Alliance Name	Wednesbury Teaching School Alliance
Alliance Context	Wednesbury Teaching School Alliance is led by Harvills Hawthorn Primary, within Sandwell. The alliance comprises of 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 Old Park Primary Moorlands Primary St Mary's RC Primary Albert Pritchard & Wood Green Federation
Research Focus Theme 1: What makes great pedagogy?	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 maths? **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

How did you determine your focus or questions and how did this relate to the 9 claims?
A meeting was held with the Head teachers, from across the alliance, to introduce the research project. Based on the outcomes in Maths across the alliance schools, and the common issue of more able learners tending to make less progress than other groups in Maths, Heads decided that the focus should be to improve outcomes for more able learners in Maths. 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 the 7th 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 Robin Alexander, Rupert Wegerif and Lyn Dawes. Our Question - How can use of higher order thinking skills, through exploratory talk, improve outcomes for more able pupils in AT1 Maths?

How did you go about establishing your partner schools?
The schools within Wednesbury Teaching School Alliance 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, theschools expressed their interest in participating in the project.
A research team from 5 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 question, introduced C2L methodology and decided on research methods.

What were the intended outcomes of the project (for staff and pupils)?
For staff (e.g. confidence, attitudes, knowledge, practice)?
- Develop knowledge and understanding of effective dialogue in the classroom
- Enhance classroom practice to improve outcomes for more able learners in AT1 Maths
- 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? (e.g. changes attitudes, behaviours, knowledge, skills, enhanced progress, attainment)
- 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 Maths

For participating schools as organisations? (including developing R&D capacity);
- Improved knowledge and practice to share with colleagues – lead learning in own school
- Quality 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.

Quantative 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
- APS scores for last year in Maths (Yr 1-6).

    Number + SSM+ C&L (if in FS)

- Current APS score in Maths (Yr1-6-) and Number + SSM+ C&L (if in FS)

What did the baseline evidence tell you?

Teacher:
- Type of intervention strategies used during group work on maths problem solving task. Behaviours were observed from video of teacher working with higher ability group. Checklist 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 others, 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 maths.

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 childrens 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 Robin Alexander and Wegerif. We also used some of the practical strategies outlined by Lyn Dawes in her book 'Talking Points' 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 teaching school. 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 has had a Research Lead who worked as a member of the central Research Team to determine and drive the design of the project. They have then worked with their own school teams to gather evidence and implement the programmes. Each school has then divided responsibilities for different tasks within the project.

The Impact Phase

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 maths problem solving. The teachers referred to types of thinking skill when previously they talked about activities, indicating a greater understanding of metacognitive processes. 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.

Particularly in KS2 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 on summative outcomes. If children were given individual task sheets, they started working independently before they worked collaboratively. Where they were given one task sheet and recording sheet for the whole group collaboration generally started immediately. Do children need an individual period of thinking time before they begin the group task?

All participating schools reported how much the children looked forward to and enjoyed their 'talk lessons'. Early indications show increased uplift in AT1 maths 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 had 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 activity. 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 a key 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 have 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 others learning, motivation and commitment are 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 other schools within and beyond the alliance to be introduced to the programme and to receive support through the Teaching School.The main challenges for us are probably resources of 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.