes to their practice. For example, in alliance 2 many interviewees referred to the impact of the project in improving the confidence and skill levels of teachers in relation to transferring practice in mathematics. A key outcome noted by interviewees was the change in teachers' attitudes towards transition practice and a new willingness by secondary teachers to accept the assessment of pupils made by primary teachers. For teachers in the secondary schools changes in practice were supported through them gaining knowledge from primary colleagues about how to promote a growth mindset in mathematics (Dweck, 2006), while primary colleagues also gained new subject knowledge through collaborating with their secondary colleagues.

The survey findings on personal outcomes for project participants also indicate strong outcomes in terms of the development of participants' knowledge and understanding. 94 per cent of respondents reported that the project had had a positive impact on their knowledge and understanding and similarly 94 per cent also reported it had had a positive impact on changing their practice (figure 10).

Similarly the responses from all respondents (figure 11) present a positive picture: 71 per cent strongly agreed and a further 3 per cent agreed that the project had impacted on teachers' knowledge, skills and understanding. Impact on teachers' practice was seen as even stronger, with 85 per cent strongly agreeing and a further 6 per cent agreeing that that there had been a positive impact on practice.

3.2.3 Openness to peer challenge and critiquing own practice

There was a sense in several alliances that staff had become more open to peer challenge and critiquing their own practice as a result of participating in structured collaboration, with the quality of teacher talk about teaching and learning improving as a result. This was often as a result of understanding more about how pupils experience learning through pupil surveys - as a school project leader in alliance 1 observed:

Never underestimate the power of pupil voice – really delving into the questions in a non-confrontation way – like a coaching conversation.

Vignette 15 demonstrates the development in the spread and quality of teacher talk about practice learning in alliance 4.

Vignette 15: Teacher talk in alliance 4

The number of references to purposeful talk between the teachers in the case study interviews is striking. All those interviewed said that professional dialogue between teachers about practice has been noticeably enhanced by the lesson study process. As the internal facilitator observed the project has given participants “a chance to talk purposefully about mathematics”.

One headteacher noted an increase in the sense of professionalism in the teachers in her school, more thinking about pedagogy and evidence of their becoming more outward looking. The teachers confirmed this:

Teachers are looking more deeply into their subject knowledge and being clearer about what we want children to learn: ‘We ask is it working, is it secure?’ This impacts on our teaching.

There’s now a lot of talk about what we are doing, our approaches, what works well, what doesn’t. We’re more willing to ask for advice.

We ask how [students] respond to different strategies in the lessons.

The teachers now feel positive about observing and being observed.

It is also interesting to note how the increasing talk about practice in staffrooms is being mirrored in the classroom where there is increasing talk about mathematics between teachers and children.

3.2.4 Confidence and skills in undertaking research

Across the case studies many of those who had been directly involved in undertaking enquiry became more confident about engaging with and undertaking research. In alliance 3 all the interviewees were clear that working on the project has enhanced their thinking about evidence based practice and research and developed research capability among those involved. As one teacher participant noted:

Research has changed my thinking on how we measure the impact of the [educational psychologist's] role and how we collect data.

The internal facilitator in this alliance led a research conference for all schools which she felt she wouldn’t have had the skills or confidence to do without the project.

Similarly, participants in alliance 4 had become much more interested in their own and others' research. The internal facilitator described a growing awareness of the place of research in schools:

Before this I was thinking that research had to be big and linked to a Masters that you had to spend a lot of time reading about it - but it's not. It's about what we do every day.

These changes in attitude to the benefits of research had come despite, in a few instances, participants feeling cynical about the value of undertaking R&D, and, possibly, resentful of having to spend time on it given how busy they are. For example, in alliance 4 the head teacher leading the alliance R&D working group, talking more generally about the about the implementation of lesson study across the alliance observed that 'initially some of the lesson study teachers were quite cynical, "what are we doing here?" but "the increase in enthusiasm has been palpable".

The positive picture in the case studies is replicated in the survey (figure 10) where 82 per cent of participating respondents reported developing their skills in undertaking collaborative R&D and 88 per cent reported increased confidence in undertaking R&D.

3.3 School and alliance outcomes

3.3.1 School improvement

Senior leaders in several schools felt that the R&D projects had both supported specific improvements in aspects of practice and, in some cases, opened up a new way of working in which staff have greater ownership of their own improvement. As one senior leader in alliance 1 observed:

[R&D is] absolutely fundamental to school improvement for us – the most important thing probably.

In one of the projects within alliance 5 interviewees reported that their research has already helped them change their curriculum and had a dramatic impact on their thinking around their pupils, as well as the structures for managing behaviour across the school. They emphasised that the space opened up by participation in R&D to step back from classroom practice and reflect collaboratively had supported these changes:

Although we feel like we always talk, we really don't, we never get the chance to talk on that level because we don't get the time to.

The internal facilitator in alliance 4, who was also a deputy head, believed that the project impacted more broadly on staff in his school because it was directly linked to school improvement so most people were involved in some way:

For me, to make it work we had to do it across the school. When you evaluate you share that. We set aside time to share. We'd bring videos along and evidence of what children had said or done. We had some really powerful sessions where we shared these things. It's been not just the project teachers that bring stuff along.

While there were examples in several cases of a link between enhanced teacher ownership and school improvement, different perspectives on this were evident in some of these cases. Senior leaders in alliance 5 claimed that "R&D empowers the staff in our schools to shape the direction in which the school is going". However, this view conflicts with some of the participant teachers' perspectives who distinguished between a 'top down' approach to R&D where senior leaders tell you about research findings and how to implement these versus a 'bottom up' approach where R&D done by teachers influences the direction of the school. These teachers believe that although 'the "bottom up' approach is more desirable because people would feel more enthused and have more ownership' it is not in place in their schools.

The director of alliance 2 was bold in her claims that the project had had significant influence on practice beyond those schools immediately participating:

It has been fundamental to driving other projects across the city too because other people have been replicating what we are doing.

However, this judgment tended to be expressed in generalised terms rather than related to specific evidence.

3.3.2 Collaboration

In all of the cases there is evidence that the project has helped to foster increased dialogue and build trust between participating schools, although the extent to which this happened varied across the alliances. It is also important to note that alliances were at different starting points in terms of established levels of trust and collaboration. For example, in alliance 3, the director of the alliance project identified the TAST team working more collaboratively across schools and the engagement of all stakeholders as a factor supporting wider collaboration.

In alliances 2 and 5, where the projects have focused on transition, the R&D activity has helped create a shared language and greater equity between the participating primary and secondary schools: For example in alliance 5 senior leaders feel that the one of the projects most important outcomes was the opportunity for teachers to work across phases, which has resulted in a more balanced relationship between primaries and

secondaries, so that primaries can feel “on equal terms with secondary colleagues”. They went on to explain that cross-phase work:

Enables you to see situations you might not have in your own school, different contexts and how things work differently, other people’s perspectives on things.

This view was echoed by a participating teacher in this alliance who reported that the most important thing she had learned through participating in the project was that similar issues exist across ages and key stages: “it is more than just one classroom, one school”.

Similarly, interviewees in alliance 2 commented on how the nature of collaboration had changed and matured during the project

For me it’s about the change in the culture, where it was us and them, and now it’s much more about continuity through the phases

senior school leader

3.3.3 R&D capacity

Some of the alliances felt confident that they had grown their skills and capacity for R&D as a result of the project, and that this work would be sustained. In alliance 5 the internal facilitator thought that the project has contributed to a greater awareness of enquiry within schools and a better understanding of R&D by participating teachers, who have developed as practitioner-researchers. As the director of the alliance identified, one of the outcomes of R&D is that ‘people have new skill sets’ and involvement in the project has helped develop a culture of enquiry. Senior leaders thought that involvement in R&D created role models for less experienced staff.

Research has become more embedded within some alliances:

We are ‘more research savvy... [and] research is more in the forefront of our minds’

internal facilitator, alliance 3

Research used to something we only did if it felt really necessary. Now it’s routine, the right thing to do.

teacher participant, alliance 4

The director of alliance 2 thought that engagement in the project had honed research skills within the alliance and was very clear about the expectations they had for the contribution that research and enquiry could make to providing improvement evidence for

Ofsted. Similarly in alliance 4 there was a belief that their increasing R&D capacity had enabled them make their own evidence-based decisions rather than responding to external pressure, as exemplified by one teacher participant:

One of the things we've taken from the Singapore approach is the importance of children being secure in their knowledge of number before moving on. The pressure from the national curriculum is to move on fast but now we're more secure in resisting that.

R&D tools produced within the themes projects, such as the collaborative enquiry resource pack in alliance 5 and the lesson study proforma and ethics policy in alliance 4, have the potential to make a valuable contribution for future R&D activity.

While the findings outlined above indicate a positive trajectory in terms of the development of R&D capacity, as previously discussed in section 2.7 several alliances recognise the need to develop their approaches to impact measurement. Furthermore, all the alliances were clear that the funding provided by NCTL had been an important factor, with an associated fear that they would not be able to afford cover and external support for such work in future. For example in alliance 1, the internal facilitator considered that the funding which enabled staff attendance at cross-school meetings was “vital given the circumstances in a lot of the schools involved – where releasing teachers is quite difficult”.

The survey findings support the claim that the project has developed R&D capacity in schools. 76 per cent of respondents (predominantly those leading the project in schools beyond the lead school) reported that they had developed their skills in leading collaborative R&D (figure 10). When all respondents were asked about the impact of the project in their school 77 per cent either strongly agreed (56 per cent) or agreed (21 per cent) that the project had increased R&D capacity (figure 11).

3.4 Pupil outcomes

As indicated above, the key pupil outcomes from the interventions evaluated by the schools through their R&D work are reported in Nelson, Taylor and Spence-Thomas (2015). Nevertheless, this research did help to triangulate some of those findings. Below we provide brief illustrative examples of the types of pupil outcomes found in the case study alliances.

3.4.1 Attitudes and motivation

Improved pupil attitudes and motivation were particularly highlighted in alliances 2 and 4. Senior leaders in alliance 2 made strong claims about students' improved attitudes towards mathematics:

Yeh, massively effective... there is a buzz in maths, they are talking about maths, they are talking positively about it

The internal facilitator reported that by comparing baseline and end point measures they had been able to evidence some improvements in the attitude and motivation of students, although as they pointed out some of their findings were not statistically significant.

In alliance 1 changes in students' perceptions aligned with students being prepared to take greater ownership of their learning and progress:

They understood the reasons behind the teachers' decisions – because the dialogue was opened up pupils gained a much better sense of their own ability... and through the building up of the relationship and trust... the students needed to be open with the teacher to make the best progress and they had a responsibility for their own progress – so needed to discuss with teacher the most appropriate task or activity... so pupil outcomes a shift of responsibility onto the pupils as well – so responsibility became shared between the member of staff and pupils.

school project leader

As a teacher participant observed students were 'learning to become more autonomous in choosing what they needed to do to progress.'

The most frequently identified student outcome reported in the survey was student engagement (figure 11). The reported impact was very high: 85 per cent of respondents strongly agreed that there had been a positive impact on pupil engagement and a further 9 per cent agreed.

3.4.2 Knowledge, skills and behaviours

The development of pupils' knowledge, skills and behaviours was evidenced across most alliances. For example in alliance 4, weekly tests in one participating school on knowledge of fractions showed only 2 children got most right at the start of the process but by the end 13 out of 14 did so. In another school a teacher participant explained that students:

are getting better about talking about their learning. They can explain what they have done. We have got them to draw their explanations and show how they worked out problems we gave them.

The project leaders in alliance 3 reported that the pre and post data on pupils who have undergone 'mindfulness' training indicates a very significant improvement in the mean 'mindfulness scores'.

3.4.3 Experiences at transition

The alliance 2 project was solely focused on transition and in alliance 5 two of the collaborative projects also focused on transition. The impact of the NCTL R&D project on student's experience was evident in alliance 2 where one senior leader explained how forming good relationships with colleagues in other phases had benefitted the students by helping to bridge the year 6/7 transition gap and had improved consistency for students:

So the pupils would learn about these learning characteristics in primary schools and then we would use them again in secondary schools to promote learning skills such as being creative, team work, making links.

KS3 teaching was more closely matched to students' needs because of the greatly increased awareness of 'where the students are coming from'.

Although in alliance 5 there was evidence of changes in teachers attitudes and practices at transition there was not, at the time the case study was conducted (just prior to the end of the project), any direct evidence of the impact on students' experiences.

3.4.4 Progress and attainment

There was some evidence of improved academic progress and attainment in alliances 1, 2 and 4. All the participating schools in alliance 1 were able to point to significantly improved student progress and attainment in their sixth forms. However, they did not attribute these improvements solely to the project, but saw the project as one of a number of activities that had improved these outcomes.

Interviewees in alliances 2 and 4 made bolder claims about the impact of their project on student progress and attainment. In alliance 2 senior leaders pointed out that clear positive outcomes in terms of raising standards and improved pupil progress were evidenced through data analysis of their year 7s:

In terms of students being on or above target it has certainly improved from where we were a few years ago.

When asked what compelled them to feel that this project had contributed to this improvement one senior leader explained that the project is the biggest thing that they do with year 7, and it had driven the thinking over the last two years:

Everything we have done in year 7 has been as a result of what we have done in the project.

A school project leader pointed to data that demonstrated that 85 per cent of pupils had made greater than expected progress - three levels within KS3; two sub-levels a year. While she recognised that this was not all down to the project she felt that there were strong indications of its contribution.

The internal facilitator in alliance 4 pointed out that there is lots of evidence of individual development and progress in the final reports made by each of the six participating schools, although he recognised that some of the evidence was anecdotal. The headteacher interviewed is confident that in her school “overall results have improved and variations have diminished” as a result of participating in the project.

The survey also indicates positive impacts on progress and attainment (figure 11). While not as strong as the reported impact on engagement, the findings nevertheless present a strong claim for impact. 53 per cent of respondents strongly agreed and a further 29 per cent agreed that the project had improved student progression. Slightly lower percentages of respondents reported improvement in student attainment (strongly agree 47 per cent; agree 26 per cent). Our case study research also highlighted that the project schools were rightly tentative about assigning improvements to particular initiatives and aware that their approach to impact evaluation needed to become more rigorous.

4. How do schools deploy new knowledge or understandings generated through R&D to improve outcomes for staff, pupils, the school, the TSA and the school system?

4.1 Knowledge work

Across the alliances there was a strong commitment to supporting the school-led system through sharing knowledge generated through collaborative R&D. There were varying perspectives between, and in some cases within, projects about whether they had primarily been engaged in adapting existing knowledge from elsewhere and deepening their understanding or had created new knowledge. The interviewees in alliances 4 and 5 and most interviewees in alliance 1 believed that they had adapted existing knowledge and deepened their understanding, as one senior leader in alliance 5 commented:

I don't think we're coming up with anything that nobody else is doing... is there ever anything radically new?

In contrast, interviewees in alliance 2 believed that they had created new knowledge. The director of the alliance believed they now had a model in place as to what best practice should look like for transition in mathematics. The HEI partner believed that the project participants had gone much deeper into cross-phase working than had been done in any literature of which she was aware, commenting that:

Most of the literature regarding mathematics is secondary or primary based, whereas we are adding to this cross-phase body of knowledge.

Senior leaders believed that their deep approach to transition was something new to other schools:

Often schools have that sort of token transition, they get the year 6 students up for a day, the data transfer has all been very much here's your mathematics level, but it's all about pastoral and how do these students fit together. It's never before been about the academic... from my point of view that's not been something that I have seen or heard of in other schools.

4.2 Dissemination

All five alliances had undertaken some work to share their learning and findings with wider colleagues, although the extent and reach of this work was variable. It is important

to note here that the case study visits were conducted at a point when the projects were concluding, so some dissemination work was yet to be undertaken.

4.2.1 Within-school dissemination

Most schools had taken the opportunity to disseminate the project within their own school, usually at a whole school event. For example, a celebration of learning event in one school in alliance 1:

Was a light bulb moment for some people, in how much they gained from it and how much they enjoyed it... just little strategies that you would never normally see or be experienced to... as a scientist seeing something that is going on in PE that you can apply – it is just so important – just taking that context away and using it in different situations.

internal facilitator

The same school was also using an infrastructure that they had set up to engage teachers in JPD to share their project findings and engage a wider group of staff in further enquiry.

4.2.2 Cross-school dissemination

A number of strategies were deployed in some of the alliances to disseminate learning beyond the participating schools. Alliances 3 and 4 kept a defined group of colleagues engaged throughout the project, testing emerging thinking and approaches through regular meetings: the formal governance group for alliance 4 and the existing trust-wide special educational needs and disabilities (SEND) group in alliance 3.

Alliances 4 and 5 held events or conferences. Alliance 4 worked with their HEI partner to run two annual events to share findings across their own and two other regional alliances. Both conferences were well attended and positively received. In alliance 5 regular events were held which one senior leader described as “a huge conduit for sharing research across schools and crucial for dissemination”. However, not all teachers were aware of the alliance events and the alliance R&D lead found it hard work to organise attendance at these events. Despite constant emails to R&D leads in different schools, he describes correspondence from them as 'a trickle' and that he never knows who is going to attend the events in advance.

Alliance 2 deployed a range of strategies to disseminate their work across the city, to both alliance and other schools. They found presenting the project at the annual city wide JPD day particularly impactful in terms of dissemination:

I think added into that is watching the journey. So they saw that it's not a one-off; they heard it two years ago, then they heard how it's evolving.

They also mentioned the effectiveness of the Teach Meets (which are supported by the LA) which helped to:

Build that whole culture of action research and keep it alive because I think nothing really ever embeds if it is just the once.

In addition presentations were made at headteacher meetings and:

We also, as a team, presented to groups of high school teachers in twilights. I think we had every [name of city] high school represented over those two meetings and that was particularly about the learning journey and the bridging units.

Senior leaders in alliance 2 also have arrangements in place to cascade and scale up the work of the project through their participation in existing networks. For instance, one senior leader is leading on the city's Excellent Teaching Network and will use this to further connect the work of primary and secondary school teachers.

Several of the alliances use a virtual learning environment (VLE) to share project information and findings. Using the VLE was seen by some interviewees to be less impactful. For example, in alliance 5 the teachers did not mention the website at all and the director of alliance, the R&D leader and the internal facilitator all felt that the website was an ineffective way to disseminate finding:

Teachers generally tend not to look at the information on a school website because they're too busy.

In alliance 5 all R&D projects are always reported in a written format and sent to all the alliance headteachers. The internal facilitator believes that headteachers are much more likely to read these reports than to read anything posted on the website.

The infrastructure for R&D being developed in alliance 4, and particularly the development of research champion roles in schools, is beginning to provide a forum for the project to be discussed more widely.

4.2.4 Reach

In most of the alliances, as yet, the wider impact on staff across the alliance has been limited and in some cases the projects have still to be shared more widely within participating schools. To some extent, at least, this is likely to be because the projects were only just concluding.

Alliance 2 appeared to have had the greatest success in mobilising the learning from their project so far. This appears to be partly because they were working on a theme that was already a local authority-wide priority and within a specific subject area (mathematics) where transition is an issue. But other factors also seemed to help:

- Involving staff (SLEs) from the outset who also play wider roles as subject experts across the alliance and LA, meaning the learning had been constantly drip-fed into wider discussions.
- Presenting to mathematics leaders from across the LA over the course of the project, so they saw how it progressed.
- Offering to broker staff who weren't directly involved in the project into cross-phase pairs to work on transition issues.

However, leaders in this alliance felt they had more work to do to disseminate their project more widely and were concerned about how others who have not been directly involved in the project can effectively take on the practice:

That's the real challenge. The people who are involved and committed are hooked in through the R&D bit; then when it spreads out, if they have not been involved in that first wave, they haven't therefore (shared) in the action learning. They hear it and say that's a good idea but they don't do it in the same way that embeds it as deeply in their psyche or in their pedagogy really.

4.2.5 Survey findings

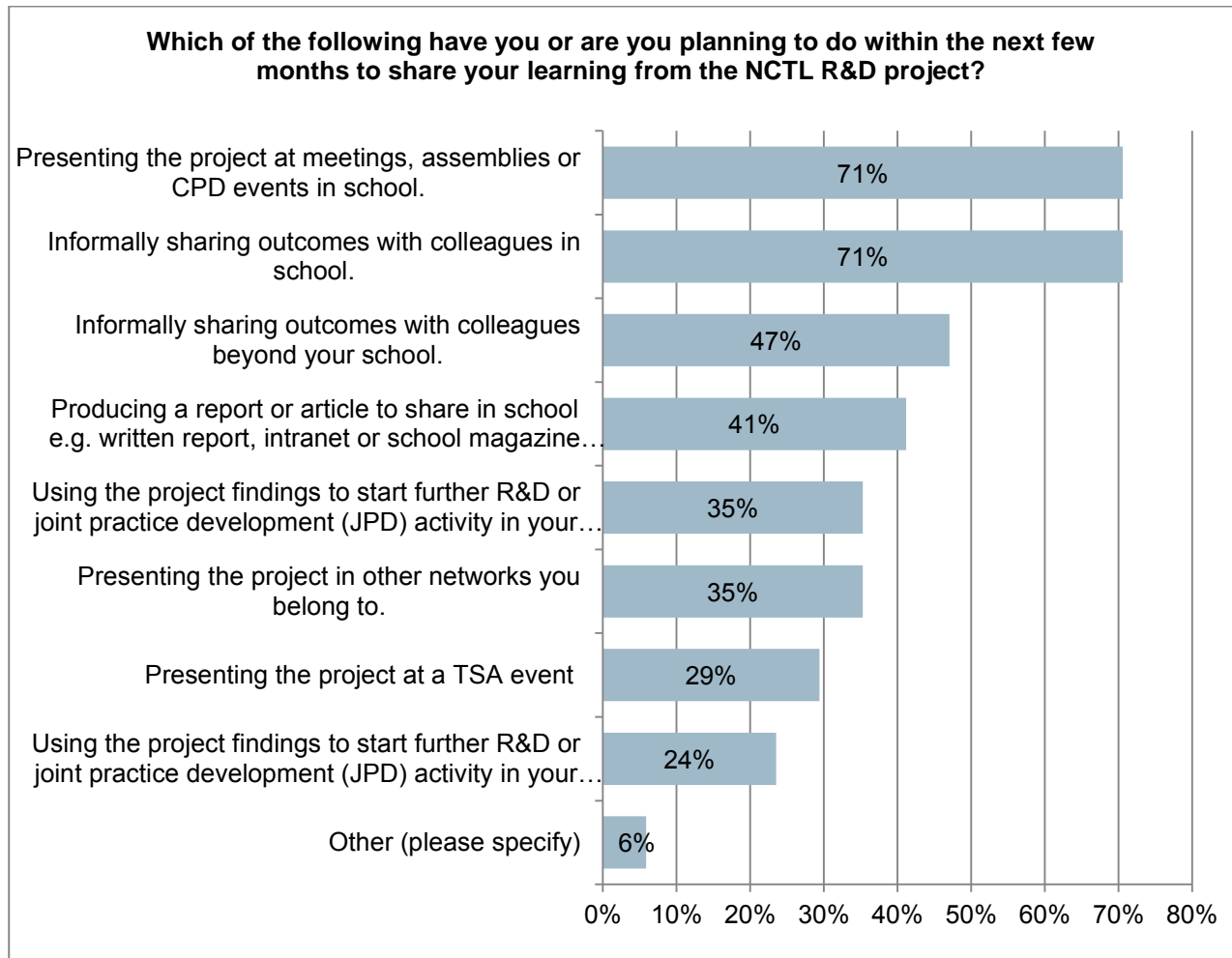
The survey provides a further indication of the dissemination strategies being adopted by the project alliances and the frequency of use of different methods. Figure 12 presents data on the dissemination strategies that project participants had either undertaken or were planning to undertake in the next few months.

Respondents most frequently mentioned having undertaken, or planned to undertake, within-school dissemination activities - either formally in meetings, assemblies or CPD events (71 per cent) and / or informally with colleagues (71 per cent). 41 per cent of respondents had or were intending to produce a report or article to share in the school. Just over a third had or intended to use the project findings to start further R&D or JPD activity within their school.

Respondents had also engaged, or intended to engage, in sharing the project beyond their school. The most frequently mentioned approach to this was informal sharing of outcomes (47 per cent). Just over a third of respondents (35 per cent) had presented, or planned to present, the project in networks they belonged to; and a quarter (24 per cent)

had used, or planned to use, the project findings to start new R&D or JPD activity in their alliance.

Figure 12: Themes 1 and 2 survey: participants' dissemination strategies (n=17)



5. Conclusions and recommendations

5.1 Conclusions

This study set out to learn more about how five TSAs were undertaking their NCTL-funded R&D projects on either 'great pedagogy' or 'great professional development'. The alliances that participated were selected to offer a reasonable spread in terms of focus, approach and geography. While each of their contexts are unique, some common themes do emerge from this cross-case analysis.

- Collaborative R&D across an alliance of schools is enhanced by high levels of trust and shared agendas between schools, but can also be a way to build such trust and shared agendas.
- Collaborative R&D across an alliance of schools can take different forms, ranging from all schools contributing equally to co-create the research focus and approach, to all schools focussing on a common theme but with individual areas of focus, to more discrete projects where some schools come together to work on common themes but there is no overarching alliance-wide focus. Each of these approaches responds to the needs and stage of development of the alliance. The fully collaborative example studied (alliance 2) did appear to have the greatest success in terms of teacher impact, quality of evidence generated and degree of wider knowledge mobilisation, although there were other factors within this example (such as LA and HEI engagement) that may have been important.
- Participating in collaborative R&D can be motivating and developmental for staff. It can help to build new pedagogic skills and understandings as well as wider skills and confidence, such as how to engage with research and how to evaluate impact. It can also help build trust and openness between peers, so that they can critique their own and each other's work and thereby improve their thinking and practice. There is some evidence that this may in turn create wider impacts, in terms of school improvement and improved pupil outcomes.
- Collaborative R&D can allow for a strong sense of ownership of issues and solutions by participants and so is not a top down process, but it does seem to require a well facilitated process with a focus on drawing on existing evidence, collecting and reviewing baseline data (including from pupils), and a commitment to evaluating impact.
- The process of undertaking enquiry can play a significant role in enabling teachers to develop a deeper understanding of learning and practice and lead to attitude and practice change. However, validly measuring the impact of small-scale

interventions in the school environment, where multiple concurrent improvement strategies are being deployed, is challenging.

- Facilitating the development of collaborative R&D requires a number of skills and qualities, including strong organisational skills and an ability to ‘take people with you’.
- Collaborative R&D also requires leadership support. This has two aspects: an active commitment to sponsoring teacher participation in evidence-informed improvement coupled with practical resources to make this possible, most obviously time.
- Collaborative R&D in these alliances had benefited from external support, both from the national teams and, in two cases, local HEIs. This external support has helped to provide structure and challenge as well as additional capacity and access to new knowledge.
- While the impact of collaborative R&D on participating staff appears clear, it is less clear that the knowledge and evidence generated can or does impact on wider staff across an alliance who have not had direct involvement. The extent and apparent effectiveness of knowledge mobilisation efforts differed within the five alliances, but all will need to pay further attention to this if they are to realise the maximum benefits.
- There remain significant barriers to collaborative R&D within TSAs, as outlined in Section 2.15.2. Key among these appears to be the limited capacity for some schools to undertake R&D.

5.2 Priorities for future development

i) The level of infrastructure provided to the teaching schools in this project has been significant, for example in terms of work to identify the initial themes, the commissioned national teams to help facilitate the process and synthesise the learning, and the funding for TSAs which made the work possible. Funding and capacity for such work at national level is increasingly limited, but it seems helpful to consider whether and how alliances could be encouraged to engage in larger scale work under common themes.

The Teaching Schools Council might want to consider how it can work with NCTL, the Education Endowment Foundation (EEF) and any emergent Royal College of Teaching to consider how such themes might be identified and structured in the future.

ii) Many teaching schools have significantly developed their capacity for collaborative R&D over the past three years, both through this project and in other ways. Nevertheless, the findings from this project suggest R&D remains underdeveloped in some respects

(see also Gu et al, 2014). This project does not provide simple answers to how teaching schools should move forwards, but it does suggest that a thoughtful investment of time and effort in a well-structured and facilitated R&D process can yield significant benefits for participating staff and, potentially, their schools and alliances.

Teaching school leaders might want to consider their own progress on R&D to date and how they could sustain and develop existing work so that it becomes increasingly strategic and effective.

iii) Universities and other research experts can play an important role in supporting school-led collaborative R&D and ensuring that it is rigorous and effective. While School Direct has not been a focus for the case studies and work reported here, it may be that working with schools on R&D is a way to generate trust and evidence-informed working in ways that benefit ITE and other aspects of provision (such as STEM and Widening Participation) as well as pathways to impact from research (see Greany and Brown, forthcoming).

Universities could review their existing R&D work with teaching schools and consider whether more could be done to generate sustainable school-university partnerships in this important area. Equally, funding councils could consider whether more could be done to incentivise universities and build capacity as well as what more could be done to evaluate the impact of such work on wider priorities.

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Appendix 1: Alliance 1 - differentiation and feedback in key stage 5

Context¹

This cohort 1 alliance is led by a large faith secondary school and involves local primary and secondary schools within a relatively tightly defined geographic area with higher than average levels of deprivation. The teaching schools across the region collaborate closely and are described by one leader as ‘a formidable bunch of schools who work really well together’.

The R&D project was undertaken by four secondary schools, including the teaching school. Four schools was seen to be the optimum size: “if you make it too big it doesn’t work”. In the second year the project was led by a school that was not a member of the alliance.

Headline findings from the alliance’s research

The focus for the research was on differentiation and feedback in KS5. The alliance’s final report on their R&D work concluded that:

The use of a collaborative, cross-curricular approach to work with practitioners within schools has increased knowledge of KS5 pedagogy, skills and practice and has changed perceptions. However the experience of this alliance suggested that the extent of the impact of this practice was dependent on a number of factors:

- distributed leadership that promotes collaboration
- school infrastructure that allows an environment conducive to the active development of practitioner-focused R&D. This is notably in the provision of frequent opportunities for practitioners to collaborate in the research, design, implementation and evaluation

The approach to collaborative R&D

The project grew naturally out of an earlier DfE-funded collaborative project – ‘Gaining Ground’ – which began five years previously. One school that had not been involved in Gaining Ground became engaged because the teaching school was supporting them

¹ Four staff from three different schools were interviewed and a further four staff took part in focus groups for this case study. The staff had differing levels of seniority and involvement in the project, from the director of the teaching school and a headteacher of one of the schools, to the overall project leader (internal facilitator), to participating teachers. The interviewees included a school project leader who has recently been appointed as the TSA co-ordinator.

following an 'inadequate' Ofsted inspection. The alliance decided to apply to take part in the project because:

They [the schools] had all become quite good at working together collaboratively and this seemed a good way of building on the stuff they had already done and having some additional funding as well.

The focus on differentiation and feedback in KS5 grew from the shared priorities for the schools. It was also an area for development in the teaching school's plan.

The staff involved were keen to be engaged in the project. There was a common pattern across the schools of a core group building the approach by trying out a number of strategies and refining them in year one, and then involving a wider group in year two.

The group has met regularly: "looking at the impact of different pieces of research. Looking at evidence and evaluating that impact". One member described the group as 'really good team players', which linked to a wider non-competitive culture between schools in the region: "there is a genuine, genuine sharing of ideas and resources... we are very giving".

The internal facilitator described his role as twofold: "facilitating the leads in other schools to develop an effective research and development model – facilitating leadership" and maintaining the momentum of the project through meetings and communicating, mainly via email.

Shaping the research and impact from the research process

The internal facilitator highlighted the different ways in which schools approached R&D:

There isn't a common understanding – it is more "this is how we would do it" as opposed to agreeing on an approach.

Thus each school developed its own project and approach within the overall focus, although most of these involved looking at existing research, utilising pupil voice and evaluating impact through surveys and assessments. The internal facilitator who took over in year two would have preferred a tighter approach with a narrower set of research tools.

The schools identified a number of benefits and outcomes from the project in terms of teacher understanding, engagement and, in a tentative sense, pupil outcomes. The head of one school described R&D as "absolutely fundamental to school improvement for us, the most important thing probably". The school had made short term improvements through curriculum changes and 'being clever' with qualifications, but the Head felt that

the only thing that would prevent them from slipping back would be continuous improvement.

Challenges faced

The barriers faced were predominantly time and logistics, for example impeding opportunities for visiting other schools and a pressure to 'get through' the curriculum. The internal facilitator commented on the lack of infrastructure to support collaborative R&D:

Collaboration... has to be frequent... meetings once per half term are not enough. It needs to be weekly or fortnightly.

Dissemination and mobilising the knowledge

Most of the schools had individually found ways to disseminate the project within their own school. Two schools had presented their projects at celebration of learning events at the end of the project and one had embedded the R&D outcomes in the school's wider JPD model.

Nevertheless:

It's the dissemination of the R&D that is the big problem at the moment... there's lots of pockets of great R&D being produced yet giving people the opportunity to share that and people having the time to read it or interact with it in some meaningful way is quite difficult.

TSA co-ordinator

There was a recognition that the teaching school had not prioritised R&D as much as other areas of its remit - 'the poor rellie' – but the teaching school staff were very positive about the benefits of R&D compared to other forms of CPD and were committed to embedding it further from hereon.

By the end the participants felt the overall project had strong momentum: "it is not the end of a project but the start of another conversation".

Summary points

Key enablers for this project included:

- leadership from the internal facilitator and school project leaders with the drive and skills to make it happen

- senior leadership in schools giving priority to the project
- opportunities to talk and share ideas – across and within schools
- using student voice / talking to students about their learning and work
- maintaining a clear focus across and within schools
- participants being given time to work on the project
- willingness of staff to engage in schools with a positive attitude towards change and their own CPD
- school cultures that support good quality CPD – linked to individual needs
- funding from NCTL to enable time and meetings
- access to school data

Appendix 2: Alliance 2 - transition in mathematics from key stage 2 to 3

Context²

This cohort 1 alliance is led by a three form entry primary school and involves around 20 schools in total, although a wider group of schools also accesses the provision available.

The R&D project ran over two years with a focus on 'what makes for effective pedagogy and transition in mathematics from KS2 to KS3?' The project involved three primary schools, a junior school and their local feeder secondary school, with support from an HEI partner.

The national context for the project includes Ofsted's *Mathematics: Made to Measure* (2012) report, which states that 'more than 37,000 pupils who attained level 5 at primary school gained no better than grade C at GCSE in mathematics in 2011'. Research by Galton et al (1999) noted that much of the energy around transfer was directed on the pastoral side, with insufficient focus on academic progress.

Headline findings from the alliance's research

The alliance's final report highlights a number of areas of impact from the project, stating that the JPD process, including paired observations and the development of coaching pairs, has led to a shift in the attitudes, skills and behaviour of participating staff. This includes improved understanding of subject knowledge and progression planning, particularly for the most able pupils. There is some indicative evidence that this has also impacted on pupil outcomes.

In terms of learning about how to conduct collaborative R&D, the report states:

- Identify an issue that is a top priority for all institutions involved. This will also lead to senior leaders supporting the work and authorising necessary release time.
- Identify key members of staff to lead the project in each school who feel passionate about the project focus area.
- We feel we have had success more widely because we have chosen to undertake our R&D work at a time of great educational change - when schools are already reviewing their curriculum and practices. This has made others more willing to engage.

² 11 staff from 3 schools and the HEI partner were interviewed or participated in focus groups for this case study. The staff were at differing levels of seniority and in terms of their involvement in the project.

- Take time to build relationships between key staff across schools. This social capital, once established, will ensure the work has longevity and sustainability.

The approach to collaborative R&D

The approach had strong buy-in from the participating schools and teachers, evidenced in regular and consistent attendance at termly meetings by the staff involved. This was helped by the fact that the transition focus was an LA-wide priority.

The lead school and HEI partner attended an initial NCTL workshop where they were influenced by David Hargreaves's argument that teaching schools should keep their projects small and that busy teachers should focus on the 'development' side and leave the 'research' side to the HEI experts.

The project was not formally overseen by a governance group, but the director of the teaching school, the HEI partner and the NCTL commissioned national research partner all played that role in different ways. The internal facilitator described her role as co-ordination. Whilst paying testament to the internal facilitator's strong organisational skills, the director of the teaching school saw her playing a wider role where she worked with:

...key, instrumental leaders in other schools... she worked very closely with like-minded individuals, you know the movers and shakers, the drivers, the people with the energy, but also the people with the status to be able to make it happen.

Shaping the research and impact from the research process

The R&D themes project was part of an established culture of collaboration between the participating schools, which meant they had a reasonably clear and shared sense of what it should focus on from the outset. Nevertheless, they collected significant baseline data from pupils and staff to understand the issues. These hinged on staff, particularly less experienced teachers in the secondary school not taking account of previous learning and providing insufficient challenge for pupils, particularly those who had attained level 5 and above at KS2. The local HEI partner played a role in designing survey instruments, collating the data and ensuring ethical considerations were addressed.

From this baseline process the group agreed three areas of focus:

- pupil attitudes and mindsets;
- teaching pedagogy and improvement of year 6 and 7 teaching; and
- the issue of pupils re-learning on transition to secondary and improving data sharing between schools.

In terms of impact, the findings from the case study chime with the school's own findings above. In addition several staff indicated increased skills and confidence in research methods and it appears that R&D is becoming part of the culture: "we have used (the project) to kind of create a norm where people look to research as part of their practice. One example of this is that the R&D methodology is now being used for a new project on the arts".

Challenges faced

In addition to the perennial challenges of time and capacity, other factors cited included: unplanned personnel changes, changes in national policy (such as the removal of levels), getting secondary headteachers on board, and the impact of an unfavourable Ofsted at one school which led them to withdraw from the project.

Dissemination and mobilising the knowledge

Dissemination activities from the project so far have included: sharing findings on the VLE; transition twilight sessions for secondary and primary teachers across the authority; linking people up in secondary / primary pairings; headteacher briefing meetings; CPD sessions in the lead school; and Teachmeets. The use of an annual authority-wide JPD day was seen as particularly important, since it had enabled mathematics leaders to see the progress of the project over time.

The involvement of key staff in the project that also play wider roles (for example as authority-wide subject leads) has helped with scale up. There is now an authority-wide mathematics action party led by the LA with input from the project.

Summary points

- The quality and depth of this project drew on an existing tradition of collaborative working and established networks.
- Decisions about the project focus and research question were determined by the lead school and internal Facilitator, but supported by a common agreement about the need to tackle transition and a democratic approach.
- Decision making was informed by evidence, in particular from the baseline data collection which was strongly supported by the local HEI partner.
- Strong organisational co-ordination by the internal facilitator together with regular meetings and sustained involvement by staff from participating schools.

- Strong support from senior leaders, including the commitment of time and resources for participating staff.
- Project participants who had a full or part time role in working across schools in the alliance and wider authority supported effective dissemination of knowledge across the system and scaling up of the project.
- A number of project participants were directly involved in the research and had grown in confidence in using research as a result, but some participating teachers were less engaged and had less understanding of the research question.
- There were clear links between the NCTL R&D project and a wider range of R&D in the alliance.
- The R&D project was used in the participating schools to bring about specific improvement and was woven into professional development practice.

Appendix 3: Alliance 3 - assessing the impact of a dedicated educational psychologist

Context³

This cohort 1 alliance participated in the R&D project over two years. It is led by a large secondary school which also leads a growing multi-academy trust (MAT) comprising two primaries, two other secondaries and a post-16 college. There are 32 partner schools in the alliance with the R&D project located in five schools within the MAT.

The Trust has established a targeted and specialist support team (TAST), comprising a child educational psychologist and two trainee psychologists. The TAST was established to provide a 'more bespoke service' than that previously provided by local authorities. The R&D project focussed on the work of the TAST in order to give this new area of work a solid basis for growing.

Headline findings from the alliance's research

The alliance's research question was: 'to what extent does an in situ educational psychologist, working in five schools, have an impact on the teaching and learning of pupils with emotional and behavioural special educational needs (EBSEN)?'

The educational psychologist has supported a number of initiatives with both individual pupils and staff to help address issues and raise standards. The alliance's own report on the project concludes that:

It seems likely that having an in situ educational psychologist working in close relation to a small number of schools, does have a positive impact on pupils with EBSEN... there is not necessarily one method that fits all schools or all pupils... those interventions that have empowered the pupils themselves, by helping them to have a bank of strategies to manage their own behaviours and emotions, have been rated highly by pupils and staff. We have been pleased with the increase in teacher confidence in dealing with SEN.

The approach to collaborative R&D

The project has effectively had two joint leads: the nominated NCTL theme lead (internal facilitator) and the educational psychologist who is also the head of TAST. The former's role was primarily co-ordination, while the latter's was implementation as the following quote indicates:

³ Seven staff were interviewed for this case study from two of the five participating schools. The staff were at differing levels of seniority and had differing levels of engagement in the project.

To do my job and to make sure I'm measuring the validity of my role and measuring the impact on pupils... I haven't adapted my role for the research project... I've used the project to inform data collection for the role.

educational psychologist

There is a working group / governance across the alliance which includes R&D in its remit and to which there were regular reports. The director of the teaching school also met regularly with the internal facilitator and educational psychologist. The core project team also shared their evolving work with a group comprising the SEN leads from across the MAT, which they described as a useful group to 'bounce things off'.

The interviewees described a strong strategic commitment to research and reflection across the Trust, although they also highlighted significant staff turnover at senior levels and a general commitment to distributed leadership, meaning that the team had been largely left to get on and shape the project themselves.

Shaping the research and impact from the research process

Establishing and maintaining a clear project focus has been a challenge. There was an initial diagnostic review of special needs across all schools in the Trust before the project began, which informed the project. Senior leaders in the Trust then agreed that the focus should be on the work of the educational psychologist and, later, the TAST when this emerged. However, there was then a concern that this was too broad so the focus came down to identifying impact from working with a small group of individual children. Eventually it was agreed to focus on two areas: examining the impact of in-depth casework with around 15 individual pupils, and assessing the impact of 'mindfulness' work with less able children.

As indicated above, the Trust's project report points to impact drawn from pupil and staff feedback. In addition, the interviewees highlighted increased confidence in using and applying research and a growth in distributed leadership for participating staff.

Challenges faced

Most respondents struggled to identify inhibiting factors, but the following were mentioned: the limited level of research experience within the core group; the relative lack of seniority of the internal facilitator during much of the project; the geography of the Trust (the lead school is some distance from the other schools); finding time and the newness of the alliance.

Dissemination and mobilising the knowledge

At the point when the case study interviews were undertaken the project team had not yet analysed the pupil data to assess impact and so relatively little dissemination activity had been undertaken. As a result the project was still largely confined to the core team and some of their SEN colleagues. Further dissemination may be limited because it did not focus on pedagogy, perhaps meaning that it has limited resonance for mainstream teachers. However, the findings and resources constitute a valuable resource for other MATs, or other groupings of schools, which are looking to employ educational psychologists.

Summary points

A number of factors were identified as facilitating the project:

- The strong culture of reflective practice running through the Trust.
- The support of senior leadership and the priority given to SEN work in the Trust.
- The keenness and enthusiasm of staff engaged in the project and the effective way in which the core project leaders worked together.
- The facility to 'bounce things off' the SEN network.
- The support from the NCTL-commissioned national research partners.

Survey findings: R&D in alliance 3

The survey sent out across alliance 3 (appendix 7) provides a useful insight into R&D attitudes and practices across the alliance. 57 questionnaires were completed. Just under a quarter (24 per cent) of respondents were senior leaders (5 per cent headteachers; 19 per cent other senior leaders) and a quarter (25 per cent) were middle leaders. 21 per cent had three or more years teaching experience, 11 per cent had less than three years teaching experience and 9 per cent undertook teaching assistant or learning support roles (figure 13). Just over half of all respondents were from primary schools (52 per cent) and just under half (45 per cent) were from secondary schools. One response each was received from a special school and a sixth form college.

Table 5 shows that responses were received from 11 different schools and the spread of responses per school. The highest number of responses from one school was 21. Two responses were received from the teaching school.

58 per cent of respondents stated that their school was involved in the R&D themes project, 37 per cent said that their school was not involved and 5 per cent did not know.

Figure 13: Alliance 3: roles of survey respondents (n=57)

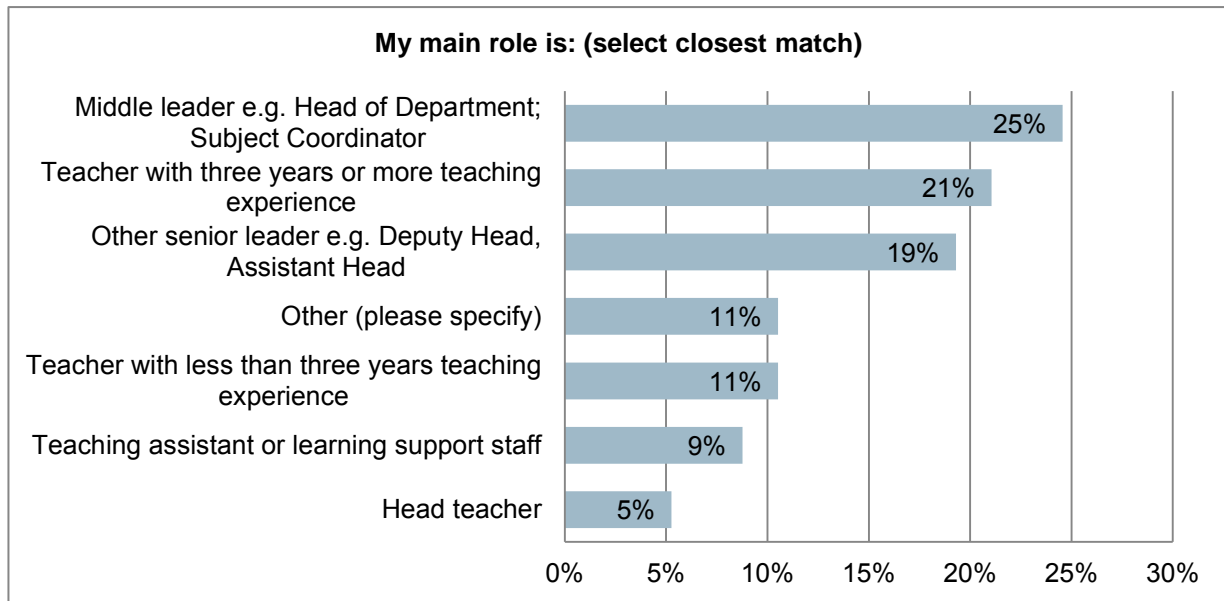


Table 5: Themes 1 and 2: spread of responses across schools within the alliance 3 (n=54)

No. of responses per School	No. of Schools with this level of response	Total responses
1	4	5
2	1	2
4	1	4
5	1	5
7	1	7
11	1	11
21	1	21
Totals	11	54

Interestingly, none of the respondents thought that they were an experienced teacher researcher. 60 per cent selected the category 'I have some experience of doing research orientated CPD in school' and 40 per cent selected 'I have no experience doing school based research or enquiry'.

Under a quarter of respondents (19 per cent) draw on research evidence frequently (once a month or more often) to help develop their practice, although 72 per cent make use of research evidence occasionally. 9 per cent make no use of research evidence

(figure 14). Although the survey indicates that personal use of research evidence is often fairly infrequent, figure 15 illustrates a stronger use of research evidence within the schools as a whole. 38 per cent of respondents reported that their school used research findings to inform many aspects of its work and a further 51 per cent reported that their school encourages staff to use research findings from time to time. Only 2 per cent of respondents thought that their schools had little or no engagement with research findings.

Figure 14: Alliance 3: frequency of personal use of research evidence (n=46)

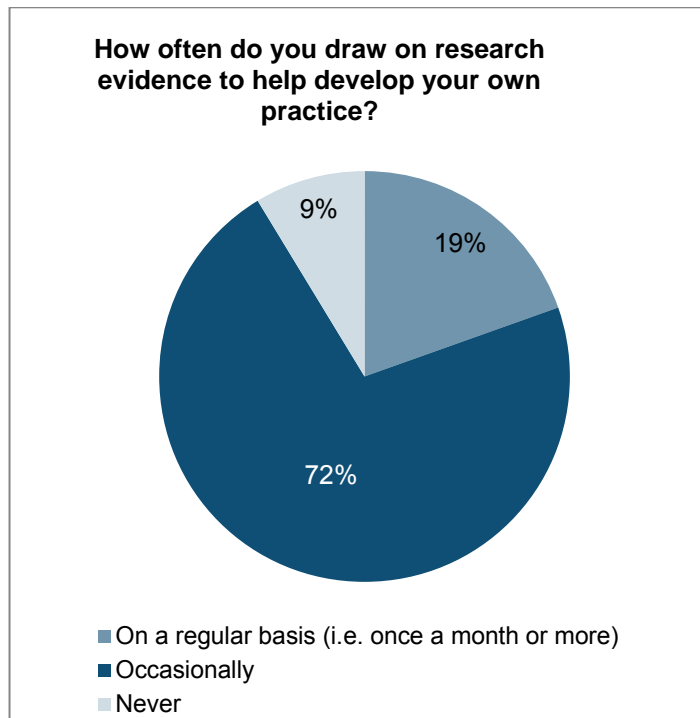


Figure 15: Alliance 3: school approaches to using evidence (n=45)

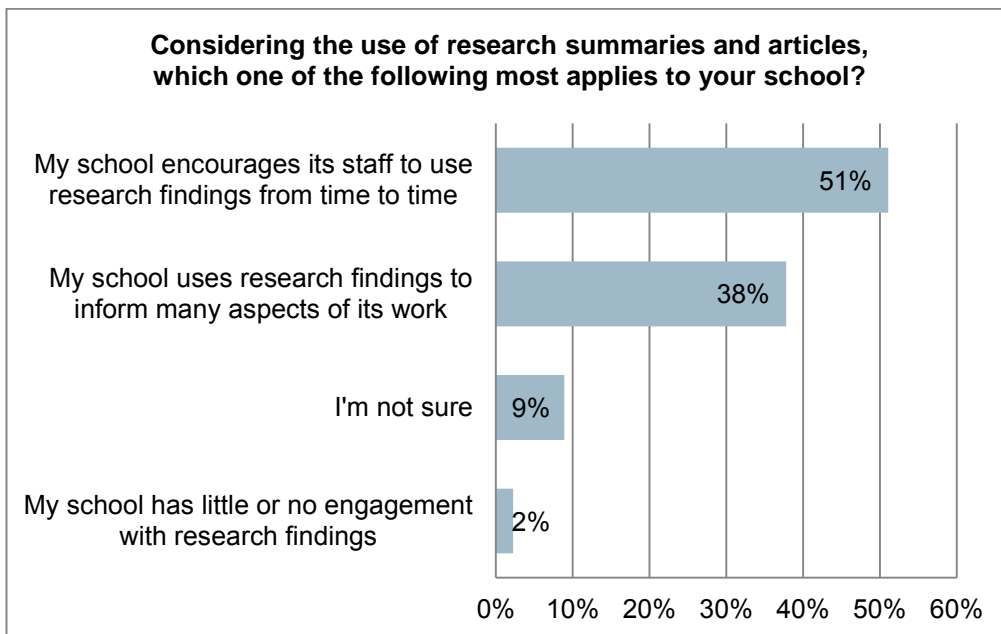


Figure 16 indicates a fairly positive pattern of school engagement in R&D. 16 per cent of respondents reported that that their school carries out R&D to inform many aspects of its work and a further 38 per cent reported that their school encourages staff to undertake R&D. 16 per cent of respondents reported that although their school had been involved in external R&D projects they had not undertaken their own research.

Figure 16 Alliance 3: school engagement in R&D (n=45)

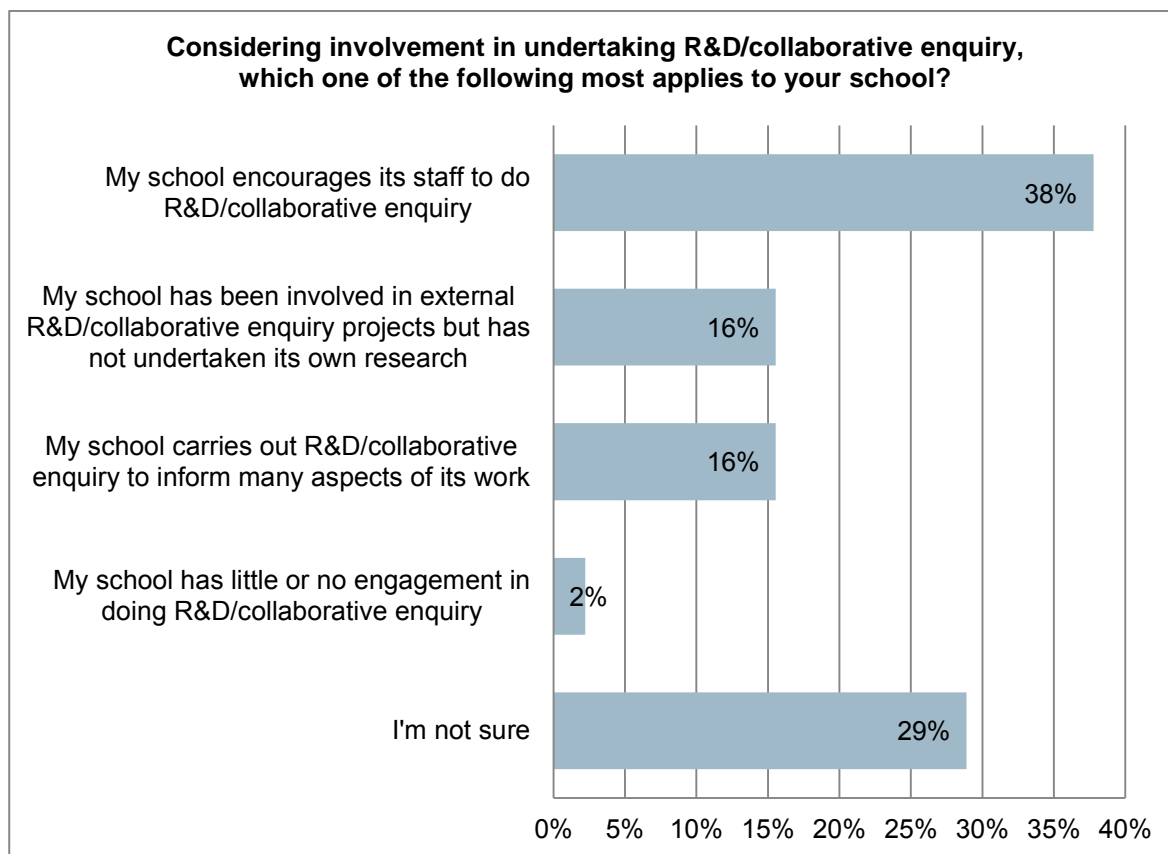


Table 17 identifies the perceived barriers to undertaking R&D in alliance 3. Mirroring the themes 1 and 2 survey (figure 9) the strongest barrier to undertaking R&D in alliance 3 was lack of staff time. 44 per cent of respondents reported this as a significant barrier and a further 50 per cent as a barrier to some extent. Again mirroring the theme 1 and 2 survey the second most frequently mentioned barrier was staff not seeing research as a priority (25 per cent significant barrier; 53 per cent barrier to some extent). Other significant barriers - perceived by over 50 per cent of respondent as significant or as a barrier to some extent where: lack of staff experience and/or expertise (72 per cent); lack of expertise in leading R&D (71 per cent); lack of access to robust research evidence (68 per cent); and lack of access to useable research evidence (62 per cent).

Figure 17 Alliance 3: barriers to undertaking R&D (n=41)

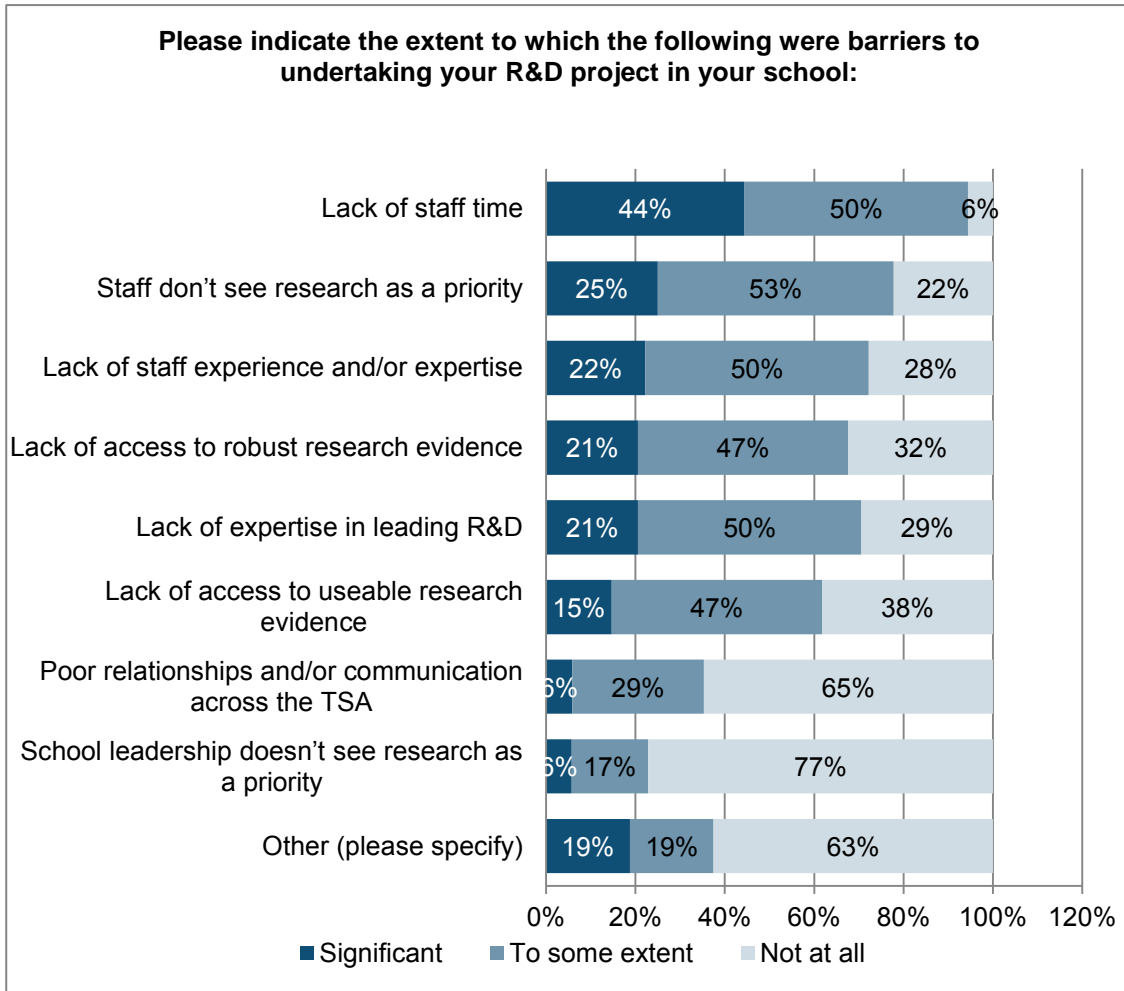
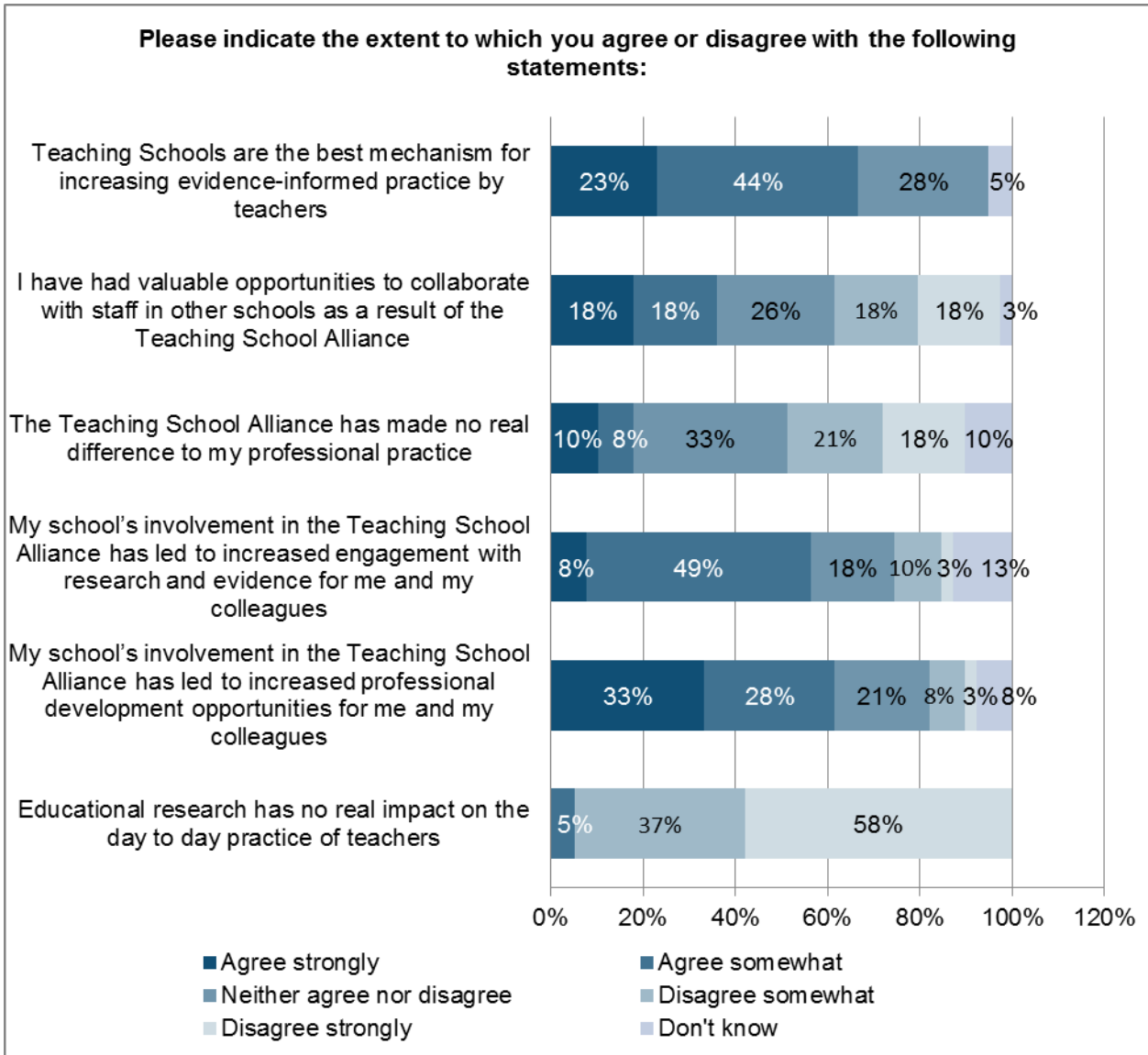


Table 18 explores respondents' views on the role of the teaching school in promoting evidence-informed practice and R&D and supporting their professional development. Taken as a whole these findings provide a useful indication of the extent to which the teaching school has so far been able to support other schools in developing evidence-based practice and R&D. A largely positive picture emerges from the data. Two thirds of respondents (67 per cent) agreed strongly (23 per cent) or agreed somewhat (44 per cent) that teaching schools are the best mechanism for increasing evidence-informed practice by teachers. The remaining 33 per cent neither agreed nor disagreed with this statement (28 per cent) or didn't know (5 per cent). 61 per cent of respondents strongly agreed (33 per cent) or agreed (28 per cent) that their school's involvement in the TSA has led to increased opportunities for them and their colleagues. The teaching school had also impacted on teachers' engagement with research and evidence - although this was not felt quite as strongly as the impact on professional development: 8 per cent of respondents strongly agreed and a further 49 per cent agreed somewhat that 'my school's involvement in the TSA has led to increased engagement with research evidence for me and my colleagues.'

However, the data also indicates some areas for further development. Only just over a third of respondents reported that they had had valuable opportunities to collaborate with

staff in other schools as a result of the TSA (18 per cent agree strongly; 18 per cent agree somewhat). Furthermore, 18 per cent of respondents agreed strongly (10 per cent) or agreed somewhat (8 per cent) that the TSA had made no difference to their professional practice and a further 33 per cent neither agreed nor disagreed with this statement.

Figure 18: Alliance 3: perception of R&D and the teaching school's role in promoting R&D (n=39)



Appendix 4: Alliance 4 - lesson study in primary mathematics

Context⁴

This alliance is led by a large primary school that was designated in the first cohort of teaching schools. The alliance is currently made up of 68 schools spread over a wide area.

Six schools participated in the R&D themes project, with a focus on lesson study⁵ in mathematics under the ‘what makes great professional development?’ strand.

Headline findings from the alliance’s research

The alliance’s own reports from their R&D project highlight a number of positive impacts from the project in terms of the professional development and confidence of non-specialist maths teachers as well as on wider organisational cultures. This is borne out by the interviews undertaken for this study:

There are always conversations about children going on. There’s a buzz for research. ‘I’ve just tried ...’ ‘Have you tried ...? We’re sharing good practice’. Planning together is also helpful and being able to watch others teach.

The alliance case study concludes that:

The best way to engage others in collaborative R&D is to ensure that there is a clear driver to ensure outcomes are agreed and evidence is collected. In this particular project it was the work of the Specialist Leader of Education involved and the Research and Innovation champions in individual schools that ensured opportunities were given for the lesson study to take place. Also all of the research questions for each school were developed from clear baseline assessments and evidence-based stimuli. This would support the non-specialist teachers in developing their evidence-based practice.

The additional interviews conducted by an external researcher support these findings.

⁴ Five staff from two schools (not the teaching school) were interviewed for this additional research. The staff had differing levels of seniority and involvement in the project. Both the schools were small and both were judged to be good in their last Ofsted inspections. One school is part of a 10-school academy trust.

⁵ Lesson study involves teachers working in small groups of no more than four to engage in the processes of: researching an aspect of practice, planning and teaching a lesson (with each teacher teaching it and being observed by their peers) and then evaluating the lesson and implications together.

The approach to collaborative R&D

The decision to focus on mathematics and lesson study was made by the director of the teaching school, based on the fact that these were existing areas of focus for the alliance. However, the exact focus for the projects was decided on by each participating school, for example which aspect of mathematics and which year group they would focus on. The headteacher interviewed for this project felt that this has helped:

It's essential to let the teachers decide on what they want to focus on for themselves. They need to feel ownership.

The project sat within a wider approach to R&D across the alliance, with research champions identified in each school and an overarching research and innovation (R&I) headteacher working group. The headteacher group has been 'keeping an eye on things and thinking about how we can spread things more widely'.

The project has also been supported by a local HEI who provided training on undertaking lesson study and supported the enquiry aspects of the project. This included conducting a pre and post project CPD values and attitudes survey in the participating schools.

The project leader (internal facilitator – who has taken over from a previous leader now on maternity leave) was a mathematics SLE. He described his role as more of a co-ordinator than facilitator, dealing with any operational issues with support from a business manager and the local university. Within each school, the role of the R&I champions has been to collate resources for participating teachers and to create time and space to enable the lesson study work to take place.

Both internal facilitators say they have found the process of reporting back to the national project has helped them develop a more generic view of the project and to see it as more clearly linked to school improvement: "it hasn't changed radically but we have refocused".

Shaping the research and impact from the research process

Pete Dudley's *Handbook for Lesson Study* (2011) has been core to the process and has helped schools to follow a clear process and repeat this for a number of cycles. Towards the end of the first year of the project the participating schools and headteacher working group developed a shared format for recording the lesson study cycle: research-plan-do-evaluate. This proforma is used by all the schools, with standard headings aimed at ensuring an enquiry focus. There has been training in using this for the headteachers and participating teachers in each school. All the interviewees reported that this has helped to provide commonality in approach and thus enabled the group of schools to work more effectively together.

The R&I champion in one school found the research–plan–do–evaluate process helpful, particularly the first and last elements:

‘Research’ because it’s been really good to share it with staff and getting their opinion – not just taking it as read. Evaluation because of drawing it out and agree or disagree about whether it has made an impact and how we are going to change what we do. We’ve found the rich task work really has made an impact. Teachers can bring out examples and the monitoring suggests that it’s had an impact.

All three teachers interviewed spoke of the importance of starting with existing research and finding out what is already known before moving into planning. This was important ‘to feel secure in what we were planning’. They felt that this has become routine across their schools.

The internal facilitator has found this project to be more supportive than other school improvement approaches where the focus tends to be ‘You need to do this’. Instead, the R&D project:

Is more unknown, more fluid... having a shared goal of progress and improvement. There’s more of a coaching element. Everyone’s finding out at the same time. We don’t know what the outcome is going to be.

Interviewees did not necessarily feel that they had created new knowledge through the project:

We’ve developed knowledge that is new to us but I don’t really know if it’s new for anyone else.

The teachers interviewed were visibly energised by the process of joint enquiry. They have become much more interested in research, both that carried out by others and the action research in their own and their colleagues’ classrooms. The shared nature of the work including the initially alarming element of mutual observation has led them to feel better informed, more competent and professional.

Challenges faced

The three most problematic issues identified were cost, time and geography. The lesson study process means buying in cover, which is expensive and requires a real commitment from the school. Another significant impeding factor was said by all to be lack of time and the myriad of other pressures. On geography, with up to 45 miles between the schools, the opportunity for face to face learning between schools has been limited. Instead, the internal facilitator has worked individually with each school using email and telephone and then coordinated to make sure things were similar across the project.

Dissemination and mobilising the knowledge

The headteacher interviewee explained how the R&D project fits within the alliance's wider R&D approach. Their view was this was 'not a flash in the pan' and it will now be built upon through the work of R&I champions.

In terms of dissemination of project findings, the teachers interviewed did not feel that knowledge of the project had spread far beyond their own schools. However, two lesson study conferences in September 2013 and 2014, coordinated by the alliance's HEI partners, and involving participants from three regional TSAs have been held. Information on the project is also published on the alliance VLE. The headteacher R&D group has also been helpful in dissemination.

Summary points

Key enabling features included:

- the strong organisational framework within the alliance, in particular the headteacher R&D group
- clear and accepted leadership from the centre
- the support of the local university
- ensuring that the project is well integrated to the wider CPD activity in the alliance
- leaving the choice of where to focus the actual project activity to the schools
- the combination of process – lesson study and focus - mathematics
- the nature of the lesson study process: research–plan–do–evaluate
- the extra layer of review provided by the reflective blogs/diaries and reports for the national project
- embedding the need to collaborate within this process
- appropriate support from the internal facilitator
- the positive learning culture within participating schools
- mechanisms for dissemination within the TSA eg a VLE and the annual conferences

Appendix 5: Alliance 5 - using collaborative enquiry as an approach to professional development

Context⁶

This cohort 1 alliance was run jointly by a boys' and girls' high school until December 2013, when the boys' high school was graded as 'good' and had its teaching school status removed. As a result, a third mixed school became lead school in the alliance. The alliance now comprises 7 secondary schools, 3 special schools and 25 primary schools spread across a wide geographical area. The internal facilitator for the project had his dedicated R&D project leadership time removed when his school was de-designated, although he continued to manage the project until it completed in summer 2014.

The funding was used to develop three separate projects under the 'what makes great professional development that leads to consistently great pedagogy?' strand. The first two of these ran during both years of the project (2012-14) and involved the lead boys' secondary school working with its feeder primary schools to explore boys' writing (project A) and independent learning (project B). The third project (project C) ran during the second year (2013-14) and involved two special schools at some geographical distance from the lead school. They addressed the overarching question: what is the impact of project-led collaborative enquiry on attitudes to professional development, and changes in behaviour of four teams of teachers and support staff in two special schools? They did this through a focus on specific pupil interventions, such as intensive interaction and reflexology, using the lesson study methodology as a structure.

Headline findings from the alliance's research

Largely based on the findings from the third project in the special schools, the school's report concludes that:

- JPD, underpinned by some / all of the lesson study principles and processes, is highly valued by the teachers engaged in the projects and enhances professional development
- Effective professional development is enhanced by creating professional learning communities within, **rather than between**, schools
- The necessary conditions need to be created by enlightened leadership: time, funding, capacity
- The best professional development is built around individual needs and is non-judgemental

⁶ 11 staff from 4 schools were interviewed or participated in focus groups for this case study.

The approach to collaborative R&D

R&D was well established within the original lead boys' school before the project began: for example, all staff there are given dedicated time to undertake R&D and a number of university links exist. In contrast, this was the first experience of R&D for the two special schools.

At the outset of the project an audit was undertaken by the internal facilitator with the participating school headteachers which determined the broad focus of the projects. Decisions on the research approach were then made democratically by the teachers involved, as this quote illustrates:

We had meetings once a term in a sort of cycle: we met, we decided on an intervention, we applied it, we did it, we evaluated it, we met again.

Project B had a teacher within the school who co-ordinated the meetings and work, with the internal facilitator based in the teaching school providing materials and much of the research input. It seems to have sustained its momentum as a result. By contrast, project A 'petered out' once the internal facilitator's time to support the work was reduced. Project C had less 'hands on' support from the internal facilitator due to the distances involved, but has nevertheless generated considerable momentum due to active support from the two special school headteachers.

Shaping the research and impact from the research process

The internal facilitator adopted a 'pull not push' approach to getting schools involved, ie starting with interested schools, rather than trying to coax those who are less interested, along with democratic leadership of the projects; ensuring that dissemination is effective and clear structures for the project are put into place. He seems to have played a significant role in developing standard resources across the projects and sharing research with the schools, who would not have engaged with existing evidence otherwise.

In terms of impact, both senior leaders and participating teachers highlighted changes in practice, with the two special schools identifying more fundamental changes to the curriculum and ways that staff engage with evidence as a result of the R&D work. Both senior leaders and the internal facilitator pointed to wider cultural changes, such as a growth in cross-phase working and understanding, as a result of the project.

Challenges faced

As in other projects, finding time and overcoming logistical difficulties, such as geography, were challenges for this project. In addition, the internal facilitator felt that

competition and 'politics' between local secondary schools had been a barrier to collaboration and the sharing of knowledge and learning. There was a view that the primaries had benefitted more from the project, not least since their smaller size meant it was easier to see how research was shared and used.

The teachers and senior leaders interviewed also appeared to hold somewhat different views on the extent to which the R&D work was 'top down' or 'bottom up' and whether or not there was sufficient strategic commitment to R&D.

Dissemination and mobilising the knowledge

The findings from the projects were written up and shared with senior leaders and via the school website, although there was recognition that teachers do not access this much. In addition there are regular events held across the alliance to share learning, which were seen as significant opportunities, although such events were less well attended than hoped.

Summary points

- Leadership of R&D at alliance and project level appears key: without this, democratically-run groups of teachers lose momentum and the day-to-day business of teaching halts their progress.
- Time is a crucial facilitator of effective R&D, but teachers need to be held to account for this time.
- Universities can provide important structures and methodologies that support R&D projects.
- The teachers engaged in the R&D work reported feeling empowered and energised, with opportunities to step outside their own contexts as an important feature.
- The interviewees reported a number of culture shifts as a result of the project, including increased ownership of professional development, a more balanced relationship between primaries and secondaries, and increased sharing of good practice.
- Dissemination and knowledge mobilisation remain difficult. Face-to-face events appear to be the most powerful way to disseminate but they still have limited reach. As a result, R&D only appears to have a concrete impact on those teachers that are directly involved.

Appendix 6: Themes 1 and 2 survey questionnaire

NCTL 'great pedagogy' and 'great professional development' R&D projects

Thank you for completing this survey. It is aimed at leaders and staff in schools who have overseen or participated in one of the National College for Teaching and Leadership (NCTL) funded Research and Development (R&D) projects on 'What makes great pedagogy?' and 'What makes great professional development that leads to consistently great pedagogy?' The Institute of Education, London and Sheffield Hallam University have been funded by NCTL to undertake research with schools involved in these projects. The research focuses on schools' approaches to R&D, the ways in which R&D impacts on pupil outcomes, staff, and the school, and the ways in which schools generate and share new knowledge and understandings. All data provided is confidential and is held in accordance with data protection legislation. The findings will be included in a report to NCTL and will be used to support the development of R&D in schools, for example through professional and academic conferences and publications. No names of schools or teaching school alliances (TSAs) will be used in any reporting.

Please click 'next' to begin the survey.

Your role and school

My main role is: (select the closest match)

- Headteacher
- Other senior leader eg deputy head, assistant head
- Middle leader eg head of department; subject coordinator
- Teacher with three years or more teaching experience
- Teacher with less than three years teaching experience
- Teaching assistant or learning support staff
- Other (please specify)

My school is: (select the closest match)

- Nursery
- Infant
- Junior
- Primary

- Middle
- Secondary
- All through
- Special
- Other (please specify)

My school is located in the:

- North
- Midlands
- South

What is the name of the TSA your school is part of? (This information will be used to collate information for analysis but the names of responding TSAs will not be shared with NCTL or appear in any reporting).

Which theme did the NCTL R&D project in your school match? (select one)

- What makes great pedagogy?
- What makes great professional development?
- Don't know

I am responsible for: (select the closest match to your involvement in the NCTL R&D project)

- Strategic oversight of the NCTL R&D project in my school
- Leading the NCTL R&D project across my school on a day to day basis
- Participating in the NCTL R&D project within my school or TSA, but without overall responsibility
- None of the above [Routing to exit survey]

What was the main focus of your project? (select the closest match)

- Pupils' ability to learn eg resilience, mind-set, learning strategies, independence
- Engaging pupils in learning

- Assessment for Learning / feedback
- Reading, writing or talk
- Pupil knowledge, understanding and/or skills within a subject
- Lesson study
- Joint Practice Development or collaborative enquiry
- Coaching or mentoring
- Observation
- Other (please specify)

Which of the following most closely matches the pattern of engagement of staff participating in the NCTL R&D project in your school?

- All staff were from one team or department
- Staff were from across more than one team or department
- This was a whole school project

How did you define your NCTL R&D project?*⁷ (Please indicate the extent to which you agree or disagree with the statements below)

- The lead school presented us with ideas for the project and consulted with us on how we could develop and implement it.
- All the schools in the project collectively agreed a common project focus and approach which we all adhered to.
- All the schools in the project collectively agreed a common project focus and approach, within which each school then developed its own specific focus and approach.
- The lead school designed the project and approach and all the other schools replicated this.
- Other (please specify)

⁷ Questions marked with an asterisk were only asked to those respondents leading the NCTL theme project on a day to day basis and those directly participating in the project.

How did you undertake your R&D project?*

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know / not applicable
We drew on existing research to inform our project						
We visited each other's schools to undertake research						
We used the C2L model as a framework for the R&D project.						
The lead school ran training / INSET sessions on how to conduct R&D and design the project.						
The lead school provided direct support (eg coaching, advice etc) to help us undertake our project.						
We used external expertise / support eg from						

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know / not applicable
a university or consultant.						
We would not have been able to undertake the project without the involvement of the lead school.						

How are you collecting and analysing the data for your R&D project?* (Please select which of the following best describes your approach)

- Each school is collecting data in relation to the project and we are analysing it together to draw out key findings
- Each school is collecting data in relation to the project and we are relying on the lead school to do the analysis and draw out the key findings
- Other (please specify)

What were the impacts of your participation in the NCTL R&D project on you personally in:* (Please select which of the following best describes your approach)

	Positive impact	No positive or negative impact	Negative impact	Don't know	Not applicable
Developing new knowledge and understanding about pedagogy and/or CPD					
Making changes to your practices					
Developing confidence in undertaking collaborative R&D					
Developing skills in					

	Positive impact	No positive or negative impact	Negative impact	Don't know	Not applicable
undertaking collaborative R&D					
Develop skills in leading collaborative R&D					

Please outline the most significant impact(s) on you personally:*

Which of the following have you or are you planning to do within the next few months to share your learning from the NCTL R&D project?* (Please select all that apply)

- Informally sharing outcomes with colleagues in school
- Presenting the project at meetings, assemblies or CPD events in school
- Producing a report or article to share in school e.g. written report, intranet or school magazine item
- Presenting the project at a TSA event
- Reporting the project in a TSA publication / website
- Presenting the project in other networks you belong to
- Informally sharing outcomes with colleagues beyond your school
- Using the project findings to start further R&D or joint practice development (JPD) activity in your school
- Using the project findings to start further R&D or joint practice development (JPD) activity in your TSA
- None of the above
- Other (please specify)

What has been the impact of your NCTL R&D project on the following?

	Evidence of positive impact	Evidence shows no positive or negative impact	Evidence of negative impact	Expect positive impact but not yet sufficient evidence	Don't know	Not relevant to this project
Teachers' knowledge, skills and understanding						
Teachers' attitudes and motivation						
Teachers' practices						
Pupils' engagement in learning						
Pupil progression						
Pupil attainment						
Staff motivation to engage in R&D						
Staff capacity to undertake R&D						
Closer working relationships with schools across our alliance						

Please state any other positive outcomes:

Please state any other negative outcomes:

What are the most important pieces of advice that you would pass on to others designing and undertaking collaborative R&D projects?

Please indicate the extent to which the following were barriers to undertaking your R&D project in your school:

	Significant	To some extent	Not at all
Lack of staff time			
Lack of staff experience and/or expertise			
Lack of expertise in leading R&D			
Lack of access to robust research evidence			
Lack of access to useable research evidence			
Staff don't see research as a priority			
School leadership doesn't see research as a priority			
Poor relationships and/or communication across the TSA			
Other (please specify)			

Is there anything else you would like to tell us?

Appendix 7: Case study survey questionnaire

NCTL research and development (R&D) in teaching school alliances Survey

Thank you for completing this survey. It is aimed at all teachers and staff working in schools that are members of [XXX] teaching school alliance. The Institute of Education, London and Sheffield Hallam University have been funded by NCTL to undertake the research. The research is focused on how you use research and evidence to inform your practice, the ways in which the Teaching School Alliance is supporting this and the difference it is making. This survey has been partly adapted from a survey designed and undertaken by the National Teacher Research Panel in 2011. If you have been involved in a NCTL 'what makes great pedagogy' or 'what makes great professional development that leads to great pedagogy' R&D project you will also be asked some questions about your experiences of the project.

All data provided is confidential and is held in accordance with data protection legislation. The findings will be included in a report to NCTL and will be used to support the development of research and development in schools, for example through conferences and publications. No names of schools or teaching school alliances (TSAs) will be used in any reporting.

Please click 'next' to begin the survey.

Your role and school

My main role is: (select the closest match)

- Headteacher
- Other senior leader eg deputy head, assistant head
- Middle leader eg head of department; subject coordinator
- Teacher with three years or more teaching experience
- Teacher with less than three years teaching experience
- Teaching assistant or learning support staff
- Other (please specify)

What is the name of your school?

My school is: (select the closest match)

- Nursery
- Infant
- Junior
- Primary
- Middle
- Secondary
- All through
- Special
- Other (please specify)

Is your school involved in an NCTL-funded R&D project with other schools that is exploring either an aspect of 'great pedagogy' or 'great professional development'?

- Yes
- No
- I don't know

Have you personally been directly involved in, or had strategic responsibility in your school for, the NCTL funded R&D project on 'great pedagogy' or 'great professional development'?

- Yes
- No

You and your school's experience in R&D / collaborative enquiry

Considering your own engagement in school based R&D and/or collaborative enquiry, which of the following most applies to you?

- I am an experienced teacher researcher
- I have some experience of doing research oriented CPD in school
- I have no experience of doing school-based research or enquiry

Thinking about the R&D / collaborative enquiry projects you have been involved in over the last two years, how many involved teachers across different schools working together?

- All
- Some
- None

How you and your school engage in and with research and enquiry

How often do you draw on research evidence to help develop your own practice?

- On a regular basis (ie once a month or more)
- Occasionally
- Never

Considering the use of research summaries and articles, which one of the following most applies to your school?

- My school uses research findings to inform many aspects of its work
- My school encourages its staff to use research findings from time to time
- My school has little or no engagement with research findings
- I'm not sure

Considering involvement in undertaking R&D/collaborative enquiry, which one of the following most applies to your school?

- My school carries out R&D / collaborative enquiry to inform many aspects of its work
- My school has been involved in external R&D / collaborative enquiry projects but has not undertaken its own research
- My school encourages its staff to do R&D / collaborative enquiry
- My school has little or no engagement in doing R&D / collaborative enquiry
- I'm not sure

Please indicate the extent to which the following are barriers to undertaking R&D in your school:

	Significant	To some extent	Not at all
Lack of staff time			
Lack of staff experience and/or expertise			
Lack of expertise in leading R&D			
Lack of access to robust research evidence			
Lack of access to useable research evidence			
Staff don't see research as a priority			
School leadership doesn't see research as a priority			
Poor relationships and/or communication across the TSA			
Other (please specify)			

Your alliance's involvement in R&D/collaborative enquiry

Are you aware that your school is part of a teaching school alliance?

- Yes
- No

Please indicate the extent to which you agree or disagree with the following statements:

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know / not applicable
Educational research has no real impact on the day to day practice						

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know / not applicable
of teachers						
My school's involvement in the teaching school alliance has led to increased professional development opportunities for me and my colleagues						
My school's involvement in the teaching school alliance has led to increased engagement with research and evidence for me and my colleagues						
The teaching school alliance has made no real difference to						

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know / not applicable
my professional practice						
I have had valuable opportunities to collaborate with staff in other schools as a result of the teaching school alliance						
Teaching schools are the best mechanism for increasing evidence-informed practice by teachers						

Which theme did the NCTL R&D project in your school match?* ⁸(select one)

- What makes great pedagogy?
- What makes great professional development?
- Don't know

⁸ Questions marked with an asterisk were only asked to those respondents leading the NCTL theme project on a day to day basis and those directly participating in the project.

I am responsible for:* (select the closest match to your involvement in the NCTL R&D project)

- Strategic oversight of the NCTL R&D project in my school
- Leading the NCTL R&D project across my school on a day to day basis
- Participating in the NCTL R&D project within my school or TSA, but without overall responsibility
- None of the above

What was the main focus of your project* (select the closest match)

- Pupils' ability to learn e.g. resilience, mind-set, learning strategies, independence
- Engaging pupils in learning
- Assessment for Learning / feedback
- Reading, writing or talk
- Pupil knowledge, understanding and/or skills within a subject
- Lesson study
- Joint Practice Development or collaborative enquiry
- Coaching or mentoring
- Observation
- Other (please specify)

How did you define your NCTL R&D project?* (Please indicate the extent to which you agree or disagree with the statements below)

- The lead school presented us with ideas for the project and consulted with us on how we could develop and implement it
- All the schools in the project collectively agreed a common project focus and approach which we all adhered to
- All the schools in the project collectively agreed a common project focus and approach, within which each school then developed its own specific focus and approach
- The lead school designed the project and approach and all the other schools replicated this

- Other (please specify)

How did you undertake your R&D project?*

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know /Not applicable
We drew on existing research to inform our project						
We visited each other's schools to undertake research						
We used the Connecting Professional Learning model as a framework for the R&D project.						
The lead school ran training / INSET sessions on how to conduct R&D and design the project.						
The lead school provided direct support (eg coaching, advice etc) to help us undertake our project.						
We used external expertise /						

	Agree strongly	Agree somewhat	Neither agree nor disagree	Disagree somewhat	Disagree strongly	Don't know /Not applicable
support eg from a university or consultant.						
We would not have been able to undertake the project without the involvement of the lead school.						

How are you collecting and analysing the data for your R&D project?* (Please select which of the following best describes your approach)

- Each school is collecting data in relation to the project and we are analysing it together to draw out key findings
- Each school is collecting data in relation to the project and we are relying on the lead school to do the analysis and draw out the key findings
- Other (please specify)

What were the impacts of your participation in the NCTL R&D project on you personally in*: (Please select which of the following best describes your approach)

	Positive impact	No positive or negative impact	Negative impact	Don't know	Not applicable
Developing new knowledge and understandings about pedagogy and / or CPD					
Making changes to your practices					
Developing confidence in undertaking collaborative R&D					

	Positive impact	No positive or negative impact	Negative impact	Don't know	Not applicable
Developing skills in undertaking collaborative R&D					
Develop skills in leading collaborative R&D					

Please outline the most significant impact(s) on you personally*:

What has been the impact of your NCTL R&D project on the following?*

	Evidence of positive impact	Evidence shows no positive or negative impact	Evidence of negative impact	Expect positive impact but not yet sufficient evidence	Don't know	Not relevant to this project
Teachers' knowledge, skills and understanding						
Teachers' attitudes and motivation						
Teachers' practices						
Pupils' engagement in learning						
Pupil progression						
Pupil attainment						
Staff motivation to engage in R&D						
Staff capacity to						

	Evidence of positive impact	Evidence shows no positive or negative impact	Evidence of negative impact	Expect positive impact but not yet sufficient evidence	Don't know	Not relevant to this project
undertake R&D						
Closer working relationships with schools across our alliance						

Please state any other positive outcomes*:

Please state any other negative outcomes*:

Which of the following have you or are you planning to do within the next few months to share your learning from the NCTL R&D project?* (Please select all that apply)

- Informally sharing outcomes with colleagues in school
- Presenting the project at meetings, assemblies or CPD events in school
- Producing a report or article to share in school e.g. written report, intranet or school magazine item
- Presenting the project at a TSA event
- Reporting the project in a TSA publication / website
- Presenting the project in other networks you belong to.
- Informally sharing outcomes with colleagues beyond your school
- Using the project findings to start further R&D or joint practice development (JPD) activity in your school

- Using the project findings to start further R&D or joint practice development (JPD) activity in your TSA
- None of the above
- Other (please specify)

What are the most important pieces of advice that you would pass on to others designing and undertaking collaborative R&D projects?

If you would like to make any further comments about your own experience of R&D/collaborative enquiry or your school/alliance's approach to this please add them here:



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