CASE STUDY REPORT

Talk to learn: Developing group talk to improve learning outcomes in science

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This study was originally published in 2009 as part of the 'What Works Well' initiative, part of the National Strategies for Education in England.

Abstract

Background: The purpose of the study was to develop structured lesson activities using group talk in Science to build learners' confidence, engagement and attainment in Science lessons, particularly for EAL learners.

Aims: The main aim was to develop structured lesson activities using group talk in Science to build learners' confidence, engagement and attainment in Science lessons, particularly for EAL learners.

Methods: The participants in this development work were a Science teacher, an EAL coordinator, a Lead Teacher from Rochdale LA, an AST from the LA, and mentors. Methods used included peer and teacher coaching, use of Steps Tables from the Level Six & Beyond materials, minibooster activities, group work with rules, and AFL to guide future learning.

Findings: The main findings are that structured lesson activities using group talk in Science have improved pupils' confidence, engagement and attainment in Science lessons. EAL learners have acquired an effective use of the English language and have become more confident and articulate individuals. There has been a noticeable and significant response from the pupils in terms of motivation and confidence.

Implications: The findings suggest that structured lesson activities using group talk in Science can improve learners' confidence, engagement and attainment. It also suggests that EAL learners can acquire an effective use of the English language and that literacy skills such as the accurate use of connectives can support higher quality responses.

This abstract was generated by Camtree using a large language model (LLM) and added to the original report in 2023.

Keywords: Secondary education; Science

Introduction

What were your reasons for doing this type of development work?

We were interested in developing structured lesson activities using group talk in Science to build learners' confidence, engagement and attainment in Science lessons. Our feeling was that the pupils were capable of making better progress if we modified some of the learning activities being used.Our school has a significant number of students with English as an additional languages (EAL) and we were keen to develop our approach to support their learning. Some of these pupils are advanced EAL learners: their oral work is often of a high standard, but this doesn't always result in written work at the same level.We had started to use the 'Steps Tables' from the 'Level Six & Beyond' materials and could see how this kind of approach could work not only for EAL pupils but across the board.

Who might find this case study useful?

- Support staff
- Headteacher
- Middle leader
- National Strategies consultant
- Senior leadership team (SLT)
- Subject leader
- Teacher

Description

What specific curriculum area, subject or aspect did you intend to have impact on?

- Science

How did you intend to impact on pupil learning?

We wanted to encourage the effective use of technical language in Science, both subject specific vocabulary and the higher order language structures that supports higher order thinking skills. We wanted pupils to be confident in their use of key words and also in the construction of sentences that convey more complex reasoning. We wanted pupils to be more confident in Science in general. In particular we wanted them to be successful at key HSW (How Science Works) skills and processes. We also wanted to impact on pupil understanding of content around key areas of misconceptions.

What were your success criteria?

- We wanted to develop effective classroom strategies that would enable group talk to become an effective and enjoyable aspect of pupils' learning activities.
- We wanted EAL learners to be able to acquire an effective use of the English language and for their experience in Science to be instrumental in supporting their progression and increasing their motivation.
- We wanted pupils to become confident and articulate individuals, capable of explaining ideas and of asking scientific questions.
- To ensure at least two levels of progress over KS3 for all groups of learners.

What information or data did you use to measure progress towards your success criteria?

- Observation outcomes
- Pupils' work

Describe the CPD approaches you used

The key elements here were peer and teacher coaching. The Science teacher and the EAL coordinator planned strategically. The EAL coordinator was then able to develop pupil tasks for the learning discussions with the mentor, providing them with CPD. When the targeted pupils returned to the class they were able to act as coaches for their peers. The Science teacher also worked in class with the EAL coordinator and mentor and in turn was able to increase her range and sophistication of learning and teaching strategies enabling more personalised learning.

The key points from the development of the project were summarised in a presentation for the benefit of colleagues in other curriculum areas and in other schools. This is attached and can be downloaded.

What CPD materials, research or expertise have you drawn on?

EAL/EiC research project on developing oracy. – See DCSF standards website:

Who provided you with support?

- Middle leader
- Senior management
- Subject leader

How were you supported?

The Local Authority were keen for this development to be shared with other schools. This was achieved through the secondment of Jennifer Richmond (Lead Teacher from Rochdale LA) from Falinge Park High School for one day a week who worked alongside an AST from the LA. As the steps tables were a key part of the “Level Six & Beyond” project that the LA had secured funding for, the approach was shared with other schools in the LA both through local network meetings and with supporting other schools on a one-to-one basis.

The Secondary Strategies’ EAL Advanced Learners project was in its third year and in its dissemination and embedding phase and provided the funding for the mentors work and also network training for EAL staff.

Impact

What has been the overall impact on pupil learning?

There has been a noticeable and significant response from the pupils in terms of motivation and confidence both in terms of general use of language skills and more specifically in Science with regard to engagement with learning and the quality of outcomes.

Pupils use key words with greater accuracy; their language has a greater clarity. Their thinking skills have improved and their use of conventions in communication.

Quotes you think are relevant to overall impact on learning

It has been a very effective use of EAL time and I would like to develop the model further within the Science department as a whole.

– EAL Coordinator: Linda Sandler

Quantitative evidence of impact on pupil learning

- Periodic teacher assessment

Qualitative evidence of impact on pupil learning

- Pupils' work

Describe the evidence of impact on pupil learning

Teachers and teaching assistants have repeatedly noticed that pupils are better motivated and that their use of scientific and technical vocabulary has improved since their arrival in the school.

Material from appropriate miniboosters was adapted and provided not only useful classroom resources but also a clear view of what pupil performance looked like at each level. The use of steps tables has been a key feature of the work, particularly the ones related to group talk and How science works. A significant proportion of Year 7 pupils weren't even at Step 1 at the start of the year; part way through many are now at between Steps 2 & 3. This has been a powerful way of measuring the impact of the approach as it has not only indicated the pupils' level of understanding but has also indicated next steps for subsequent lessons. Examples of the minibooster on graphs and the steps tables on group talk and How science works are included.

The school makes use of 'medal tables' and a number of students have performed well in these as a result of the modified learning activities.Explicit focus was made on literacy skills such as the accurate use of connectives in order to support higher quality responses. An example of a pupil's response is included.

What has been the impact on teaching?

The Year 7 target cohort was selected based on prior attainment and language levels in order to deploy an approach of early intervention. The teachers involved with the group have effectively modified their approach to lesson design and delivery in a number of ways, including:

- allowing for a greater independence in learning
- structuring 'talk time' in lessons
- not immediately giving pupils 'the answer' if they don't know it
- building language development activities into schemes of learning
- making effective use of EAL TAs.

A good example of this is in the structuring of teaching sequences around graphs. The use of the minibooster facilitated a step by step approach which allowed pupils to be supported yet scaffolded their development towards higher levels of learning. The effective use of this approach meant that teachers neither felt expected or obliged to supply the correct answers immediately if pupils couldn't answer questions.

In order to support the effective use of group work groups were encouraged to develop their own rules. They have a strong sense of ownership of these rules and adhere to them. Each group's rules are printed on laminated sheets and are to hand when the pupils are working in a group. An example is included. In order to scaffold the development of the rules pupils were encouraged to identify appropriate stem words.

An example is included.

Quotes you think are relevant to the impact on teaching

It's really important to identify the misconceptions that pupils have. It's not obvious though unless you have the right kind of activity going on in the classroom.

Science teacher

We do lots of group work and I decide who the leaders are going to be. Quite often though I don't pick the pupils who are good leaders, but the pupils who need to develop leadership skills.

Science teacher

Good teaching for EAL pupils is good teaching for all pupils.

Science teacher

Now I feel confident.

Year 7 pupil

I can think more.

Year 7 pupil

I can discuss my problems, with the smaller groups which is helpful.

Year 7 pupil

Evidence of impact on teaching

- Evidence from observation and monitoring
- Teacher perceptions

Describe the evidence of impact on teaching

- Grouping pupils for learning ensuring that each group has good language models and a variety of group work skill ability as outlined in the Steps tables.
- Regrouping regularly according to task.
- Building language development activities into Schemes of Work.
- Using AFL not only as a diagnostic tool but as a guide to future learning needs, by designing lessons to accommodate areas of misconceptions and HSW skills.
- A more strategic and targeted approach to EAL support and intervention in Science.

What has been the impact on school organisation and leadership?

The development of effective classroom practice on group talk and language development has been a whole school priority. Effective approaches and supporting materials have been identified and disseminated so that pupils meet effective practice across the curriculum and this has strengthened the effectiveness of the approach.The school has successfully implemented a programme of peer observation to promote the sharing of effective practice. It is recognised as a centre of excellence for EAL and supports the dissemination of good practice to other schools.

Evidence of impact on school organisation and leadership

In house training was provided to the Intervention team, Learning and teaching group and as a result of that to the whole school. This was met with very positive feedback from a range of faculties.Improved whole school resources made available through the school intranet.The effective development of structures to support pupil

talk and independent learning within a safe classroom environment.

Summary

What is the crucial thing that made the difference?

The effective development of structures to support pupil talk and independent learning within a safe classroom environment.

What CPD session and resources were particularly useful?

- Dissemination of “Level 6 & Beyond” project in Science materials to “Teaching & Learning Group” in school to champion this approach.
- Whole school CPD on the effective use of the approach and materials.

If another individual or school was attempting to replicate this work, where would they start and what would the essential elements be?

Where would they start?

- group talk steps table and prior reading of the above materials

What would be the essential elements to include?

- developing the effective use of EAL techniques and strategies
- developing effective working relationships with EAL specialists at a strategic level
- focus on group work skills and strategies with a whole group of pupils

What further developments are you planning to do (or would you like to see others do)?

Rolling out of the techniques and approaches across the science faculty and potentially the whole school.

Supplementary Materials

This report is accompanied in the library by the following supplementary material:

- Advanced EAL learners may have well developed oral skills: a key focus is to ensure this follows through into written outcomes
- Pupil describing the outcomes from a small group discussion. Taking a leadership role is a focus and develops key skills
- Pupils doing a "Back to Back" activity. One has to draw what the other describes
- The teacher has a key role in questioning to probe misconceptions
- Structured small grp work has a key role in supporting pupils in the construction of meaning, using key words and linking ideas
- Presentation summarising key points for colleagues in other schools
- Minibooster: making sense of graphical data
- Pupil work on identifying correct use of connectives
- Steps table for group talk
- Steps table for How science works
- Sample set of group work rules, written by, and for, three Y7 pupils
- Sample stem words to scaffold pupils' development of rules for group work

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About 'What Works Well'

This case study was originally published as part of the 'What Works Well' section of the National Strategies for Education in England. The National Strategies were professional programmes aiming for improvements in the quality of learning and teaching in schools in England. 'What Works Well' involved teaching practitioners from all phases and areas of education sharing accounts of real developments which had improved learning and teaching, and made a difference to pupil progress. 'What Works Well' case studies were designed to support practice transfer and include sufficient detail and resources to enable others to implement the effective practice described. They were reviewed by experts prior to publication as 'User Generated Content' (UGC) under a licence which encouraged reuse and derivative works, but which precluded commercial use.

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