National College for Teaching & Leadership

What makes great pedagogy: research case studies

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

Research Case Study

Spring 2015

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Bishop Challoner Catholic College Teaching School Alliance (TSA)

Alliance name	Bishop Challoner Catholic College TSA
Alliance context	Our alliance contains 30 secondary and primary schools from across the city and the wider west midlands area.
Schools involved in the R&D project	Bishop Challoner Catholic College, Small Heath School, Hall Green School.
Theme 1	What makes great pedagogy?
Research question(s)	How can humanities and English teachers raise engagement in their subjects while simultaneously raising standards of literacy?

The implementation phase

After an initial presentation to alliance school principals, and a subsequent meeting with literacy leaders where the Devil's Advocate pedagogy was outlined, interested alliance schools were invited to submit a statement of interest, setting out their reasons for wanting to participate in the research project. Bishop Challoner Catholic College TSA has been working as a team of three partner secondary schools since autumn 2012.

Devil's Advocate is a specially designed pedagogy which is trying to improve rates of progress for low attaining key stage (KS)3 entrants while simultaneously developing reading, writing and oral communication skills. For our alliance schools, this was identified as an important question across the alliance. Schools raise online data clearly shows that level 3a/4c entrants will struggle to make three levels of progress by the end of KS4 in English and humanities. Internal monitoring of KS3 performance suggested a 'dip' effect typically in year 8 and 9 which undermined three levels of progress overall.

Our launch event in December 2012 outlined the pedagogy and partner schools have customised the original model for use in their own schools since then. It was felt that in humanities subjects, there was always a 'glass ceiling' on what low attainers could achieve unless literacy was specifically tackled. Working together we framed the following question for collective enquiry: 'how can humanities and English teachers raise engagement in their subjects while simultaneously raising standards of literacy?'

The intention was to focus on a teaching group and unite the efforts of their English and humanities teachers through a pedagogy that would provide overt and systematic cross curricular reinforcement of precisely the 'right' set of literacy skills in the hope that it would lead to sustained improvements in writing. Devil's Advocate adheres very closely

to the nine great pedagogy tenets (Husbands and Pearce, 2012) and is a varied pedagogy that moves from scaffolded group work, to guided reading and individual activity. It is a scaffolded, enriched literacy assessment for learning (AfL) methodology that tries to activate pupils as learning mentors for their peers. The learning mat resource is a tool designed to support learners in class to unify the three strands of literacy - reading, writing and oral communication and underpins peer and self-assessment of these core skills.

Our primary intention was to impact on pupil literacy levels and learning. Research partner schools' internal assessment tracking had identified the current cohort as typically making progress 'below expectations' in years 8 and 9 in particular. Targeting 4C entrants had been crucial. Typically these KS3 students had been chosen because their historical peers had been making less progress than the rest of the cohort in English and Humanities subjects in our alliance and had been subject to the phenomenon of the 'year 8 / year 9' dip. National averages tell us that 69 per cent of all students make 3 levels of progress (LP) and nationally 30 per cent of students exceed 3LP expectations. But when looking at these progress rates by sub level the following picture emerges. Nationally, only 48 per cent of 4C entrants achieve 3LP or a grade 'C' and only 8 per cent of those students exceed expectation.

It was also expected that alliance schools not participating in the project would definitely benefit from the published material, approach and supporting resources which can also be used for delivering a whole school approach to reading, writing and communication – a strand of the new Ofsted framework since January 2012.

The innovation phase

In order to provide a structure we created and provided a 12-slide facilitation 'seed' methodology that could be tweaked to produce a Devil's Advocate series of activities on any aspect of any subject. A laminated learning mat that established peer and self-assessment protocols for reading, writing and oral communication was also created. From the two bedrock resources, dozens of variations and scaffolded templates have been generated. Typically, the sequence of activities is as follows:

- Learning begins with a simple assertive statement or 'thesis' that students must prove. Individually with a highlighter pen, pupils read an introductory text and are primed to underline evidence that specifically fits the thesis.

- Then, in groups, students are required to discuss the evidence according to this scaffold: (i) collate the evidence (ii) rank it in terms of worth and then (iii) classify it into families. At this point, students are asked to prepare, rehearse and/or deliver a verbal paragraph that supports the thesis. It is peer assessed as a prelude to writing a 'perfect paragraph'.

- The paragraph is then rigorously peer and self-assessed before students complete an extended piece of writing which is assessed using the same audit grid of core skills which are itemised as secure, emerging or target. In practice, the sequence of activities can span one lesson or a series of lessons.

We gathered evidence about the effectiveness of the strategy through a regularly reviewed portfolio of work produced by pupils in this way. Learning walks and peer observations were also useful ways of measuring the strengths and weaknesses of the pedagogy as were 'standardisation' meetings where pupil work was discussed.

A dedicated virtual learning environment (VLE) page was used to track every aspect of the project. It was an invaluable way of sharing resources, ideas, and evolving innovative, generic resource proformas that facilitated the guided reading tasks. It was also the ideal vehicle for sharing examples of pupil work and modelling necessary next step target setting.

Regular monitoring of the initial findings informed the process. In each school the project leader compiled individual pupil portfolios of self-assessed work. At regular intervals, the project leader generated what went well (WWW) and even better if (EBI) targets for participating pupils which were shared with all participating students and their English and humanities teachers. Pupils were incentivised to generate examples of work that would meet the renewed sub-level target set by the EBI necessary next steps. Targets were baseline derived, personalised and SMART (specific, measureable, achievable, realistic and time-bound). The portfolios soon became compelling evidence of very rapid progress in writing sublevels.

Teacher feedback was tracked through meetings and a forum. Queries were answered by the regular publication of a frequently asked questions sheet - a valuable tool for tracking teacher findings, queries and concerns and shaping the direction of the project.

The impact phase

In June 2013, after seven months of teaching exposure to this pedagogy, pupil progress was slightly in advance of national expectations.

By breaking down pupil performance into three categories: (i) pupils exceeding expectation (ii) pupils meeting expectation and (iii) pupils performing below expectations and cross referencing with detailed attitudinal pupil voice responses to discrete strands of the pedagogy it's possible to establish correlations between achievement and preferred learning behaviours.

In June 2013, the attitudinal surveys revealed that the students who **outperformed** expectations were much more likely to agree with the following statements:

- I like discussing ideas in small groups

- I think talking ideas through before writing helps me write at greater length
- I think I work well as part of a team
- in class, I prefer reading when I know exactly what to look for

The strategies that they found particularly helpful were:

- doing a brief oral presentation on the topic before writing
- having the opportunity to discuss those ideas with other pupils before writing
- knowing exactly what you have to do to improve and go up a sub-level

In June 2013, the attitudinal surveys revealed that students who **underperformed** against expectations were more likely to agree with the following statements:

- sometimes I pretend to understand texts and words that confuse me
- in class, I prefer reading when I know exactly what to look for

They were also much more likely to agree that the following activities helped:

- doing a brief oral presentation on the topic before writing
- having the opportunity to discuss those ideas with other pupils before writing

From September 2013 the pedagogy was informed by these interim findings. We would contend that the data gathered in June 2014 is even more positive as a direct result of the project being informed by these interim findings. There were three main adjustments to the pedagogy in terms of emphasis:

- Exploratory talk displaced ‘disputational’ talk as a preferred vehicle for pupils articulating their thoughts ahead of attempting extended writing tasks.
- The value of individual, then paired, then shared reading of a text looking for textual evidence to support a given thesis was reinforced. Highlighting relevant evidence then arranging it in a hierarchy of value came to be the project’s most trusted ‘guided reading’ model.
- Changes within schools meant that for the second part of the project, pupils in the lead school would be using netbooks to generate their extended writing outcomes. From this point we felt we would have a naturally occurring control group within the cohort because the two partner schools continued with handwritten outcomes.

We successfully anticipated improvements in extended writing, given the emphasis the pedagogy would repeatedly place on this outcome. What was less expected was the

significant correlation that could be tracked between writing progress and the extent of the pupils' exposure to 'quality' oracy experiences. In June 2014, the figure of 81 per cent matching or surpassing expectations is pleasing when judged against the progress rates of comparable students in recent years and significantly in excess of the 69 per cent English 3LP national average. The pedagogy appears to compare favourably to conventional teaching methods.

A particular success is the 40 per cent of pupils who exceeded expectations, compared to national average of 30 per cent. Just in terms of pupil performance, the pedagogy would seem to have significant merit.

The same methodology was used in June 2014 as at the interim stage in June 2013. By breaking down pupil performance into the same three categories and cross referencing with detailed pupil voice responses to discrete strands of the survey it is possible to establish correlations between achievement and preferred learning behaviours.

In June 2014, the attitudinal surveys revealed that the students who exceeded expectations were more likely to agree with the following statements:

- I think I work well as part of a team
- I think I can lead group work quite well
- in class, I prefer reading when I know exactly what to look for

In terms of the strategies that they believed helped a lot:

- planning work in paragraphs that build on clear topic sentences
- reading the work of other pupils in the class
- knowing exactly what you have to do to improve and go up a sublevel

In terms of extended writing, the 'control' school who exclusively used netbooks for written outcomes found overwhelming support for this statement:

- Using a computer helps me produce better extended writing pieces.

In June 2014, the attitudinal surveys revealed that the students who underperformed against expectations were more likely to agree with the following statements:

- I think I work well as part of a team.

but significantly were very unlikely to agree with

- I think I can lead group work quite well.

They were also disproportionately likely to agree that:

- knowing exactly what you have to do to improve and go up a sublevel helps a lot
- in class, I prefer reading when I know exactly what to look for sometimes I pretend to understand texts and words that confuse me
- most of my reading happens online
- choosing the topic to write about helps a lot

Significantly, underperformers overwhelmingly selected only ‘sometimes’ for:

- when completing extended writing tasks at home, I always try to make the work as good as possible

but overwhelmingly plumped for:

- using a computer helps me produce better extended writing pieces.

The disparity was particularly marked in schools that were not in a position to issue pupils with netbooks.

When we cross-reference the performance of each progress category with the bank of attitudinal surveys and portfolios of pupil work it is possible to evidence the following:

- Improvements in extended writing are attributable to greater pupil awareness of necessary next steps and continual reinforcement of key skills across the curriculum. The individual pupil assessment portfolios would support this strongly. The individual pupil assessment portfolios also suggest an unsurprising correlation between students who are accurate self-assessors and increased rates of progress. Simple marking ‘tick box’ grids of the same core extended writing skills seem to be an effective way of creating a non-onerous but very effective progress dialogue with pupils.
- Extended writing seems to benefit exponentially when students are allowed to word process work. The progress dialogue seems to be particularly effective in schools which have the facility to provide marking feedback quickly through electronic means.
- There is a marked correlation between pupils exposure to oracy, and scaffolded opportunities to develop team and leadership skills and rates of progress in extended writing.
- The pedagogy’s emphasis on individual, then paired, then shared arrangement of evidence in a hierarchy of value came to be the project’s most trusted ‘guided reading’ model and was widely used and liked by students who went on to make the most progress in extended writing.

Based on these findings we are confident of making the following claims:

- Developing greater awareness of next steps, reinforcement of key skills and allowing students to word process work allows them to improve at a quicker rate as writers.

- Developing oracy skills and providing opportunities to develop team skills and leadership skills contributes positively to rates of progress in extended writing.

- Increased reinforcement of core skill brings about benefits across a range of subjects.

- Extended writing seems to benefit exponentially when students are allowed to word process work. The progress dialogue seems to be particularly effective in schools which have the facility to provide marking feedback quickly through electronic means. Problematically, changes in the Ofsted framework and methods of KS4 assessment (no coursework) means that within some schools leadership is restoring primacy to handwriting and the presentation of neat, well-marked exercise book work. Although our evidence contradicts this, it's difficult to make the case against a prevailing change in climate governed by accountability measures. The climate change effectively half way through the project has provided a 'control' contrast between the lead school who exclusively used technology and schools who were not in a position to do so.

- Devil's Advocate is an effective pedagogy for improving literacy. We feel that our findings particularly support the following five tenets of 'great pedagogy':

    - Effective pedagogies involve thinking about longer term outcomes as well as short term goals.

    - Effective pedagogies involve scaffolding pupil learning.

    - Effective pedagogies draw on a range of techniques, including whole class structured group work guided learning and individual activity.

    - Effective pedagogies focus on developing higher order thinking.

    - Effective pedagogies embed AfL.

Conclusions

Reflections on the project facilitator role

The online forum on the virtual learning environment (VLE) page has been an easy way of minimising workload and sharing and reshaping priorities. It wouldn't be possible to run an R&D project of this kind without this facility.

Given that leading a research project entails asking already busy people to take on even more work, it's crucial that collaborative enquiries that hope to go the distance have the following ingredients in place:

- a clear focus arrived at by consent;
- a simple idea, simply resourced; and
- a methodology for measuring outcomes that is not overly onerous.

Within our school I modelled a project where I had oversight of a task group, within which responsibilities were delegated. The model seems to have been replicated and adapted in partner schools.

Within the alliance, collaborative enquiry is seen as a testing ground for promising ideas that are likely to inform important aspects of school policy within an inner control group of partner schools that can vouch for their efficacy and transmit successful strategies to the broader alliance. For example**,** three of the partner schools have adopted aspects of the pedagogy to inform their whole school delivery of reading, writing and oral communication skills. Specifically, partner schools have adopted a policy of teachers routinely sharing a discrete 'literacy' objective when sharing learning intentions at the start of lessons. The AfL procedures around a set of six core literacy skills is also likely to inform marking policies in alliance schools. A deputy headteacher in one of our partner schools chose to highlight the methodology as a progress strategy designed to accelerate progress at a prestigious teaching and learning event hosted by our alliance for all south Birmingham schools.

Now that we have evidence of the efficacy of many strands of the pedagogy, we intend to form task groups on oracy, guided reading and extended writing with the intention of using pupil premium funding to help disadvantaged pupils make the same literacy progress as their peers.

Training staff in research methodologies that prove a causal link between expenditure actions and improved pupil outcomes has come at a very timely moment as it chimes so well with pupil premium initiatives that satisfy governance and external accountability.

References

Husbands, C. and Pearce, J. (2012) *What makes great pedagogy? Nine claims from research*. Nottingham, National College for School Leadership (NCSL)

Denbigh Teaching School Alliance

Alliance name	Denbigh TSA
Alliance context	The alliance is based in the south east region in Milton Keynes. The schools involved have a comprehensive intake but a low proportion of students receiving free school meals (FSM).
Schools involved in the R&D project	Two teaching schools: Denbigh School - secondary, Shenley Brook End – secondary.
Research focus	How can levels of engagement be improved to raise attainment?
Research question(s)	How can engagement with success criteria be improved by using writing scaffolds (acronyms) to make students more aware of the components of an effective examination answer? How do one-to-one reading aloud sessions improve year 7 students' engagement and achievement in reading?

At the outset of the project, the project lead met with heads of schools who were interested in becoming involved. The concept was that there would be an over-arching research question with each school developing a more individual question which met the development needs of the school. Initially the project lead contacted schools within the alliance, aiming to involve schools across phases and to include a special school. However, it was difficult to secure a commitment from schools, mainly due to capacity issues. Eventually, a common theme was agreed and the project began with two secondaries and a primary school; the over-arching question was: 'how can levels of engagement be improved to raise attainment?' The primary school involved was Ofsted graded 'requires improvement' and its focus was raising attainment in mathematics by making the subject more relevant to 'real life' contexts. Shortly after the project started, the primary school withdrew due to lack of capacity and the need to respond to issues around attainment in a more urgent way.

The project was structured with a series of meetings held on a half-termly basis. During the meetings, teachers discussed progress with their research and the requirements of the next steps of the project. Leadership of the project was distributed in that the individual schools devised their own projects and research methodology, however the project lead devised support sessions designed to guide the participants through the research processes. Senior staff in each school monitored the researchers' progress and were available to facilitate support where needed. Close collaboration occurred within the

individual schools between departments that did not normally work together and, in a broader sense, during the project meetings when researchers discussed strategies, difficulties and solutions.

The implementation phase (including baseline testing)

The two secondary schools involved were Denbigh School and Shenley Brook End School, both are strategic partner teaching schools within the alliance. Both schools focused on improving literacy to improve engagement and attainment with each taking a different focus linked to the participating teachers' and schools' priorities.

At Denbigh School, the focus of the question was determined by the researchers, who teach history and business studies: 'how can engagement with success criteria be improved by using writing scaffolds (acronyms) to make students more aware of the components of an effective examination answer?' Initial baseline data established that there was inconsistent practice between teachers and that students were underperforming in extended answer questions (part of a national picture). In business studies, the head of faculty, who was one of the researchers was the only teacher using acronyms. In history, the researcher was using acronyms; other teachers in the department were aware of them but they were not being used. All teachers surveyed were willing to implement the use of common acronyms and teaching methods to develop student usage. Initial student questionnaires indicated that they found acronyms useful. The aim of the work was to build student confidence in responding to extended writing questions. It aimed to improve consistency of practice between teachers to ensure continuity for students, with the overarching aim that student engagement would improve as they felt more certain of expectations and clearer about how to succeed. Ultimately this would improve examination results. The project aimed to support teachers in improving this aspect of their literacy teaching using a methodology that could be developed in Denbigh School but also in other alliance schools.

At Shenley Brook End, the researchers, who teach humanities and mathematics, wanted to improve literacy to improve students' engagement with their own subjects: 'how do one-to-one reading aloud sessions improve year 7 students' engagement and achievement in reading?' Following discussion with their assistant headteacher (who was overseeing the project in their school), it was agreed that their research would be given a whole school focus to align with school development priorities. Year 7 students achieving level 4 across the three English attainment targets were the focus as these students often become grade C/D borderline students. The innovation was a paired reading scheme. Sixth form students were trained to listen to these students reading aloud developing their skills to support reading, including 'sounding out' and use of punctuation. Reading sessions would take place once a week in tutorial time. The aim was that students' engagement with reading would improve access to the wider curriculum, improving standards of literacy, supporting students' independent learning, ultimately impacting upon examination results. Another benefit to the school was that the project

would improve relationships between sixth formers and year 7 students. The project developed sixth formers as positive role models and developed their wider sense of responsibility in the school. The project offered a model that could be developed to support student literacy in other schools.

Initially, 32 students met the level 4 criteria, and from this the researchers created a stratified sample of 16 students based on primary school and gender. The researchers intended to work with 16 students, 8 of whom would form an intervention group, the others would form a control group. However, a number of parents would not sign the ethical consent forms. After consultation with the head of year, five students were selected on the basis that they had a good attendance record and parents who were likely to support the scheme. At the start of the intervention, students' reading ages were tested as a baseline. Students also completed a questionnaire surveying their attitudes to reading and reading aloud. The researchers found that although the majority of students surveyed enjoyed reading, they struggled to choose appropriate books and were fearful of reading aloud, particularly in a classroom situation.

The innovation phase

At Denbigh School, the history and business studies researchers devised acronyms to implement across their respective faculties, following close scrutiny of GCSE and A level mark schemes. Acronyms were chosen which linked aspects of students' paragraph structures to key elements of mark schemes. In both faculties, the teachers recognised that students disadvantaged themselves and their responses could be limited to lower bands because they did not include elements in their answer needed to access the highest bands. In history, PEEL (point, evidence, explain, link) was introduced and in business studies, SER (state, explain, relate) was used. Marking practice was developed so that students were taught to self-evaluate by identifying the use of the acronyms in their own writing and teachers used the acronyms to indicate where the assessment criteria were met. In a second iteration in business studies, essay structures were developed building on the model and the requirements of differently weighted questions.

At Shenley Brook End, sixth form students were invited to attend an information session about the reading scheme to apply by letter to become reading mentors. They were selected on the basis of their letter and current progress in their studies. Following this the special educational needs (SEN) teacher ran a training session to prepare them for their work with students. Students were matched with mentors from their houses and met for the first time for a 20 minute informal chat and reading session during form time. Students and mentors negotiated a weekly time and location to meet. All the groups chose to meet in the library, most stating that it gave access to further books. Mentors took on the responsibility of organising the reading sessions and reporting back to the researchers about progress made during the sessions and the guidance they had given students. Observations about the immediate response to the sessions was recorded by teachers.

The impact phase

There is clear evidence of impact of both projects. School data collected at Denbigh School in both business studies and history shows evidence of increased in year progress in comparison with previous year. In business studies, students' examination performance significantly improved, in terms of value added. In questionnaires, 65 year 12 and 13 students were sampled. The survey found that 50 per cent of students always refer to the SER acronym in class with 35 per cent often using it. 55 per cent always find it useful in marking and 32 per cent often find it useful. 55 per cent of students have started to use the same acronym in other subjects.

In history, at the end of year 10, groups using the PEEL model were significantly outperforming those who did not use it, despite the fact that those in non-trial groups were generally more able. A questionnaire in history also showed that from the 25 sampled, 17 felt their confidence in reading had improved. In semi-structured interviews, students commented that they had found it helpful to use the paragraph structures to get started on a question or to remain focused on the question. However, they did struggle to remember content and the recommended structure at the same time when under examination pressure. Staff have also recognised the benefits of the acronym and will continue to use the writing structures. Students in non-trial classes have heard about the PEEL acronym and are keen to adopt it. The faculty realises that this now needs to be standardised across all teachers and, in addition to using it in lessons, will promote it through display boards.

The evidence supports the claim that effective pedagogies scaffold pupils' learning. The project evidences the importance of teachers having a detailed understanding of the marking scheme and articulating this in a structured way to students. There is a clear impact on staff practice as teachers in the faculties concerned have adopted the acronyms and researchers will present their findings and model the practice to other teachers within the school to disseminate their learning.

Equally, at Shenley Brook End, students reading ages had improved when they were retested. Over a period of five months (including the six weeks Summer holidays), one student progressed above the scale, three students had made seven months' progress and one student had made five months' progress. The student who had made five months' progress was originally the weakest in the group, having been originally tested at 9 years, 3 months so therefore his rate of progress has increased. The sixth form mentors observed that students were becoming more confident and focused during the reading sessions and starting to select more age appropriate books. They also noted that students who do not have English as their first language do not necessarily understand the punctuation although they can read the words. Also sometimes they missed the meaning of what they were reading so discussion of this was developed in reading sessions. One of the mentors commented, "it has been nice to work with younger students as it reminds me of the struggles I had when I was their age – I wish I had had

the support.” The students were interviewed and commented: “I am much more confident reading out loud in class now” (student B). Another stated, “I do enjoy reading more now and having a sixth former to help has been good” (student E). “I never liked reading in class and my mentor said the same, so I feel a connection with them” (student B). “They’ve challenged me to read harder books” (student C). From the interviews, it was clear that students’ attitude to the reading scheme was very positive. The researchers also emphasised the benefits to the sixth from mentors: they had enjoyed the scheme, shown maturity and built strong relationships with younger students. The researchers felt that a lot of the impact of the scheme was due to the selection of committed sixth form mentors and effective training for them. They had risen to the challenge of supporting the year 7 students.

This research links to the nine claims in that the research was inclusive and had a clear focus on longer-term learning outcomes. It aimed to support students in enjoying reading and building confidence with the aim that it would improve their access to the wider curriculum and ultimately become more functionally literate. Shenley Brook End School intends to continue the scheme.

Final conclusions

At the end of the project the research was presented to senior leaders from both teaching schools. It will be presented at the Milton Keynes secondary deputy heads conference to raise awareness of the strategies and the project as a whole. Improving literacy is an issue for all schools and both pieces of research make a useful contribution to different aspects of literacy development.

The projects in both schools demonstrated an impact on student outcomes.

At Denbigh School:

- Student data showed an improvement on previous years and within history, students who had been involved in the project were out-performing similar students who had not been involved.
- Qualitative feedback reported that students found the acronyms useful and were keen to continue to use them, often outside the original.
- Teachers would continue to use the acronyms and to extend their use within the departments involved.

Further research could be carried out to:

- Explore the effectiveness of these strategies in other subjects.
- To extend the scale of this research to explore if these findings are generalisable.

At Shenley Brook End School:

- Student data showed that students' reading ages increased at a faster rate than students' chronological ages.
- Qualitative data showed that students and sixth formers regarded the scheme as confidence building and in terms of developing enjoyment of reading.
- Qualitative data from teachers emphasised the importance of selected committed sixth formers and providing effective training.

Further research could be carried out to:

- Engage parents in schemes to support students' reading, particularly in response to the parents who would not allow their children to participate.
- Extending the scheme to explore its impact with a larger sample of students to establish more generalisability.
- More widely, exploring the impact of the scheme if carried out with students who do not enjoy reading.

Within both schools there has been good collaboration between colleagues across departments in schools who would not normally work together. Cross-school collaboration was more difficult to achieve, partly because of the geographical separation between the schools, and also because of the way that the project was structured. The project was tailored to the needs of individual schools to encourage ownership and a 'buy in', rather than identifying and developing joint needs. This was because, at the start of the project, there was an urgent need to get the research underway. There has been collaborative work to discuss the progress of the research and critique each other's work however a tighter joint focus at the outset would have fostered a higher level of collaborative working.

To develop further collaborative research, Denbigh TSA has set up a Masters in teaching and learning or educational leadership in partnership with Birmingham City University. Teachers from across Milton Keynes have been invited to enrol. The focus of the course is on practice-based research with the aim of fostering collaboration and joint practice development (JPD) across schools and phases. The course gives teachers the opportunity to collaborate to design research structures that offer cross-school collaboration from the outset.

Copies of the researchers' final presentations are available at:
http://www.denbighteachingschoolalliance.net/ - !what-makes-great-pedagogy/c16wl

Esher Teaching Alliance

Alliance name	Esher Teaching Alliance.
Alliance context	Southern England / north east Surrey / London fringe / comprehensive intake.
Schools involved in the R&D project	Esher High School, Esher Church Primary School and Cranmere Primary School.
Research focus	Cross phase barriers to literacy: fact or myth? An exploration of what makes great pedagogy in literacy, with a specific focus on writing, in years 6 and 7.
Research question(s)	What makes for great pedagogy in developing writing skills in students in years 6 and 7? How can we sustain the impact and interest this project has had within the alliance?

The implementation phase

Invites were sent out to alliance schools and those showing interest were invited to a meeting.

At the first meeting we discussed the proposed outline and how we might proceed.

- confidentiality of discussions at meetings
- sharing of outcome through minutes to be ratified at next meeting
- rotation of meetings so all schools hosted meetings

Our common focus of enquiry was levels of attainment in literacy and how these might be improved through an exploration of pedagogies.

Literacy was established as the area of focus as our school had been working on improving levels of literacy as stated in the school development plan. School data showed a stagnation of attainment in literacy in year 7.

Our alliance partners were particularly keen to explore pedagogies related to writing; their data showed that students were usually one sub level lower in writing than they were in reading at the end of KS2.

Our concerns were echoed and supported by the *Removing Barriers to Literacy* report (Ofsted, 2011):

- Students with low levels of literacy are most at risk of not gaining the skills they need for successful lives.
- The underperformance of those from low-income families is very marked, particularly at secondary level; our school data at the end of KS4 reflects this.

The research was initially exploring the following claims from W*hat makes great pedagogy? Nine claims from research* (Husbands and Pearce, 2012).

- **Effective pedagogies build on prior learning and experiences:** research to explore not only the content but the strategies used at both key stages.
- **Effective pedagogies involve scaffolding pupil learning:** researching scaffolding used at KS2 and how it can be used at KS3 as well as ensuring that KS2 work anticipated the expectations at KS3.
- **Effective pedagogies give serious consideration to pupil voice:** question and interviews students about their literacy work.

However, as the research progressed, we realised that two other pedagogies were also being explored. Firstly pedagogies that '**depend on teachers' behaviour, knowledge and understanding and belief'** and secondly pedagogies that '**develop higher order thinking skills'.**

Together we looked at pupil attainment at the end of KS2. Data showed that reading levels were at least one sub level above writing levels.

We also analysed attainment data for students in Year 7. It showed that most students made minimal progress in English during the year.

We worked out the approaches we wanted to use through discussion at meetings. As we started to gain evidence the direction and methodology changed to reflect the findings.

Through the research we were hoping to achieve:

- an improvement in the attainment of students in literacy at both key stages
- a change in attitudes of teachers as they understand the different key stages better
- lasting relationships and routes of communication with alliance schools
- production of a range of resources / ideas for teachers to use. These will be available for teachers in years 6 and 7 across the alliance initially.

We interviewed teachers to establish their feelings about working with colleagues across the key stages and looked at the baseline data for students in years 6 and 7.

Research tasks

1. Questionnaires in years 6 and 7 showed students enjoyed literacy lessons and all felt they could achieve in year 6. Attitudes changed slightly towards the end of year 7; students were feeling less positive towards literacy and beginning to feel that they might not be able to achieve through hard work alone.

2. Lesson observations inspired admiration and built closer relationships as teachers watched each other and showed how little they knew about what happens in other key stages.

3. Shared writing task, cross-phase and joint marking allowed teachers to understand the change of emphasis at different key stages

The innovation phase

From the information collected and discussions we decided to develop a transition writing module.

We wrote one for year 6 which used the same video as the starting point and lead to both fiction and non-fiction writing. The year 6 module was delivered in May / June 2013 at the two primary schools.

A transition module was written for year 7 students which drew on the strategies and scaffolding used in the year 6 Unit. This was delivered in September 2013.

We highlighted the students from the two primary schools involved and tracked their progress in Year 7. We then compared tracking data from last year's intake to see if attainment had improved.

As well as the attainment data we were observing lessons, questioning and interviewing pupils and interviewing the teachers involved.

Teacher input was very positive from the KS2 teachers who enjoyed having a focus to their teaching of writing after the statutory assessment tests (SATs) in May. They felt that having to produce levelled work that students would have to present to their future secondary school focused the pupils in the last half term.

Pupil interviews were less conclusive as they really wanted to agree with everything we said.

The English department at Esher High School was also trained and trialled the KS3 transition in September 2013.

Once the first trial was finished we met to discuss ways to improve and roll out the modules beyond the three schools. We also hoped to explore the work of other schools using transition modules and draw on research papers and literature.

Parties were keen to continue with this transition module and to develop a folder of evidence for pupils to take to their secondary schools. We need to develop this further to ensure we do not create lots of work for KS2 teachers and students that is then not distributed in time or indeed, used by the secondary schools.

One thing that has emerged is the feeling that secondary schools focus on the pastoral side of the students when they visit primary schools, but are they looking at student attainment?

To help maintain and build the momentum and collaborative dimension of our work we held half termly meetings of the group and rotated the meetings around the three schools.

Each member of the team worked initially on a joint writing and marking task, so that we could work together in a small group and build a shared sense of trust and ownership.

We then observed each other within the first term of the project. This further developed relationships and a sense of a common goal and purpose as the idea for the transition module came after these initial observations.

The two KS2 teachers then worked collaboratively on the transition module and the KS3 teacher took over and developed the second part of the module based on the work.

The facilitator set up meetings, shared the observations and wrote up minutes and findings.

The impact phase

Staff knowledge, attitudes, skills and behaviours

Teachers involved enjoyed working collaboratively across the key stages and have learnt from the experience; primary school colleagues have exchanged scaffolding techniques in literacy and are using ‘Aspice’ to support writing. Secondary teachers are now aware of this scaffolding tool and are incorporating references to it in schemes of work.

Students at KS2 were keen to present their best work for their new secondary school. KS3 staff have used the work to encourage students; to show students that they know what they are capable of and to start a dialogue.

The collaboration has given the team a real insight into schools from different key stages and has enabled KS2 teachers to understand what a level 6 piece of work looks and to recognise that some of their students may be working at this level.

It has also enabled KS3 teachers to understand and incorporate some of the scaffolding that our KS2 colleagues use so successfully and has raised their expectations of the students at the start of KS3.

The small group worked well together; there was no leader as such, one member of the team facilitated and the others devised, delivered and assessed the impact of the work. In each of the schools involved the teacher was the expert, innovator and leader of the research project. I made minutes available and have consulted the members on the production of this report.

Learner knowledge, attitudes, skills and behaviours

Report data: Esher High School

We compared the progress in English between the years; the first year having no intervention, the second having been taught the transition unit. Only 22 students were taught the unit at primary level, so we also compared these students' data with the rest of the year group.

Data showed an increase in attainment after the transition module had been implemented.

Table 1: Report data Sept 2013 to March 2014

Whole Year

	Oct year7	Dec year 7	Feb year 7	Apr year 7
On or above target	55%	77%	83%	85%
Below target	45%	22%	17%	14%

Esher Church and Cranmere students

On and above target	50%	67%	82%	85%
Below target	50%	33%	18%	14%

Key findings:

- Significant improvement has been made in the progress of students at the start of the key stage and the improvement is sustained.
- There is no significant difference between the students who experienced the transition unit and those who did not.

Findings seemed to suggest that the new transition unit was not as important as the lessons that had been learned from taking part in the research. The KS3 unit was written with a true understanding of how the students are taught and how they learn at KS2. Thus all students were able to benefit from the project whether they had been taught the transition unit at KS2 or not.

Teachers' attitudes and expectations had also been altered because of the project.

Effective pedagogies:

1. **Give serious consideration to pupil voice:** students were questioned as to their attitudes to literacy and interviewed about the transition modules.

2. **Depend on teachers' behaviour, knowledge and understanding and belief:** teachers visited each other's schools, did joint writing and assessment tasks and increased their understanding of the different key stages; enabling all teachers to see the 'big picture'.

3. **Involve thinking about longer term outcomes:** teachers were able to see the bigger picture; KS2 were able to see how writing is developed and KS3 saw the scaffolding being used.

4. **Build on pupils' prior learning and experience:** common language was used and the transition work was passed on to the KS3 teachers so they could see and remind students of what they had achieved previously.

5. **Develop higher order thinking skills:** to enable students to understand how to achieve the higher levels of attainment and how to write in greater depth.

Cross school co-operation

This whole experience has opened up dialogue between the schools involved and prompted interest from other schools in the alliance.

Cranmere School has also been involved with the Closing the gap: test and learn project as an intervention school for the growth mindset project.

Esher Church School initiated and set up the KS2 moderation meeting.

The Esher, Cobham and Molesy Schools have joined together to work on the new primary curriculum and have invited secondary specialists to the meetings to ensure cross phase understanding.

Whole school issues of transition

Esher High School has set up a small research group within the school to look at how we can use the experiences of this project to improve transition overall. We have since

changed our induction day and are attempting to use more of the strategies observed in the primary schools to help the students with academic as well as pastoral issues.

Cross alliance co-operation

The alliance ran a transition day research conference in June 2014. Twenty delegates attended with presentations from four different alliances. We drew together the findings of the projects and key aspects of conducting research within alliances.

Conclusions

The whole experience has been extremely beneficial to all parties concerned. In a way, the transition unit has not been the most significant outcome. The most important outcome has been the development of professional relationships; the sharing of knowledge and the creation of new knowledge. All teachers who took part in the process have commented on how enjoyable and empowering it has been. A greater understanding of the big picture and the building of those relationships has benefited not only the teachers involved but has improved the learning outcomes of our pupils.

By giving teachers time and permission, encouragement and funding to meet, observe and work collaboratively has meant that real gains have been made. The challenge now is to keep this momentum going; to continue to convince stakeholders of the benefits. To ensure that we can maintain a climate that enables professionals to develop new practices as well as test and adapt best practices so that, in the words of Hargreaves and Fullan (2012), we can develop:

> a profession that constantly and collectively builds its knowledge base and corresponding expertise, where practices and their impact are transparently tested, developed, circulated and adapted.

References

Hargreaves, A, and Fullan, M., (2012) Investing in capability and commitment, *Professional Capital: Transforming Teaching in Every School,* Routledge London

Ofsted, (2011), *Removing Barriers to Literacy*, Ofsted, London

Husbands, C. and Pearce, J. (2012) *What makes great pedagogy? Nine claims from research*. Nottingham, NCSL

Harrow Collegiate Teaching School Alliance

Alliance	Harrow Collegiate TSA
Alliance context	The Harrow Collegiate TSA is an alliance of 19 primary and secondary schools across Harrow who aim to produce the best teachers. R&D projects are being undertaken across the alliance with practitioners being engaged in small scale and larger scale research projects to develop their own practice and disseminate good practice and resources to others.
Schools involved in the R&D project	Hatch End High School, Park High School, Nower Hill High School.
Research focus:	To understand how written feedback and student-teacher dialogue in books can better support pupil progress by ensuring students have a better understanding of what they need to do to improve their work.
Research questions:	What range of strategies do teachers use when giving written feedback in books? How do students respond to / process this feedback? Which of these strategies do students find most helpful in enabling them to progress? How can we ensure that students know how to act on the feedback given?

The implementation phase

In our initial exploratory meetings we discussed all nine claims in *What makes great pedagogy? Nine claims from research* (Husbands & Pearce, 2012). Feedback was very quickly identified as a focus area across all of the schools as it resonated very closely with the school improvement needs. All of the schools involved in initial discussions were in agreement that a better understanding of what made effective feedback to students would have the greatest impact on the teachers in our schools and outcomes for pupils. We therefore identified claim 8, **effective pedagogies embed assessment for learning,** as the crucial proposition underlying our work.

However claim 1, **effective pedagogies give serious consideration to pupil voice,** was also identified as a core claim related to our focus; with all participating schools

agreeing that an understanding of pupil experience was key to evaluating success of the newly implemented policies.

All high schools in the alliance were invited to participate in the project, via the TSA strategic development group, with five showing interest immediately. As discussions developed three schools finally agreed to participate in the project

The intended outcomes were quite broad ranging, and ambitious.

For staff

- recognition of the importance of timely, personalised feedback in books and the role that student / teacher dialogue in books can play in supporting pupil progress
- greater confidence in their ability to select the appropriate feedback strategy for individual students / groups of students
- a broader and better understanding of the range of strategies that they can employ.

For pupils higher levels of participation and engagement in teacher / student dialogue in books

- better understanding of how to respond to feedback in order to progress
- a recognition of the importance of acting on feedback to support their progress

For participating schools as organisations

- increased knowledge of the range of strategies that can be used to assess work formatively in books through sharing of emerging practice
- the opportunity to consider the possibility of developing cross-alliance professional learning communities

For schools beyond those participating in the project

- Learning shared via TSA R&D celebration events and Teachmeets

All schools involved in the initial discussions had recently changed whole school practice regarding feedback and internal data from schools suggested inconsistencies in practice. Work scrutinies identified inconsistencies in the range and frequency of feedback and there was little evidence of students acting on feedback in a meaningful way. A student voice survey in one school clearly indicated that there were inconsistencies in how teachers and students were interpreting the policy. This was also identified as an area for development in the most recent Ofsted inspections of at least two of the schools.

The innovation phase

Prior to trialling strategies in the classroom, a group of students produced a survey for their peers to find out what students thought about current use of feedback. The survey was completed by over 300 students across three schools. We also conducted a survey of over 200 staff across the schools to help us understand current practice, by gaining a picture of what methods staff were using and how consistent and effective these were.

The findings of these surveys, coupled with our review of existing research, were then used to help us identify strategies that we wished to trial in our own classrooms. There was a range of strategies trialled including structured peer assessment, a range of methods to increase teacher efficiency and flow charts to guide students through higher order thinking in self-assessment. The strategies that were most widely used are detailed below.

The head of English in one of our schools extensively trialled and implemented the use of DIRT (dedicated independent reflection time) across her department. She presented her strategies and new policy to a large group of middle leaders in her school and also to our research group. The strategies she had employed were then implemented by other departments, both within her school and in other schools in the research group. This involved silent reflection time and time to carefully improve work, some verbal feedback and some time for one-to-one student-teacher feedback.

Whole class verbal feedback prior to DIRT was a strategy employed by a number of teachers across the schools. In two schools, departments bought and trialled the use of ‘visualisers’ (document cameras) as a means of sharing student work whilst giving whole class verbal feedback. Others used tablets to capture images of student work to be used when modelling answers.

The questionnaire indicated that teacher handwriting was a real problem for some students as a barrier to understanding feedback, with 63 per cent of respondents indicating it was an issue. Several departments therefore trialled codes for feedback instructions and the use of common feedback statements and stickers to support clarity of feedback. This aimed to make marking more efficient as well as giving students clear and regular instructions for how they should improve their work or for next steps.

A number of respondents commented that they would like more one-to-one verbal feedback to gain personalised feedback and strategies for success. Two teachers in mathematics therefore piloted a regular programme of one-to-one interviews during lesson time to facilitate individual feedback discussion. These meetings were carried out during DIRT lessons, with the remainder of the class acting on written feedback from the teacher during the lesson.

The lead staff decided that the key to sustainability of the project was to ensure participants ‘felt valued’ during the research and that time and support was given to

facilitate thinking, discussion and action. We therefore contracted a higher education institute (HEI) consultant to give us academic perspective and guidance.

Throughout the course of the project we had several full days of dedicated time to discuss and share ideas as a group which led to highly stimulating and productive outcomes. Regular and pertinent academic reading and research was shared throughout the project and acted as an important driver in maintaining momentum, with participants sharing perceptions of this research in relation to their own practice in the classroom.

Two senior leaders from two different schools were actively involved in the project as participants. These senior leaders delegated to other members of the group; with three teachers in the group leading activities in their respective schools, some of whom took on the role of facilitator to support and help direct the project and maintain momentum.

The impact phase

Staff and learner knowledge and attitude

Senior and middle leaders responsible for assessment in all three schools now have a much improved understanding of students' perceived barriers to acting on feedback and this knowledge has been used to inform school policy and practice. For example 64 per cent of student respondents said that they often struggled to understand teachers' handwritten feedback. Most importantly though it was clear that students do value feedback with over 85 per cent agreeing that it was useful in helping them progress; however there was a strong indication from students that they wanted more frequent opportunities to gain feedback. There was a 50:50 split between respondents preferring written or verbal feedback but those preferring verbal feedback were able to articulate the benefits more clearly.

> because they tell you in detail what they actually want you to do to improve your work whereas if they write it they could give people a general thing to be improved or a mistake that a lot of people made and not just things about you
>
> if they are speaking to you individually you might get a more complex target to work on
>
> verbal feedback is better because we can ask questions and it can be explained more thoroughly

That said, there is an increased awareness that a range of feedback strategies should be employed throughout a unit of work. The rationale for this being a response to the students' comments below:

I like to have two types of feedback, handwriting because I can go back in my book and keep on looking at what I need to improve and verbal so I can be more confident with what targets my teacher has set;

written feedback gives a guide to what to do which we can refer to and verbal feedback explains further what I have to do to improve.

Staff who were involved, those in their departments and increasingly the whole school now have a growing awareness of, and interest in, academic literature and research surrounding issues of feedback. There is also a far greater awareness of practice in other schools following collaboration and sharing of practice. Links with an HEI have given us access to a wide ranging pool of academic research which we have been able to share across our schools to help inform practice and create a more research informed approach to teaching and learning.

Staff practice and learner behaviours

In one school it was agreed that feedback needs to be more carefully built into schemes of learning so that there is greater correlation between lessons, learning, feedback and assessments; and that there must be sufficient time for students to act on feedback. The participating religious education department has therefore built DIRT lessons into all schemes of learning from September 2014. This was based particularly on student responses where 64 per cent said they wanted more time for responding to feedback.

100 per cent of participants in the project agreed that our findings have had a significant effect on practice with an enhanced mindfulness of meeting student need and potential responses to class activities and feedback opportunities. We came to realise that effective feedback needs to be integrated into pedagogy, planning, lessons and assessments: feedback must be a dynamic and reflective connection between the way we teach and the way we measure progress. Our views align strongly with claim 1 and 8.

Consequently there has been a strong focus on ensuring feedback instructions are structured in a way to ensure students know more clearly what they need to be doing in response to feedback. Departments involved are focusing on ensuring greater consistency of practice so students are in the habit of following certain procedures. Particular emphasis has been placed on developing whole class verbal feedback during DIRT sessions. The views below reflect the collective belief expressed by a year 7 focus group that verbal whole class feedback is an effective strategy in supporting students to understand what they need to do to reach their next target:

- you can get a range of different answers and it helps me more;
- so I can understand and do better for questions with the same sort of questions later;

- it allows me to understand the comment which could have confused me on paper (you would evaluate your work more).

In addition the group has reflected on the role of peer and self-assessment. This was an area that many students had strong views about. It became clear to the group that for peer and self-assessment to be an effective learning activity such activities need to be fully aligned to assessment criteria that students are introduced to, and understand prior to completion of the work. 52 per cent of students said peer / self-assessment could be improved by providing a clear marking guide and nearly 40 per cent said they would like it to be used more often. Only 15 per cent of respondents didn't want it to be used.

The project has had a significant impact on practice outside of the classrooms of those teachers directly involved in the work. In two of the schools extensive work has been carried out to rewrite assessment policies. In one school policies for both the English and mathematics departments have been rewritten and the new assessment policy trialled by the English department has been taken on by the humanities faculty. In another, the school policy is currently being rewritten and a whole staff training day is planned, to be followed by a series of twilight training sessions to be offered to all staff over the year.

Final conclusions

The project has been a profound learning experience for all of those involved. As a cohort 3 teaching school, however, we do feel that we are only at the beginning of our learning journey. Much of our initial work was spent reading and talking quite widely around broad, abstract philosophical and pedagogical themes. As we became more research informed practitioners we were then able to drill this down to apply our thinking more closely to our actual classroom practice and to begin to actively research how changes in our practice effected change in learner practice and outcomes.

Working closely with an HEI advisor on our collaborative R&D has enabled us to consider an academic perspective to our practice and share our experiences of, and ideas about, pedagogy. Working with other schools, despite the logistical problems, has been highly informative and productive, inspiring and enjoyable.

Looking forward, all three schools intend to maintain these collaborative links and continue with the R&D element of the collaboration. The findings of the project were shared at one of the schools at an internal R&D conference and next year it is hoped that we can open this out to more schools. The challenge now for the senior leaders involved in the project is to establish a sustainable long term model for collaborative R&D across schools within, and beyond, the alliance.

LEAD Teaching Alliance

Alliance name	LEAD teaching alliance
Alliance context	Seventeen east midlands primary schools have united to form an innovative teaching school alliance specialising in leadership and teacher training for urban schools. The L.E.A.D. urban teaching school alliance is led by the Huntingdon Academy in Nottingham. Through collaborative working, the alliance schools aim to train and share outstanding teaching and leadership skills.
Schools involved in the R&D project	Huntingdon Academy, St Mary's Catholic Primary School, Dunkirk Primary and Nursery School.
Research focus	Higher attaining children developing greater independence and engagement in their learning through a variety of methods involving talk in their lessons.
Research question(s)	How can we use 'thinking through philosophy' to impact on children's ability to answer inference questions in reading?

The implementation phase

The importance of developing children's abilities to discuss and explore different lines of enquiry, related to various thought provoking materials is important. Our research question stemmed from on-going observations of how pupils within Huntingdon Academy use 'talk' as a response technique (most confidently with an adult), rather than as a starting point, as well as children using philosophical talk for philosophy sessions without linking communication skills to develop their knowledge in other subject areas.

Choosing the foci children, we decided to centre the research towards the progression of higher attainers in reading as well as developing inference skills – an important area proving to be a barrier to children's progression in reading comprehension. Through levels and discussion with the classroom teacher, underachieving children within the higher attaining groups were targeted.

Each child was at level four (surpassing age related expectations) at the beginning of the spring term but underachieving in their own ability. From the data all children bar child E were below their expected levels for this stage in year 5.

To assess their knowledge and understanding of reading, the pupils were given a narrative with 17 mixed retrieval and inference questions to follow. The children read the text and answered the questions in silence for an hour (above required test timings) and the results revealed that the average number of foci children who attempted the retrieval questions - which were scattered within the booklet to give more reliable outcomes - was 87 per cent, with accurate answers averaging at 78 per cent. In contrast to that, the inference questions showed that overall only 25 per cent were answered and accurate answers were just 7 per cent. From initial baseline assessments it appeared that the barriers to the pupils' progression in reading were due to their 'knowledge' in answering inference based questions. Supporting this, each child self-assessed the task using stars for achievements and wishes for challenges, 100 per cent commented on 'liking' and 'answering' the retrieval questions alongside 'the inference questions were hard' and the challenges of 'some of the questions'. 'Tricky questions' - subsequently linked to the inference questions - were left unanswered.

Alongside the written reading testing, a one-to-one interview with each pupil helped to understand the reasons behind their lack of inference skills, as well as to discover their ideas of 'talk' in their learning. As each child discussed their thoughts of "how do you know you/others are learning" it became clear that as learners, 100 per cent gained knowledge through mere listening. For example, child C felt she knew others were learning when they are "folding their arms, looking at the teacher who's talking". With strong behavioural needs within Huntingdon Academy, it is understandable that for maximum impact in teaching and learning, behaviour is consistently at a high standard but it led us to think - are the behavioural routines of 'listening' so embedded that the motivation to initialise stimulating conversation is constrained, with ideas as well as misconceptions internalised?

Unexpectedly, three out of the five interviewees could confidently explain inference including responses such as "giving information" (child A) and "it is like you point of view" (child B), although when discussing when they may 'infer', it was necessary to explain this as a 'guess' which lead to the children linking their answers to mathematics, with inaccurate ideas of 'telling the time' and 'division'. Child D was mindful in responding, "when you're estimating, when you need to make a good guess like the paper size before measuring".

Finally the proposed questions of their reading books, levels and 'what does a 'good' reader look like', positively highlighted great confidence in talking about their current reading books - children were enthused discussing this - but had a lack of understanding in reading levels in terms of choosing books (school colour coding system) and age related levels. With mixed responses, the group gave answers of 'good' readers as "able to read in front of lots of people" (child D), "heavily reading like getting stuck into a book"(child A), "reading the book when you come in, they won't be reading out loud" (child B) and "sitting up straight, eye contact, folding their arms on the able" (child C); no

mention of discussion, understanding, comprehension nor enjoyment in reading, very isolated, generally quiet and insular.

The innovation phase

Following the outcomes from the primary interviews and assessments, the pedagogical approach consisted of combining discussion techniques with a range of comprehension texts, to enable a deeper understanding of 'suggested' meanings; the skills and knowledge to overcome inference questions and a conversational based reading approach. An initial lesson process was developed through the idea of expanding inference skills through philosophical discussion techniques.

Opening the first session with philosophical prompts of 'would you rather…' questions, proved extremely successful in promoting conversation, with children (over time) actively using given prompts such as 'I agree / disagree because…'; developing their own and others lines of enquiry into thought provoking material. The group, once they knew how to facilitate 'talk', without hands up, taking turns, positive / empathetic response techniques such as "I understand what you are saying but my thoughts are…", their discussion was independent and effective. Body language was relaxed and often urged the teacher to instruct the children to 'keep focused' but when actually quietly observing this, it became apparent that the children could respond to one another, posing the question – "what does active listening look like?"

With enthusiasm and a learning 'buzz' we then linked this to discussion of the original text, beginning conversations with prompts such as, "if you were Fiona, how would you feel if…", "thinking back to the narrative, what was happening when…"; open questions that could enable individual viewpoints as well as recall of the narrative and author's suggestions through word - ultimately inference without the label.

The ambience and progression in talk previously witnessed gradually altered into a more isolated and 'textbook' approach. Pairs of children were seen reading the story aloud word for word to one another, child B read quietly to themselves with sporadic comments loosely linked to the question asked. Child C and E together lost focus and had to be addressed on numerous occasions by being encouraged to 'have a go' to talk about the given subject. With encouragement and leading the children to explore their ideas deeper (which developed talk slightly further) on the text, the children were given the task of re-answering further questions within the reading paper from this discussion. The results of this from the foci children, suggests that the children's confidence to answer inference questions increased, with only a small percentage of progression in accuracy in this area. Clearly, to enable a development in talk linked to reading, consistent focus with talk skills needed to be applied prior to writing comprehension - hence the lower outcomes of an unfocused pair with child C and E.

From the preliminary lesson, the original methodology needed to develop to accommodate the children's needs in discussing wider materials (with repetitive prompts) and the skills to do so from oral, written and pictorial stimuli (in basic forms) without any direct or obvious link to reading comprehension. To do this, a combination of the 'would you rather…' style of questioning mixed discreetly into material that rolled into 'would you rather be young and naïve or old and knowledgeable?' to 'would you rather be Grandpa or Fiona' taken from the narrative text. Also, allowing the children to make further choices as to whom they grouped themselves with for effective talk and how / where they sat, from chairs plus tables to woven pods on the floor. With greater independence to their logistical approach to group discussion, alongside a questioning prompt they understood and enjoyed the outcomes through talk were effective and furthermore developmental between the peers. This then lead to a small written task, directly from the reading paper but presented as an activity that stemmed from **their** ideas - to write a short diary extract as though they were Fiona using the points they had already explored. The results between the direct 'read and answer' approach, to the discussion based method that led to a link to the text, showed an increase in all children's application and accuracy, with an increase from 0-33 per cent correct answers in the original question, to 66-100 per cent accuracy.

Linking talk to a non-fiction image (that would relate to a text) to support and explore understanding wider text types as well as trialling for valuable inference starting points was the next stage. Using discussion groups and comfortable sitting positions chosen at tables (as decided by the full group themselves), the children questioned and responded about the image using: What do I definitely know? What I can infer (guess)? What questions could I ask to further my knowledge or understanding? - grids to enable recording **after** talk - again an element insisted upon by all the children within the group.

In contrast to the written text stimuli, 100 per cent of the foci children said they found inferring from an image 'easier' than retrieving information from it.

Following this, the final strategy had to link to answering reading comprehension written inference questions By combining the effective teaching methods explored as well as the written testing formats of reading comprehension papers, linked to inference, non-fiction texts were chosen that related specifically to the image and the children orally discussed the text and their ideas as they chose, or chose not to, before writing. In observations the language of 'agree / disagree / understand' flowed as well as "it's like the picture because I bet there was a war there too" with children asking "would you rather watch the battle or be in the battle?", it was possible to see the skills of 'talk' that the group had taught one another, embody themselves into effective learning methods, that lead to focused and accurate written forms. The answers recorded were also with independence, with children writing their own string of thought with confidence over what other's had said and they had responded to.

The impact phase

As highlighted within the innovations implemented, the greatest impact from the philosophy based talk to reading was the huge increase in confidence and motivation to answer questions of inference where the children had to apply their own ideas beside a text. When re-interviewed with the original questions, responses were more independent, precise and motivated in their answers. For example child A altered the question from “when do you talk during lessons” to discussing when they ‘like’ to talk, describing “when it’s hard, like discussing the point, I want to discuss more” - a major turn-around from their first answer; “when you give an answer to a question - you put your hand up -when you need to do something… I don’t know” (child A).

Within the interview with child B, talking about how they knew others were learning in the classroom, they responded with, “because when Miss Wraight’s talking they’re always listening”, whereas they now felt that others learning was, “they can solve problems / questions faster, I know they have learned it because they could explain” - showing a development in recognising the focus of a teacher-led to pupil-led culture of learning.

Accuracy in answering inference-based questions increased - as shown previously within the final task - and both the level of spoken and written language applied to the task. The subsequent leading lessons saw a gradual increase in knowledge and accuracy. With further philosophy based reading sessions, it would suggest that children would continue to develop the skills to enable communication in explaining their ideas not only within reading but applied to any subject. As the sessions came to an end, the levels of each child were all higher, all moving to secure or excelling level four; even further ahead of age related expectations. Although these results cannot be solely linked to the implemented research methodology, when receiving feedback from the pupils’ current teacher, she described their approach to reading as “they had a more confident approach to answering inference questions”, and all completed and achieved in the subsequent reading paper with total independence. In describing any developments within reading or other areas, child A was described as ‘more focused and started to read more at home. Child A wanted to do better in reading. Not only did the discussion explore the foci children’s progression but there were positive developments in their approaches to answering written reading based questions as well as communicating answers and ideas within the classroom.

In order to achieve effective discussion that leads into inference texts or related subjects, the methodology adopted needs to be centred around the needs of the children, both with effective prompts and stimuli as well as logistics - choices which come from the children themselves directly, or as observed by the teacher. The approach that showed progression moves through reading and philosophical discussion as independent lessons before transferring the skills to use talk as a method to progress inference abilities, as well as other subject areas. Applying talk based and child led learning has demonstrated that learning, for the children, is about them and their ideas and with spoken and written

evidence in place, it is undeniable that the skills to be able to discuss and deepen ideas is an effective method in progressing knowledge, plus barriers, to learning - effective only once those skills are taught. With this in mind, the new curriculum within Huntingdon Academy, for example, has developed with not only new material, but with an innovative approach to lessons that combine an explorative, child-led, teacher-led and assessment process.

Alongside this, we shall further strive to share effective teaching and learning practice, as initiated by the research, as well as promote reading through a creative, inspiring library area where ‘talk in reading’ is the central focus. Our aim is to apply what the research has taught us; to teach and apply methods of talk and enquiry that enable pupils’ to feel empowered to take a lead in their education, becoming independent, knowledgeable and most importantly, passionate learners.

Northern Lights Teaching Alliance

Alliance name	Northern Lights TSA.
Alliance context	The alliance consists of St Thomas More and Cardinal Hume (Gateshead), St Mary's Catholic School (Newcastle Upon Tyne) and additional partner schools.
Schools involved in the R&D project	Gateshead: St Thomas More Catholic School, Heworth Grange Comprehensive, Thorp Academy. Newcastle Upon Tyne: St Mary's Catholic School.
Research focus	Developing talk and feedback to support progression. Differentiation to support challenge at KS5.
Research question(s)	What makes great pedagogy in the sixth form?

The implementation phase

The overarching question, 'what makes great pedagogy in the sixth form?' originated from the initial findings of a diagnostic meeting with active KS5 practitioners representing schools in the alliance. The focus was to identify common challenges to teaching and learning and that were typically present in a general sixth form classroom.

The establishment of partner schools involved in the project originated from prior collaborative practice conducted by the teaching school with schools both within and outside the alliance. For a long period of time the teaching school had worked collaboratively on KS5 teaching and learning with a school not part of the alliance but part of the local authority (LA). Other schools that took part were from within the alliance - all had established a KS5 curriculum being actively delivered within their schools.

Following the diagnostic meeting, practitioners gathered initial evidence from their own schools on the areas identified in advanced level performance system (ALPS) data, feedback from Her Majesty's Inspectors (HMI) and Ofsted, pupil voice interviews, lesson observation, learning walks, and teacher voice interviews). A broad diagnosis of challenges was formulated. They were identified as developing talk and feedback to support progression, differentiation to support challenge and strategies to support a greater independence in pupils at KS5. Subsequently, it was decided that focussing upon the development of talk and feedback to support progression and differentiation to support challenge were to be the focus of this research.

The focus on talk, feedback and differentiation links intrinsically to five of the nine claims around the characteristics of highly successful pedagogy, as considered by Pearce and Husbands (2012):

- Effective pedagogies build on pupils' prior learning and experience.
- Effective pedagogies involve scaffolding pupil learning.
- Effective pedagogies involve a range of techniques, including whole class, structured group work, guided learning and individual activity.
- Effective pedagogies focus on developing higher order thinking and meta-cognition, and make good use of dialogue and questioning in order to do so.
- Effective pedagogies embed assessment for learning.

The intended pupil outcome the R&D project aimed to achieve was to improve pupil progress and attainment through the strategies employed.

The intended outcomes for the practitioners involved in the project were to increase the effectiveness of approaches to talk, feedback and differentiation at KS5. In addition, it was also intended that, through collaborative practice, staff would mutually develop their understanding, awareness and application of teaching and learning strategies.

The innovation phase

Differentiation to support challenge

The uses of differentiation strategy used in the project were applied with discretion by the classroom practitioner according to their judgement on appropriateness. For example, it was felt that the range of subjects involved and class size may mean that some strategies were not appropriate, as it was felt that they would have little impact.

In one school the strategies that were employed included differentiated grouping, differentiated homework, and differentiation by task. In each case, the strategy used was trialled three times per teacher, being refined before being repeated. During the process, both the practitioner and the pupil reflected on the strategy via questionnaire.

A variety of approaches to differentiation by task, outcome and grouping were trialled by another school who were part of the project. The findings were reviewed and informed by regular meetings of the practitioners involved in the school, who periodically presented their findings. This was coupled by pupil voice activities to establish feelings on the strategies employed on pupil progress.

A further school involved began to examine and use strategies for differentiation that including differentiated homework, revision, seating according to task and scaffolding.

Work scrutiny, student voice and lesson observations measured the level of impact that the strategies had on pupil learning. Critically, the evidence collected in using differentiation identified that pupil feedback at KS5 required development to enable more effective pupil challenge. Through an extended evidence collection involving student voice and classroom observation, it was felt that examining strategies to differentiated feedback was an area of focus for the school.

As a result of the research that has taken place, a number of subjects in the school began to employ a medium term approach to assessment, feedback and monitoring. Regular use and reference to ALPS grades, accompanied by written, tailored, feedback enabled pupils to make appropriate adjustments in their work in order to make progress.

Talk and feedback

One school involved in the project examined effective uses of talk and feedback employed in the school at KS5. The approaches to feedback considered were as a consequence of pupil voice (both pupil questionnaire and interview) conducted. Pupils were asked to reflect on the frequency of feedback, coupled with whom the feedback was being administered by (ie teacher, peer or self-assessment). Pupil interviews allowed this to be further expanded upon– there was a specific focus on the type of feedback used, extended to the KS5 topic covered.

The research uncovered a pattern in the pupils' perception of the types of feedback relating to specific subject areas and the typicality of the style of question asked on an A level paper. Students studying English Literature, English Language, history and Italian (where extended / essay based writing forms a predominant format of any controlled assessment or examination) felt that oral and written teacher feedback appeared to be the most desirable approach.

Students studying biology, geography, physical education (PE) and physics (where written response answers can vary from short answers to extended answers) felt that a combination of strategies using structured self-assessment and teacher assessment was the most desirable approach.

As a result of this research, practitioners in this school used a JPD approach to the development of feedback. A cross-curricular team of practitioners from the named departments worked in collaboration to develop strategies for feedback, coupled with meeting to regularly evaluate the progress of these strategies. Therefore, there was the opportunity for leadership to be distributed – practitioners were able to take the strategies discussed and lead the implementation of strategies for feedback within their own subject areas.

Practitioners teaching A level English Literature, English Language, history and Italian trialled dialogistic approaches to written feedback between teacher and pupil. For example, practitioners in English Literature used checklists bespoke to the requirements

of a particular area of the specification for pupils to self-assess against. This was continuously used with pieces of work in this area of the specification.

Following the process of self-assessment, practitioners provided detailed written feedback to the pupils. The feedback contained detailed information relating to the assessment criteria, coupled with exam skills. Pupils were given the opportunity during lessons to immediately respond to the feedback and rewrite parts of their essays to ensure that the response was appropriate ie that the feedback had actually been understood.

Practitioners teaching A level biology and geography focussed specifically on pupil performance in exam questions. Questions were carefully linked to points of the respective specification. The performance of pupils in these questions allowed feedback and intervention work to be targeted.

Collaboration across the alliance

The strategies for collaboration between practitioners involved in the project experienced a number of external factors which influenced the extent to which collaboration could realistically take place. A change in leadership of the R&D project midway through the project, coupled with changes in the practitioners from different schools leading and contributing, meant that during the middle of the project the extent to which collaboration was taking place between schools was not to the level that was hoped.

After this small period of turbulence, the extent to which staff were collaborating within the group increased. This was through regular termly meetings of the school leaders, along with the practitioners in the research attending to share experiences of their research. The meetings provided an opportunity for reflection on the progress of the different areas of focus, and to make adjustments to their research based on the thoughts and advice given.

The models for collaboration within the schools involved different approaches. For example, the school involved in developing talk and feedback were able to work collaboratively on their project, meeting once a week during the school day for 15 weeks. They were additionally asked to share their initial findings to other practitioners in their school at the end of the academic year in order to further refine their practice.

Other schools involved working parties who met periodically during the academic year to plan, implement and evaluate the impact of the strategies on the pupils. Therefore the opportunity to evolve teaching strategies through discussions and feedback of practitioners was an effective facet of this approach.

The impact phase

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.

In addition, in two schools, teachers' perceptions of the suitability of their chosen differentiation strategies appeared to shift. At the beginning of the project practitioner perception of the types of effective strategies appropriate for differentiation of learning at KS5 varied to those employed at KS3 and KS4. By the end of the project teachers were more likely to see the relevance of strategies employed in other key stages, and focused on selecting the strategy they felt was most appropriate to the intended skill they hoped to improve.

Differentiation to support challenge

Typically differentiation strategies such as differentiated homework outside of classroom learning, coupled with differentiated exam questions and research projects within the classroom were effective in allowing pupils to feel more supportive in their learning, and subsequently, making greater amounts of progress. Data from practitioner questionnaires suggests that in the above activities 103 pupils from 106 made either 'expected' or 'significant' progress.

40 out of 41 pupils in their questionnaires stated that the differentiated activities that they completed 'pushed' them further in their learning and allowed them to think more independently and freely. This was especially evident in an AS history lesson, where a high ability group of students were grouped together to plan and deliver a research project regarding the causes and effects of the Russian revolution. Students were each set a different homework task depending upon their ability level and target grade. The student questionnaires revealed that high levels of knowledge and understanding could be recalled from the activities. Students also commented that they felt confident in their learning, whilst 2 out of 41 students felt that they had not learnt from the activities that they completed.

Conversely it was felt by practitioners working in this area that differentiation can have less of an impact on pupil progress when too much additional support or scaffolding is provided. A careful balance of providing 'just enough' structure to aid the development of

a concept is important – too much can lead to the stifling of applying learning, too little could lead to a misdirection in the application of learning, impacting on progress.

Developing talk and feedback

When a dialogistic approach to feedback took place (typically in a feedback 'loop' involving pupils being given criteria to self-assess, coupled with immediate detailed feedback from their teacher, followed by pupil improvements) pupils generally made progress relative to, or greater than their ALPS target grade. For example, in an AS English Literature resit group that had experienced this strategy for greater than two academic terms, all pupils made one whole grade of improvement in their AS examination compared to the previous year.

From practitioner interviews, there are also indications that as well as the type of feedback being specific and clear, that the relational dynamics of the feedback 'loop' between practitioner and pupil becomes more established the greater the number of times that it takes place. This could be partly due to the opportunity for a greater degree of 1-1 feedback that can take place in groups of a smaller size, giving a greater opportunity for the personal dynamic of feedback to be better established.

Final conclusions

While work is ongoing in refining our collective practice in developing the areas of differentiation and feedback, our initial research indicates that great pedagogy at KS5 consists of some of the following attributes:

Differentiation to support challenge

Great differentiation to support challenge can be achieved when:

- the skilful deployment of differentiation activities that are informed by formative feedback linked to target grades provides a greater opportunity for pupils to make effective progress;
- homework is differentiated effectively according to target grade. The differentiation of homework, particularly with higher grade pupils (A*-B) indicated the additional development of independence and autonomy;
- strategies are selected for intent and purpose and are not 'blinkered' by the notion that teaching strategies used at KS3 and KS4 cannot be used at KS5.

Developing talk and feedback

Great feedback at KS5 can be achieved when:

- pupils have a clear awareness of the content and / or skills that they need to develop in a piece of work (ie have criteria used whilst completing that piece of work)
- they self-assess their perceived success against the criteria
- they receive detailed teacher feedback frequently after the work related to the criteria
- they are given the opportunity to make improvements to their work
- the practitioner and pupil have a clear indication of individual pupil targets (in this project ALPS targets have been used readily) which are used skilfully in descriptive feedback

Engagement in collaborative R&D

From the experiences of our group, the nature of collaborative enquiry that brings about improvement for pupils involves:

- distributed practitioner 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

In referring back to Pearce and Husbands (2012) nine claims around the characteristics of highly successful pedagogy, the evidence for the impact of the differentiation strategies mentioned above resonates with Pearce and Husbands' 5th and 6th pedagogical claims, since the skilful implementation of classroom and homework activities supported by formative feedback promotes effective learning.

The impact of the development of talk and feedback resonates with Pearce and Husbands' 4th, 5th, 7th and 8th pedagogical claims. The effective embedding of AfL, combined, with supported, reflective feedback to promote metacognition and higher order thinking are underlying elements in great talk and feedback.

Moving forward

The schools involved in this R&D project have indicated that they would want to continue further in the use of collaborative enquiry by means of a practitioner working group. This group would continue to meet periodically during the academic year, following a narrower enquiry route which continues to research further into some of the findings of this project.

Royal Greenwich Teaching School Alliance

Alliance name	Royal Greenwich TSA.
Alliance context	The alliance serves the schools in Royal Borough of Greenwich, a borough steeped in heritage with contrasting pockets of affluence and deprivation. We celebrate the diversity of our community with over 180 languages being spoken in family homes.
Schools involved in the R&D project	Abbey Wood Nursery, Robert Owen Nursery, Boxgrove Primary, Cherry Orchard Primary, Deansfield Primary, Halstow Primary, Heronsgate Primary, Sherington Primary, Thomas Tallis Secondary, Woolwich Poly Secondary.
Research focus	The focus of the project was the impact of digital literacy interventions on levels of attainment, motivation and engagement in reading for pupil premium children and young people.
Research question(s)	How can technology contribute to improvement in terms of attainment, progress and level of engagement in reading for pupil premium children and young people?

The implementation phase

The Royal Greenwich TSA has an R&D champion in each strategic partner school and is committed to evidence based research that will improve the quality of teaching and close the gap for underachieving groups of children and young people. The alliance R&D group decided to focus on pupil premium children and young people and their literacy levels, because although the results for the overwhelming majority of pupils in reading at primary level have been raised significantly at key stages 1, 2 and 3 in the Royal Borough of Greenwich during the last five years, this remains a stubbornly low achieving group in many of our schools. The group often includes white working class children who are our lowest achieving group within the borough - particularly boys. Discussion at our alliance R&D sub group identified three possible foci, and in discussion with the champions it was decided to narrow down to the impact of digital literacy – as this is now a critical strategy in many classrooms.

The use of digital literacy has a particular resonance for our schools as the Greenwich Peninsula is being developed as a regional centre for digital technologies and we want all our children and young people to critically navigate, evaluate and create information

using these technologies so that they can access the opportunities provided by the Peninsular in the future.

Establishing partner schools was a relatively easy process as all our strategic partner schools have an R&D champion and they all wanted to join the project. At one of the first network meetings for the project the champions, supported by one of our HEI strategic partners (University of Greenwich) decided how best to customise the focus to their own particular contexts – especially the early years settings.

The intended outcomes for children and young people were:

- to raise the level of attainment in reading by introducing digital literacy interventions;
- to accelerate progress in reading;
- to raise levels of enthusiasm and engagement in reading;
- to look at family engagement in early years settings in boosting their children's levels as a result of digital literacy interventions;
- to look at the impact of digital literacy on nursery children's transition into 3 / 4 year old provision.

The intended outcomes for staff were:

- to improve teachers' confidence and competence in using a variety of digital literacy interventions to boost reading levels;
- to encourage teachers to reflect on their practice and challenge themselves to take risks in using new teaching strategies and digital literacy interventions;
- to share best practice in using digital literacy interventions to boost reading levels.

Baseline data collected on the children and young people involved was in the form of:

- national curriculum levels;
- Centre for Literacy in Primary Education (CLPE) assessment grid regarding attitudes and ability on reading;
- Leuven scales for engagement.

For children in early years settings, as well as the Leuven levels of engagement, they used the early years foundation stage development matters tracking across all seven areas of learning, with a particular focus on speaking and reading scores.

The baseline assessment indicated that overall the selected pupil premium children had lower levels of attainment in reading and poorer attitudes and levels of engagement than their peers.

The innovation phase

The schools selected digital literacy interventions which they thought would be of maximum impact in terms of motivating their pupils. Two schools (Halstow and Boxgrove Primary) used an on line blog to engage and motivate readers as well as accelerate their progress. Cherry Orchard Primary School also used a blog site and a weekly book club.

Sherington Primary School used digital books and Heronsgate used a pirate themed app which was felt to be a winning subject for low attaining younger pupils. Abbey Wood Nursery School used talking books based on chatterbox and storytelling / acting; videoed and played back to children. Robert Owen Early Years Centre used digital photo albums for objects brought in from home as a stimulus for talking. Thomas Tallis Secondary School used Book Creator and Woolwich Poly Secondary School used on line reading blogs.

We met with the R&D champions involved in the project on a monthly basis. One of the initial 11 schools dropped out - 10 teachers stayed in the project until the end and submitted a final report. Building a network group of researchers has not been too daunting a challenge and the overwhelming majority of teachers came to all the meetings. There is a strong tradition of teachers working together across schools in the borough - and the alliance capitalises on and fosters this. The teachers really enjoyed the collaborative nature of the project. The expectation at every meeting was that they would feedback how things were going, using extracts from the research logs and those working with the same digital literacy intervention were able to discuss issues and any problems with each other.

Keeping the group motivated and enthusiastic was also supported by the involvement of our HEI partner from the University of Greenwich. He was able to comment on teacher's experiences throughout, providing them with pointers and advice on how to move forward; posing questions and guiding activity. This was very helpful.

The director of the alliance supported the group by servicing and planning the meetings and ensuring all the end of year reports were in. She collected the reports and the project data and, with HEI support, wrote up the project findings. The fact that the director of the alliance is also a senior officer within the inclusion, learning and achievement division of Children's Services within the local authority has also helped as teachers respond well to emails when they know the names of the person who sent the 'nagging' email! The progress of the project has been reported on a regular basis to the alliance R&D sub group of the Royal Greenwich TSA, so there was also a helpful level of internal accountability. It was felt that champions were being asked to conduct quite a substantial

piece of work in their schools so they were not expected to take on leadership roles within the project.

The impact phase

Impact on learners

The overriding impact on learners was a positive one; attainment and progress for participating pupil premium children and young people of all ages was improved while using the digital literacy interventions and, importantly, levels of enthusiasm and engagement in reading were significantly enhanced for many pupils. For some pupils the increase in attainment during the year was beyond expectation ie 3 or 4 sub levels. Teachers reported that many pupils saw themselves as readers at the end of the project, whilst this had definitely not been the case at the start of the project.

The most successful strategies were:

- on line reading blogs
- after school book club using a blog site
- use of apps and; tablets
- digital books read on line
- talking books on Chatter Boxes

> Technology is becoming a major influence in young people's lives at school and at home and the quality of educational apps and games that are available to support children's learning is improving to meet the expectation of teachers and parents.
>
> Heronsgate Primary School teacher

The nature of the methodology used in the research meant that no claims can be made for a direct causal connection between the children's progress and interventions made. The teachers involved in the case study are clear that they would have expected progress to have been made in the children's reading development across the year anyway. However by the use of monitoring, observations and discussion with the children they were confident to conclude that the progress they recorded was supported and enriched by their interventions. However, there were some caveats. For example although pupils' attitudes and their attainment in both reading and writing did improve for pupils in one of the two secondary schools their attitudes did not transfer to subjects other than the one taught by the champion ie history.

The least effective in term of boosting attainment in literacy were the digital Interventions used by the Abbey Wood Early Years Centre. Although very engaged and involved in the

project the practitioners have decided not to use digital interventions to promote reading with two year olds because: “there are too many pre skills associated with reading at this age that are not provided with digital equipment – the most obvious being the development of the pincer movement between finger and thumb needed to turn the page”.

Impact on staff

For most teachers this was the first time they had systematically used a digital literacy intervention over time with a targeted group for a specific purpose. All the R&D champions felt that their confidence and competence in using a variety of digital literacy interventions to boost reading levels had significantly improved. They certainly had plenty of opportunity to reflect on their practice and challenge themselves to take risks in using new teaching strategies and digital literacy interventions, and the network meetings allowed them to share best practice to boost reading levels.

Impact on schools

In the overwhelming majority of schools interventions that were introduced by individual teachers have been adopted, or will be adopted in other classes, and in some cases, across key stages or across whole schools.

Lessons learned about the nature of collaborative enquiry included:

- teachers need a compelling reason and a shared agenda to work across schools
- external facilitation is important
- teachers need to be personally and morally committed to the research topic
- their schools need to be supportive of their work
- some supply cover helps
- there needs to be a long term outcome/goal

The alliance is very committed to collaborative enquiry and as a result of this successful project will embark on two substantial research projects – funded by the alliance next year in partnership with the University of Greenwich - both emanating from secondary schools (Thomas Tallis and John Roan) with groups of primary schools; focusing on years 6/7 and the development of literacy skills in one project and the development of critical thinking skills in the other. These projects will be supported by our HEI partner.

Final conclusions

The findings from this project can be summarised as follows:

- The use of digital literacy is a positive intervention in terms of motivating and engaging readers.
- The use of digital literacy contributes positively to raising attainment in reading and boosting progress for the overwhelming majority of pupil premium children and young people.
- The opportunity to network as a group across schools on a collaborative project with one common theme ie digital literacy is a powerful way of boosting teachers' confidence with technology in the classroom.
- Teachers will take risks in the classroom in the context of school-based enquiry and become more reflective practitioners.
- Involving teachers in a collaborative project across schools requires external facilitation and strong leadership.

The schools in their projects have disseminated their findings across their individual schools and good practice in using digital literacy interventions has been adopted across many of them.

Our dissemination strategy is as follows:

- report to the executive board of the alliance
- condensed version of the report to NCTL to go on alliance website
- short bulletin item to go out to all Borough headteachers
- a celebration event
- report to the primary and secondary LA advisers on the findings so that they can raise/discuss on school visits
- publish article(s) in the United Kingdom Literacy Association and English Association UKLA magazine; *English 4-11*
- feed in results to our local reading for pleasure initiative which is a whole Borough initiative

As indicated above we have two major alliance research projects involving collaborative enquiry being undertaken within the alliance about to commence.

The challenges will be:

- maintaining communication with the leaders of these projects
- monitoring the progress of these two projects
- building the findings into the body of findings on transition, which already exists within the Borough

The continued support and expertise of our HEI strategic partner; University of Greenwich will help us address these challenges.

The director of the alliance also works in the LA and can ensure synergy between the Borough initiatives and the two research projects.

Stourport High Teaching School Alliance

Alliance name	Stourport High TSA.
Alliance context	Stourport High School is the single High School in Stourport, Worcestershire. It has six feeder primary schools, Lickhill Primary School, being one of them.
Schools involved in the R&D project	Lickhill Primary School Stourport High School
Research focus	The development and use of a thinking skills model for mathematics that promotes independence success in problem solving activities.
Research questions	• Do the most successful mathematicians use particular strategies in problem solving that contributes to their success? • Can we develop a model to support pupils with mathematical problem solving activities, based on the strategies we identify when observing successful mathematicians? • Does the model have positive outcomes on learning outcomes?

The implementation phase

Project aims:

- To examine whether successful mathematicians use particular techniques which enable them to be successful.
- To identify those techniques and create a model that supports students who would not naturally use such techniques.
- To investigate whether adopting such techniques increases the rate of success when tackling mathematical problems.

Determining the focus of the research

The focus was established through discussion between staff from primary and secondary teaching backgrounds. We hoped to find a means of raising standards in mathematics

across KS2 and 3. Indicators of standards of achievement within schools are the end of KS2 national curriculum tests and GCSEs. Question level analyses of exam responses revealed that the questions pupils found most challenging, and were least successful with, were those that required a manipulation of knowledge, skills and understanding, rather than straightforward application. In these types of question, pupils need to make decisions about which mathematical knowledge or skill will be needed and may need to prioritise the order in which they carry out mathematical operations. The research project sought to discover whether there is a means of supporting pupils in this thinking process.

The intended outcomes of the project

For staff

- To enable staff to work collaboratively with colleagues from other phases of education, leading to a greater understanding of teaching pedagogy in other phases and schools and ultimately, enabling them to be more effective as practitioners in securing good learning outcomes for pupils.

For pupils

To support pupils to learn skills which will enable them to be more successful and confident in problem solving activities, thereby increasing pupil motivation and engagement.

Links with the nine claims about what makes effective pedagogy, those that are most relevant are:

1. Pupil voice

The model was originally developed through listening to what pupils said were the most effective strategies for problem solving. At each stage of the research we have developed the model in the light of feedback from the students.

2. Building on pupils' prior learning and experience

The model encourages students to consider what they already know around the problem and make connections as a strategy.

3. Scaffolding learning

The model provides a structure to support students in their learning, so that when they are unsure how to proceed, the model prompts them to try strategies. This provides a scaffold for learning.

4. Developing higher order thinking and metacognition

The model encourages pupils to consider how they are thinking about the problem they are trying to solve. It encourages them to think more widely and use strategies such as visualisation to gain a better understanding of the problem.

The innovation phase

Identifying successful strategies

We decided we needed to have a better understanding of the thought processes of successful mathematicians. We used the results of internal assessments to identify a group of highly successful mathematicians. These ranged in age from years 5 to 7 and were from two schools. This group of pupils were then used to help us develop the strategy model. We observed them as they undertook a range of mathematical problems and asked them to articulate their thought processes, which were transcribed. We then analysed the transcripts to find common strategies.

Creating the model and trialling the pedagogical strategy

We developed a model of strategy and thinking to promote reflective and creative thought processes. We identified six 'thinking steps':

- **Clarify** – What is the question? Any keywords?
- **Connect** – What do you know already?
- **Visualise** – Picture it / sketch it
- **Formula** – What method will you use?
- **Organise** – Be systematic / plan your layout
- **Qualify** – Is the answer sensible? Does it answer the question?

We then trialled the strategy model with the top sets in year 7 (X1, X2, Y1, Y2). We created two sets of problems, which were not identical but were similar (A & B). The Y sets did set A first with no help. They were taught the thinking skills and then did set B. Whilst completing set B they had a copy of the thinking skills and their notes in their exercise books to help.

The X sets did it the other way around: they started with set B, were then taught the skills then did set A. The scores achieved by the students for sets A and B were recorded on a spreadsheet.

We have used pupil voice and feedback extensively in order to develop and refine the model so that it is of optimum support.

Maintaining and building the momentum and collaborative dimension of the work

The number of teachers and the number of pupils involved in the research increased. The model has now been introduced to all students in years 7, 8 and 9 and is being used in the context of other curriculum subjects. In order to facilitate that, some of the words were changed to make them more applicable to other disciplines. The thinking steps have been reduced to five and are now:

- Visualise
- Problem?
- Connections
- Organise
- Success?

This fits into a wider year 7 initiative aimed to promote lifelong learning skills.

Distributing the leadership of the work

Involving other members of staff enabled us to distribute the leadership, as they took on the responsibility for trialling some of it. It has also been interwoven into a far larger project. Several curriculum departments are focusing on the following skills:

- evaluation
- research
- communication
- independence
- problem-solving
- teamwork

The mathematics department has taken a leading role in developing problem-solving. The concept behind the project is that these are all transferable skills, so developing skills in problem-solving in mathematics can support problem solving in English or science.

The impact phase

Claims made about the impact on learners

With reference to the three original research questions we would claim:

1. There **are** particular strategies that the most successful mathematicians use in problem solving which contributes to their success. We have identified them as the following:

    - **Visualise** the problem, if possible sketch it out.
    - Thoroughly **read** the problem to understand exactly what is being asked.
    - Are there any **connections** that you can make / knowledge you already have?
    - Be **organised** and systematic about how you tackle the problem and set out your answer.
    - Review your **success**. Does it make sense? Does it answer the question?

2. We **can** develop a model to support pupils with mathematical problem solving activities, based on the strategies we identified when observing successful mathematicians. We have done this and refined it in the light of pupil feedback.
3. The model **does** have positive outcomes on learning outcomes.

The average score before teaching the thinking skills was 4.89. The average score after teaching the thinking skills increased to 6.475, showing an increase of 32 per cent in the scores.

The data shows that the use of the model increased the level of success across all four groups. However, the X half showed a greater amount of increase, which may have been because one of the sets of problems was harder than the other.

Developments to refine and improve the model

The students were invited to suggest improvements. One of the improvements was that the words used could be easier to understand. When the students had finished both sets of tasks, they were asked to complete a short questionnaire in order to establish their views about the thinking skills model.

The main points from the student voice survey were:

- The students liked the thinking skills and are keen to develop them within their mathematics lessons.

- The skills which the students found most useful were ‘organise’ and ‘clarify’.
- The skill they used least was ‘formula’.

In the light of these comments the model was revised.

Final conclusions

It has been challenging for us to keep the momentum of the collaboration, as the main researchers have had changes in their roles and responsibilities within school. This has affected the amount of time each of us could make available. The solution has been to bring in other teachers from the mathematics department who have been able to take a leading role in continuing the research. This has also enabled us to increase the number of students in the study, which increases reliability of the findings.

One of the biggest opportunities that has arisen from this research is the opportunity to reflect and discuss with colleagues how children learn and how we can support them to be efficient and effective in their learning practices. It has been extremely interesting to work across KS2 and 3 phases, as the approaches to learning differ organisationally. However there are many similarities, particularly in the desire to enable students to take greater ownership for their learning.

The research has been received with interest across the TSA.

The model is embedded in years 5-9 across the two schools and it is our plan to hold a training event to share this with more schools.

We are seeking to gain feedback from other teachers and students about the relevance, and usefulness of the model in other curriculum subjects. This will be done through observation of the model in practice in other curriculum areas and dialogue between the researchers, students and other teachers.

Wednesbury Teaching School Alliance

Alliance Name	Wednesbury TSA
Alliance Context	Wednesbury TSA is led by Harvills Hawthorn Primary School, within Sandwell. The alliance comprises 15 educational institutions. The deprivation indices in Sandwell are amongst the lowest in the country.
Schools involved in the R&D project	Harvills Hawthorn Primary School Old Park Primary School Moorlands Primary School St Mary's RC Primary School Albert Pritchard and Wood Green Federation
Research Focus	The project is focused on developing higher order thinking and meta-cognition by increasing the effectiveness of pupil dialogue and questioning in group work.
Research questions	How can use of higher order thinking skills, through exploratory talk, improve outcomes for more able pupils in AT1 mathematics? **Sub questions:** Is there a common understanding of higher order thinking skills? Is there a common understanding of exploratory talk and the way it is used?

The implementation phase

A meeting was held with headteachers from across the alliance to introduce the research project. Based on the outcomes in mathematics across the alliance schools, and the common issue of more able learners tending to make less progress than other groups in mathematics, heads decided that the focus should be to improve outcomes for more able learners in mathematics. Heads also identified that the difference between their 'good' and 'outstanding' teachers is usually the teachers' ability to use dialogue effectively in the classroom to promote higher order thinking. This led us to focus on the 7th claim:

‘effective pedagogy focus on developing higher order thinking and meta-cognition, and make good use of dialogue and questioning in order to do so.’

The research team then came together to dissect this claim, discuss data and current practice in order to generate the question. To help us determine our research question we carried out a literature review focussing on dialogic education. This led us to the work of Alexander (2004), Wegerif (2012) and Dawes (2012).

How did you go about establishing your partner schools?

The schools within Wednesbury TSA have a long history of collaborative working. The schools have worked together for over 10 years to prioritise needs across the town and develop innovative practice to improve standards. After the meeting with all headteachers to introduce the research project and decide on an area of focus, the schools expressed their interest in participating in the project.

A research team from five of our alliance schools was established. This meant that each school had a ‘research lead’ that would co-ordinate research activities within their school and then feedback to the central ‘research team’. The initial meeting introduced the area of focus, established protocols for collaborative research, provided background reading/research, refined questions, introduced the connecting professional learning (Harris and Jones, 2012) methodology and decided on research methods.

What were the intended outcomes of the project?

For staff:

- Develop knowledge and understanding of effective dialogue in the classroom.
- Enhance classroom practice to improve outcomes for more able learners in AT1 mathematics.
- Understand and recognise progression in thinking skills.
- Develop knowledge, understanding and skills in research and how this can be used as a vehicle for school improvement.
- Develop understanding of collaborative learning as an effective methodology for carrying out research.

For pupils:

- Raised awareness of how dialogue can be used as a tool for learning.
- Understand, describe and implement new strategies for effective group learning.
- Learn effectively in group situations.

- Improved outcomes in AT1 mathematics.

For participating schools as organisations?

- Improved knowledge and practice to share with colleagues – lead learning in own school.
- Quality continuing professional development (CPD), through research model, to share with colleagues.
- Improved outcomes for learners.

What evidence did you gather at the baseline stage?

Five schools took part in the project and each school had a research team of three.

Our baseline data was designed through the unpicking of our research question and consideration of the literature review. We wanted our baseline data to tell us:

- What the teachers think, know and do now in terms of classroom dialogue and thinking skills.
- What the children do now and what their outcomes are.

Qualitative Data

- Video evidence of dialogue in the classroom (teacher to pupils, pupils to teacher and dialogue between pupils).
- Each school research team analysed their video evidence using an ‘exploratory talk checklist’ and a ‘what the teacher does’ framework which noted observations of the teacher’s use of dialogue.
- Questionnaires were used to gauge teacher’s understanding of dialogic teaching.
- A ‘thinking skills progression matrix’ was used to assess the children’s baseline in thinking skills.

Quantitative Data

It was envisaged that the project, and change in practice, will improve rates of progress. We calculated an average termly rate of progress for the children based on their previous year’s data. We then planned to compare the termly rate of progress in the spring term after changing practice.

Data was collected for two (higher ability) children per teacher:

- Average point scores (APS) for last year in mathematics (year 1-6) and number plus shape, space and measures (SSM) plus communication and language (C&L) if in foundation stage.

- Current APS score in mathematics (year 1-6) and number plus SSM plus C&L if in foundation stage.

What did the baseline evidence tell you?

Teacher:

- Type of intervention strategies used during group work on mathematics problem solving task. Behaviours were observed from a video of the teacher working with higher ability group. A checklist was used to record types of behaviour and notes on specific points of interest.

- Teacher questionnaire on current strategies for developing higher order skills and how dialogue is used to bring about learning.

There was quite a wide range in terms of the quality of interventions. In some instances there was very little intervention by the teacher. In some, intervention was limited to instructional exchanges and in others there was some use of conversational exchange and questioning that helped the children to move on in their thinking and discussion. In general there was some evidence of rote, recitation, instruction, some questions and positive relationships. However, there was little evidence of quality exposition, interactions, feedback, contributions or exchanges.

Analysis of questionnaires also showed a fairly limited range of strategies used to develop higher order skills – open questions, role play, practical problem solving. Focused on the type of task rather than on the intervention strategies used. The participants generally felt that the children were more able to describe **what** they learned rather than **how**. Barriers to effective pupil talk were mainly focused on the children's lack of vocabulary, personality type, ability to listen.

Pupils:

- Observation of pupil dialogue and interaction during problem solving task – video. Exploratory talk checklist completed and notes on specific points of interest.

- Individual assessment of stage of development in relation to thinking skills using the progression in thinking skills matrix developed by the research group.

- Individual assessment of current level in AT1 mathematics.

Again there was a wide range in terms of the children's ability to work effectively together to solve a logic problem. Overall, there was evidence of children actively listening,

making relevant contributions and making suggestions. However, there was little evidence of children asking high quality questions to probe or clarify, ideas were not challenged sufficiently, no clear sense that the children had a shared purpose, or able to work together to an agreed end.

The assessments in relation to the progression in thinking skills matrix demonstrated that children's skills in planning an approach were fairly well developed but that skills related to the development of the investigation, eg seeking patterns, cause and effect, predicting, and those related to reflection eg evaluation, comparison were much less well developed.

The innovation phase

What pedagogical strategies have you been trialling throughout the project?

The pedagogical strategies described below have been developed and trialled in the 2013/14 academic year. We chose to focus on dialogic teaching and exploratory talk as a result of reading the work of Alexander *Towards dialogic teaching: Rethinking classroom talk* (2004) and Wegerif *From dialtectic to dialogic* (2012). We also used some of the practical strategies outlined by Lyn Dawes in *Talking Points: Discussion Activities in the Classroom* (2012) to formulate our programme.

- The research group developed 10 week programmes to introduce the children to a range of exploratory talk strategies. As a result of the expertise within the group different programmes were developed for foundation stage, KS1 and KS2. The programmes also included resources to enable staff to conduct the programmes in the classroom.

- The implementation of the programmes began in February when a lead lesson, (which the children called their 'talk lesson') introduced and practiced a particular skill, eg. open questions. The children then were encouraged to use and apply that skill for the remainder of the week. The children were assessed and given feedback on their use of the skill.

- Over the 10 week period the programme addressed a structured range of thinking skill strategies related to the progression checklist that we had developed.

How did you maintain and build the momentum and collaborative dimension of your work?

The research project is intrinsic to the overall work of the TSA. The notion of effective pedagogy, particularly the development of metacognition and higher order thinking, underpins its CPD and support provision. Consequently, the schools participating in the project were able to extend and embed their learning in other contexts. This kept the research project 'live'.

It was clear from the outset that the choice of enquiry focus had the potential to impact on pupil outcomes as it tackled a significant barrier that we have long wrestled with in our area, ie language development. It also chimed with our philosophy for learning. As the research leads developed the programmes, the classroom practice fell into place and we could see that the 'talk lessons' would be enjoyed by pupils and teachers. All of this provided great motivation and increased the commitment of all participants. No school has fallen by the wayside.

How did you distribute the leadership of this work?

Each participating school had a research lead who worked as a member of the central research team to determine and drive the design of the project. They then worked with their own school teams to gather evidence and implement the programmes. Each school divided responsibilities for different tasks within the project.

What claims are you making about the impact of your work on:

Staff knowledge, skills, attitudes and practice

Observations of problem solving tasks at the end of the programme show more effective teacher intervention, with significantly longer periods of pupil/ teacher dialogue focused on meta cognitive skills. Children were being encouraged to verbalise, develop and probe their ideas. Teachers were using a wider range of strategies including suggesting prior learning to support working, 'what if' questions, modelling meta cognition by verbalising their own thinking etc. Consequently the children were more confident to participate actively on a shared task rather than work independently alongside each other. Teachers are more confident in intervening with groups and are developing a wider range of intervention strategies to scaffold the children's metacognitive development.

The teacher questionnaires indicate that the exploratory talk strategies were being built into learning in contexts other than mathematics problem solving. The teachers referred to types of thinking skills when previously they talked about activities, indicating a greater understanding of metacognitive processes. There is greater teacher awareness of the component thinking skills and the progression of development. This suggests that teachers will be able to plan more specifically for individual pupil needs.

Learner knowledge, skills, attitudes and behaviours

Task observations clearly demonstrated that participation in the tasks was more evenly distributed in all groups. There appeared less domination by a small number of individuals. Overall there was a greater sense of a shared task, this was further improved by the way that the task was presented to the children eg one recording sheet for all children to share. There was more evidence of children questioning each other, eg asking questions to clarify a suggested way forward.

The progression in thinking skills matrices show more evidence of children engaging in dialogue involving cause and effect, predicting, seeking and verbalising patterns. Overall final solutions seemed to have greater consensus amongst the groups.

Participating staff have reported that children are more confident in participating in dialogue with each other and with their teacher about their learning. There is more evidence that they are talking about how they learn, not just what they are learning.

In KS2 in particular, children there is more evidence of independent use of the developing and reflecting skills in other curriculum areas.

The way that the initial problem was presented to the children appeared to impact on baseline and summative outcomes. If children were given individual task sheets, they started working independently before they worked collaboratively. When given one task sheet and recording sheet for the whole group, collaboration generally started immediately.

All participating schools reported how much the children looked forward to and enjoyed their ‘talk lessons’.

Early indications show increased uplift in AT1 mathematics assessment.

The participating schools

The research team reported an overall raising of awareness about metacognition and effective strategies for teaching and learning within their individual schools. Non-participating staff were showing an interest and there has been increased dialogue in staff meetings and informal situations about dialogic teaching strategies and progression in thinking skills.

The headteachers of schools within the alliance have reported very positively about the potential of the project to impact on standards across the curriculum. The focus on improving the thinking skills of children will enable generic access to higher levels of learning.

Final conclusions

What have you found out about what makes great pedagogy?

The use of exploratory talk strategies has increased the children’s ability to actively and effectively participate in group problem solving activities. It has increased teacher and pupil understanding of metacognitive processes and provided them with language and strategies to scaffold their own and other’s learning. To have a voice, pupils need to have access to the types of language that facilitates both transactional and intellectual activity. Increased understanding of, and access to, metacognitive strategies will greatly influence longer term outcomes for pupils. It will raise teacher expectation and enable them to

differentiate more effectively. Effective pedagogies use a range of approaches but this effectiveness is dependent upon an understanding of how the strategies work and the optimum context for their use. Assessment for both teaching and learning has to be based on an understanding of the stages of metacognitive development and ways to scaffold pupils' access to them. Exploratory talk appears to encompass both of these. Providing children with language and dialogue conventions is an important factor in achieving inclusivity. Exploratory talk very clearly enables teachers and pupils to scaffold further understanding from prior learning.

What have you found out about how to engage in collaborative R&D?

Collaborative enquiry is a powerful mechanism for professional learning. The alliance has a very well established ethos of enquiry based CPD and has been involved in other national and local projects. Thus, we already have confidence in the potential impact of this approach. However, for less experienced schools the time commitment can be daunting. It is therefore important to ensure regular communication to keep the learning current and to disseminate the ongoing benefits of the stages of learning.

A clear distributed leadership framework supports the communication channels and ensures that deadlines are met.

What have you learned about the nature of collaborative enquiry that brings about improvement for pupils?

Collaborative enquiry is a powerful mechanism for professional learning. Participants scaffold each other's learning, motivation and commitment is increased and communication to the overall community is improved.

How will you ensure your learning is shared and sustained going forward?

We intend to continue to use the exploratory talk programmes with the participating schools to further our learning. We also intend to offer to introduce other schools, within and beyond the alliance, to the programme and to receive support through the teaching school. The main challenges for us are resources eg time and funding. Our alliance schools are assured of the value of collaborative enquiry but also have many other demands made on their limited resources. It is important that we choose our areas of work very clearly to ensure they are focused on those that will have the greatest impact on desired outcomes.

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Westdene Teaching School Alliance

Alliance name	Westdene TSA
Alliance context	Westdene TSA works with all schools across Brighton & Hove and has developed partnerships further afield in the south-east and beyond.
Schools involved in the R&D project	Westdene Primary School (primary 3-11) Patcham High School (secondary 11-16) Carden Primary School (primary 3-11) Patcham Junior School (7-11) Coldean Primary School (primary 3-11)
Research focus	What makes great pedagogy?
Research question(s)	What makes for effective pedagogy and transition in mathematics from KS2–KS3?

The implementation phase

Anecdotal evidence from our own past pupils from primary school suggests that disaffection sets in at KS3 when pupils' prior attainment is not taken into account and pupils are asked to repeat content they have already covered in years 5 and 6. The new national curriculum has raised expectations in terms of pupil outcomes and presents new challenges in terms of the progression in curriculum delivery between KS2 and KS3.

The Ofsted report *Made to Measure* (2012) 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'. This poor national record is one that we have aimed to address locally.

In Brighton & Hove, GCSE statistics show a lack of good progress from KS2-KS4 in mathematics and so improving leadership, teaching and learning in the subject is now a city wide priority.

Existing research by Galton and Hargreaves (1999) also noted that much of schools energy around transfer was directed onto the pastoral side to reduce 'pupil anxiety' but that 'pupils' learning progress seemed to be less effectively understood or handled' and 'as a result 'dips' in pupils' attitude and engagement could occur'.

How did you go about establishing your partner schools?

We approached the local secondary school and two other main feeder schools. A third feeder school came on board in the second year - having attended twilights where the initial findings and project R&D materials were shared.

What were the intended outcomes of the project (for staff and pupils)?

- A smoother academic transition from KS2-KS3 for pupils in mathematics.
- A better understanding of the mathematics curriculum / pedagogy in primary and secondary for staff that impacts on practice for the benefit of pupil experiences and outcomes.

What evidence did you gather at the baseline stage?

- pupil questionnaire – all year 6 and 7 pupils
- pupil interviews – six pupils from each primary who were in years 6 and 7 (two from each identified as lower attaining, two as average, two as higher; three boys and three girls from each)
- staff questionnaire

What did baseline data tell you?

- The baseline pupil data revealed differences in attitude already emerging between year 6 and 7 pupils. These were probed more deeply by using a ‘diamond 9’ activity that enabled students to rank the features of their mathematics lessons and the features of an ideal mathematics lesson.
- Staff surveys revealed a lack of understanding about the curriculum coverage in other phases.

The innovation phase

What pedagogical strategies have you been trialling throughout the project?

We focused on several of the nine claims about what makes great pedagogy from existing research to drive our project forward:

1. **Effective pedagogies give serious consideration to pupil voice**
    - We took account of the analysis of the diamond 9 activity / pupil survey results and planned lesson approaches accordingly. This led to less text book work, more collaborative learning and rich mathematical problems.

2. **Effective pedagogies depend on behaviour (what teachers do), knowledge and understanding (what teachers know) and belief (why teachers act as they do)**

    - We began with observations of KS2 teachers by KS3 and vice versa (some secondary teachers said they hadn't been into a primary school since they were 11 themselves). As the project developed, this evolved into the formation of cross-phase coaching pairs.

    - We developed subject expertise enhancement courses for primary colleagues on level 6 content and on preparing to deliver the higher expectations of the new national curriculum.

    - KS3 teachers have led master-classes for pupils from KS2 so they can experience first-hand the standards / skills pupils are attaining by the end of Year 6.

    - KS2 teachers led master-classes for pupils in year 6 and year 7 who were working at level 3 and 4.

3. **Effective pedagogies involve thinking about longer term learning outcomes as well as short term goals**

    - Our project aims to have an impact on progress with a positive effect on longer term learning outcomes at the end of KS4.

4. **Effective pedagogies build on pupils' prior learning and experience**

    - We have resurrected the national numeracy strategy (NNS) bridging units and have jointly taught a module in year 6 that continues into year 7.

    - Working in collaboration we have audited pupils' methods for written calculation in KS2 and KS3 to enable us to align our approaches and policies.

5. **Effective pedagogies embed assessment for learning**

    - We have developed a student driven data transfer that enables pupils to be very reflective about their mathematical strengths and development areas from their primary school experience. This document transfers to KS3 and enables pupils to see their learning as a journey or continuum. It enables their KS3 teachers to take more precise account of curricula strengths and target areas so they 'can hit the ground running' at the start of term in year 7.

6. **Effective pedagogies focus on metacognition**

    - Our baseline data revealed that some pupils felt they were “no good at maths” and that there was nothing they could do to change this. All four schools embarked on an approach to promoting a ‘growth mindset’ (Dweck, 2006). We have consistent images and learning attributes that are evident in all four schools to enable pupils to better understand and develop successful skills / attitudes for learning.

How did you maintain and build the momentum and collaborative dimension of your work? How did you distribute the leadership of this work?

It was essential to recruit key staff as project leads in each school including advanced skills teachers, subject leaders and an expert researcher from the University of Sussex. Project leads took on responsibility for different aspects of the R&D work.

The impact phase

What claims are you making (backed up by evidence) about the impact of your work on:

Staff knowledge attitudes, skills and practice:

- Excellent evaluations of impact on teacher attitudes to transition and raised expectations. Our JPD, paired observations and development of coaching pairs have led to a shift in attitudes, skills and behaviour. For example our qualitative evidence shows teachers at KS3 say the coaching pairs experience has “encouraged me to take risks with my teaching” and “has raised my expectations of calculation without calculators” and led to “more discussion and more class input to a topic”.

- KS2 teachers report a much better understanding of subject knowledge and progression leading to greater confidence in how to teach more able pupils. Cross phase JPD on delivering the level 6 curriculum was attended by over 20 schools.

- This qualitative data is reflected in the quantitative pupil outcome data below.

Learner knowledge attitudes, skills, behaviours:

- Pupil progress from year 6 to year 7 shows an upward trend when comparing autumn 2013 data with previous years at Patcham High School (year 7 had 93 per cent of pupils on or above target compared with 73 per cent in the year 9 cohort who had not been part of the new approaches to transition).

- Increased performance at level 6 at Westdene Primary School in 2013 from 2012. (20 per cent in 2014 and 15 per cent in 2013 from 3 per cent in 2012.)

- More schools in Brighton & Hove entering KS2 pupils for level 6 maths tests in 2014 than in 2012 and 2013.

- Student questionnaires and interviews show a greater satisfaction of experience on transfer and 'more confidence' with mathematics.

Your school, other schools and anything else you gathered evidence about:

- A culture of joint practice, cross-phase development is embedded. We have worked with Brighton and Hove's secondary mathematics subject facilitators and held two city wide 'maths meets' with 40+ teacher attendees at each session from KS1-KS4. Other teachers / professionals followed the sessions and engaged in this professional development through twitter.

- All city clusters are involved in the development and delivery of mathematics subject expertise training that is being delivered during the autumn term 2014.

Final conclusions

1) **What have you found out about what makes great pedagogy?**

    - The most powerful element of our R&D project has been the establishment of cross phase coaching pairs. This enabled practitioners to focus on pedagogy and consistency of curriculum planning across KS2-KS3.

    - There has been a focus on the individual child's needs rather than planning for the perceived group average.

    - Deployment of staff (such as advanced skills teachers (ASTs)) in year 7 (rather than year 11), who understand the academic issues around transition, has had a major impact on pupil outcomes.

2) **What have you found out about how to engage in collaborative R&D?**

    - 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 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.

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

3) What have you learnt about the nature of collaborative enquiry that brings about improvement for pupils?

- In order to see a sustained improvement, new initiatives need to be embedded into whole departments and whole schools or there will be no long term gain. These initiatives will need to form part of induction for new staff otherwise, with natural staffing changes, learning is lost.

- Whole staff Inset and regular re-launches are required to maintain momentum.

- All the materials we produced were trialled with feedback invited from all stakeholders. They were then adapted, improved and re-trialled to ensure full ownership by all concerned.

- It was essential to have expert support in the form of our attached HEI research partner who enabled us to interlink theory with practice. They not only guided our initial baseline data collection, but then assisted us in interrogating that data and helped us to pose questions for the study. Due to the slight distance of this expert partner - they were also able to act neutrally in a governance capacity along with the director of the TSA.

- Funding was vital in order to provide release time to colleagues and this was coupled with having conducive space in which to work collaboratively.

- Although there was distributed leadership amongst the collaborating partners, it was essential that someone took on the role of overall project lead with the associated accountability to deliver within budget and timeframes.

4) How will your ensure your learning is shared and sustained going forward?

- We have built up and established significant social capital amongst the staff in partner schools and beyond. These relationships and networks will continue to flourish through our continued JPD work.

- There is clear evidence that school leaders are widening their emphasis at KS2/KS3 transfer from the pastoral to curriculum continuity and progression. All of our research materials have been shared on Brighton & Hove intranet Pier2Peer for all 80+ Brighton & Hove schools to access.

- Teachers recognise that the pupil self-assessment sheets ‘allowed children to reflect upon their strengths and areas for development in a very specific way’. They were seen as a ‘powerful way to focus and assist their start to the new academic year’. One of the ASTs from Patcham High School is promoting this

approach to transition assessment through city-wide head of department meetings and the excellent maths teacher network.

- Sussex University have launched a new ITT training route in mathematics enabling PGCE mathematics trainees to work in feeder primary / secondary schools over a year. This was based on a successful pilot model in two project schools; Patcham High School and Westdene Primary School. We will be hosting a joint placement again in 2014-15.

- Partners will continue to present our research at local and national conferences. Most recently one of our AST partners from Patcham High School presented at the La Salle National Education Conference in September 2014.

- We are now exploring how we can establish a stronger link with our nearest national Maths Hub to further influence the work of schools across the south east region.

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National College for Teaching & Leadership

Reference: DFE – RR443D

ISBN: 978-1-78105-468-0

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