



Assessing and learning - the impact of peer-assessment and collaborative talk on the writing of 10 year old pupils.

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Abstract

This small scale study was based on social constructivist models of learning and assessment for learning (AfL) practice. It was designed to examine the extent to which collaborative talk during a structured peer-assessment exercise could be specifically related to learning, as evidenced in the writing redrafts of 10 year old pupils. A further aim was to find out whether any evidence of scaffolding could be identified in the interactions between peers.

Following a whole-class task on persuasive writing, five pairs of matched ability pupils were asked to rank five (anonymous) pieces of their peers' writing. They were encouraged to work collaboratively to reach an agreement, explaining their observations and preferences to one another.

Discourse analyses, adapted from sociocultural research, were used to explore the 'spoken texts', firstly to identify instances of joint intellectual activity (or 'interthinking') that could be linked to improvements in the pupils' writing and, secondly, to explore the different kinds of exploratory talk that might sustain dialogic thinking and learning.

First and second drafts of the writing of 24 ten-year-old pupils were assessed on a range of criteria based on specific features of persuasive writing. The results showed that pupils who had engaged in the peer-assessment discussions made significantly more improvements to their writing than pupils who had not, and that the nature of their improvements were more likely to be of a qualitatively 'higher order'. This was true of pupils of high, middle and low ability.

The provision of opportunities for pupils to engage in collaborative peer-assessment was shown to have a significant positive impact on the outcomes of their writing assessments.

Introduction

This was a small scale, detailed study based around social constructivist models of learning and the acquisition and use of literacy practices, designed to explore the extent to which peers might support one another towards internalisation and better learning in the context of talk around texts (Wallace, 2003; Hall, 2003). Discourse analyses were developed to examine relationships between language, thought and learning, and to explore Mercer's (2000) ideas concerning the use of language as a tool for carrying out joint intellectual activity, or 'interthinking'.

The main aim of the study was to extend our understanding of how collaborative talk between peers might be developed to enhance learning in the specific context of literacy lessons for 10 year olds.

The research questions were as follows:

1. Can examples of scaffolding between peers be identified as they conduct a co-operative task?
2. Can children's writing be improved through scaffolded interaction/collaborative dialogue between peers?

A subsidiary aim was to consider the kinds of talk that might sustain dialogic thinking and learning. In particular, we wanted to examine the extent to which peer-talk can support learning, where neither pupil was an 'expert'.

The study was conceived from and shaped by research papers and theoretical positions from a range of disciplines, but was particularly rooted in the sociocultural approach which examines the function of language within specific activities or settings using a range of methodological tools that allow the fine-grained analysis of specific stretches of language in context; in this case we examined spoken and written language.

In brief, this study investigated the extent to which, by engagement in semi structured collaborative discussion, learners of matched ability could exert a developmental influence on each others' writing skills, in observable ways. In addition, transcripts of paired discussions were examined for evidence of pupils co-constructing an 'intermental development zone', as described by Mercer (2000, p140), which would, in turn, provide them with tools to develop 'intramental' thinking that they could apply, individually, to their own writing re-drafts.

Background

The study was set within a UK context of government policy that promoted the development of Assessment for Learning (AfL) practice in all primary and secondary schools (DCSF, 2008). Central to an AfL approach is the development of active learning through interactive dialogue. Teachers are encouraged to share learning objectives, develop effective questioning techniques, provide positive and specific feedback and develop peer and self-assessment skills in their pupils. The current study focussed on this latter area of pupil-pupil interaction. .

Linking AfL and sociocultural research

Proponents of formative assessment believe that involving pupils in peer-assessment activities will help them to develop the skills needed to reflect critically on their own work (self-assessment) and become fully independent learners. This view mirrors the sociocultural perspective that learning is the internalisation of concepts through active social interactions and practices in meaningful contexts - that what the child is able to do in collaboration today s/he will be able to do independently tomorrow. (Vygotsky, 1987; Bruner, 1990; Mercer, 2000).

Vygotsky (1987) set out the explicit and profound connection between speech (both silent "inner speech" and oral language) and the development of mental concepts and cognitive

awareness. Sociocultural research not only examines language as a communicative or cultural tool for sharing and jointly constructing knowledge, but also as a psychological tool for organising our individual thoughts for regulating our actions by planning, reasoning, and reflecting.

Sociocultural theory is underpinned by the idea that learning is not merely “transmitted” from one person to another, but is mutually created through structured dialogue. Bruner’s (1990) notion of ‘scaffolding’ is a key concept and represents the support (through talk) that helps (or bridges) learners towards independence. Scaffolding research is predominantly focused on teacher-pupil interaction and ‘guided participation’ (Wood *et al.*, 1976; Rogoff, 1990). It assumes “*that scaffolding occurs in the presence of an identifiable and stable expert participant and that this help is unidirectional from knower to non-knower.*” (Donato, 1994, p41). That is, the scaffolder is a ‘more knowledgeable other’ (MKO) who consciously facilitates the student’s ability to build on prior knowledge and internalise new information, thus helping them through the ‘zone of proximal development’ (ZPD) (Vygotsky, 1987) towards independence.

While this sociocultural ‘apprentice’ model of learning is widely accepted, the degree to which peers can support and scaffold each other’s learning is less clear. Donato (1994) hypothesised that learners can, in certain circumstances, provide the same kind of support and guidance for each other that adults provide for children. He charted ‘help sequences’ in peer dialogue in which learners were observed to create a context of shared understanding. Developing this idea, Machado (2003), in the context of second language learning, investigated whether learners could mutually construct a scaffold out of the discursive process of negotiating contexts of shared understanding and described ways in which peers were, indeed, seen to support each others’ learning

“.....not only through the unidirectional help of a more capable peer or expert, as the majority of research on scaffolding has shown.” (Machado, 2003 p55)

In the field of sociocultural research, spoken and written discourses have been closely examined to explore the relationships between talk, meaning making and learning. Bakhtin’s theory of language (1986 (translated) - as cited in Hicks, 2003) is centred around ‘dialogic utterances’ analysed to provide detailed accounts of the types of interaction and discourse which are associated with better learning outcomes. Rojas Drummond’s (2003) dimension/action matrix also details accounts of the types of interaction that support the co-construction of knowledge. She notes, however, that while the literature is abundant with accounts of discursive practices in education, the studies do not necessarily make links between the nature of these practices and the developmental and learning outcomes associated with them. This study was designed with the purpose of exploring whether any such links can be identified.

Mercer (2000) uses discourse analysis to explore how we use language to ‘learn together’ and examines the complex dynamics of that communication. In particular, he examines the kinds of talk that develops dialogic ‘inter-thinking’ that allows subjects to reach conclusions they may not have reached alone.

Our hypothesis was that mutual collaboration in a discursive activity can act as a ‘scaffold’ for learning, even where there is no specified teaching intent (and no MKO). If exploratory talk between peers could be seen to act as a developmental bridge, in this instance in the context of a primary school writing activity, then we would argue that ‘scaffolding’ had taken place between peers.

By studying a number of peer discussions, we wanted to explore whether instances of mutual scaffolding could be identified, and whether any evidence of internalisation was demonstrated in pupils’ subsequent amendments to their writing scripts. We hoped, also, to explore the kinds of language used in ‘successful’ situations and try to identify any that might be ‘teachable’.

The research was carried out in an ‘average’ primary school in Central England. The Year 5 class observed consisted of 24 mixed ability pupils (14 boys and 10 girls) aged 9 -10 years. None had statements of special educational needs and none had English as an additional language. The class teacher had taught Year 5 pupils for 10 years. For the previous two terms she had been encouraging collaborative dialogue (talking partners) in her class.

Methodology

In England, primary schools and classes differ considerably in the extent to which collaborative discussion is common practice. For this reason, it was decided to focus on pupils in one class so that differences resulting from variation in teaching and learning practices would be minimised.

Phase 1: The writing task

Context: The Year 5 class (age 9-10yrs) had been working on the broad, cross-curricular theme of ‘Water’ for half a term. The current focus was on different places in the world where water is in short supply. Pupils had researched and identified a range of problems and were now planning a fundraising event to raise money for the charity ‘Water Aid’.

The task: The pupils were producing a leaflet to inform the local community about their planned fund raising event. The leaflet was to include details of the event, where, when, etc. as well as descriptions of the various stalls that people could enjoy. The specific writing task observed for this study was the production of the introductory paragraphs of the leaflet. The purpose was to persuade the audience to attend the event by providing information about the charity and its work.

The teacher introduced and explained the task to the whole class, highlighting the features that she would expect to see in a piece of persuasive writing for this purpose.

- The initial writing task was introduced by the teacher as a normal class activity.
- The teacher’s introduction was recorded and later transcribed.
- All (24) pupil writing scripts were collected and copied for later analysis.

Phase 2: The paired discussions

Pupil writing scripts were examined and five matched ability pairs (2 higher, 1 middle and 2 lower ability) were agreed, in discussion with the teacher, taking into account teacher assessment (National Curriculum sub-levels) and performance on the specific writing task.

Each pair was invited to read and discuss a set of (the same) four anonymous exemplar scripts.¹

- Pairs were given a prompt sheet with the following basic instructions:
 - Read the scripts (in any order)
 - Explain to each other what you think is good (or not so good) in each one - and why
 - Put the scripts in order by discussing and agreeing
- All paired discussions (of approximately 10-15 minutes) were recorded, and later transcribed.

Although initial plans had been to interview pupils after re-drafting, timetabling restrictions made this impossible. Instead, short recap interviews took place after each discussion in which pupils were asked to reflect, briefly, on what they had learned during their discussions.

Phase 3: Re-drafting

- All 24 pupils in the class were then invited to re-draft their writing and scripts were collected and transcribed for analysis.

Analysis

The collected data sets (the pupil writing scripts and transcripts of paired discussions) were first analysed separately then viewed together in order to develop a multi-layered perspective. Bespoke methodological tools were created or adapted from a number of sociocultural studies for the detailed analysis of both spoken and written discourses, and from the writing criteria used in national curriculum assessment.

Analysing the writing

The analysis of the writing scripts focused on the pupils' use of (written) language and the extent to which they were able to use and manipulate language to inform and persuade the reader.

First and second drafts of the whole class (24 scripts) were analysed according to an assessment framework, pre-devised in collaboration with the class teacher. A series of observable 'dimensions of interest' were agreed that included salient features highlighted in the teacher's introduction to the persuasive writing task, and some specific aspects from the *Primary framework for literacy and mathematics* (DCSF, 2008). Where pupils included these observable dimensions in their writing (see Table 1), it provided evidence of their understanding of the form and function of their writing.

¹ The scripts used for discussion were 'composites' made by selecting extracts from the control group scripts to illustrate a range of features and approaches to the task and were presented without labels,

Table 1 shows the three general and seven specific dimensions that were used to score the pupil writing scripts according to the following scale: 1=below average; 2= average; 3= above average; 4= well above average. In addition a further point was given for the inclusion of each of two optional features (see Table 1).

The maximum possible score for a single piece of writing, therefore, was 42 marks.

Table 1: Observable dimensions of interest in pupil writing scripts

General language use (overall fitness for purpose)	Max imum point score
Title	4
Clarity of information (<i>selection of details/ organisation /relevance</i>)	4
Persuasive appeal – impact	4
Specific language use (writer’s craft)	
Opening/closing paragraphs	4
Precise information/details	4
General vocabulary	4
Descriptive vocabulary	4
Punctuation	4
Spelling	4
Grammar (including sentence structures/connecting words, etc)	4
Optional features (present or not)	
Direct address/question to reader	1
Slogan	1
Total points available	42

Analysing the differences between the first and second drafts in this way provided a broad ‘improvement measure’ for each pupil.

Analysing the ‘talk’

Protocols from the paired discussions were coded and analysed according to pre-defined ‘dialogic utterances’. They were then examined for different kinds of interaction, including the joint construction of knowledge through exploratory talk.

Drawing particularly on the work of Rojas Drummond (2003) and Mercer (2000), selected ideas were blended to develop a bespoke methodological tool. While Rojas Drummond’s (2003) dimensions/actions matrix centres more fully on the adult (teacher), the framework used in this study was adapted and tailored, in both scale and focus, to address the particular aims of this project where the central ‘dimensions of interest’ was the function of a range of dialogic utterances observed in the child/child interaction.

From close examination of the transcripts, a framework was generated and refined, evolving to include different categories of utterance ranging in complexity and function from the

simple reporting or reformulating of what pupils had read in the sample scripts, to more detailed explanation, expansion and reflection. (Table 2)

Additional codes were added to augment the analytical categories. Explanations and expansions were coded to indicate whether pupils were (or appeared to be) developing their own ideas or developing ideas initiated by their partner, and positive affirmations and negative disagreements were flagged. A further code was also applied retrospectively to simpler comments, observations and opinions that demonstrated direct engagement with their partner's talk.

The analytical framework, shown in Table 2, was applied to the transcripts, to categorise specific aspects of the talk between each pair of pupils.

Table 2: Observable functions/ dimensions of interest in pupil discussions (transcripts)

AO	Reporting: what they read (<i>it says...</i>)
BO	Reformulating: what they read (summarising/generalising)
C1O	Comment/Observation : (on content) <i>(there's not much information, there are spelling mistakes, they keep saying...)</i> simple observation on what has been read
C1P	Comment/observation building on partner's ideas
C2O	Opinion: Evaluative (<i>I think/I like, he should...</i>) reflecting on own response to what they read
C2P	Opinion: building on partner's ideas
C3O	Comment/opinion, not directly (or obliquely) related to the task/text wandering off task
C3P	Off task comment: building on partner's ideas
DO	Elicitation: question to partner
F1O	Explanation: justification 'because' (explicit or implicit)/ giving reasons, referring to text
F1P	Explanation: building on partner's ideas
F2O	Expansion: comment on the effect of the writing (on the reader)/ description, building or development of ideas or opinions, reflection (<i>it makes you....it shows...</i>)
F2P	Expansion: building on partner's ideas

(*O code – own ideas; P code – developing partner's ideas)

Protocols were then further examined for evidence of different types of interaction between peers, including any instances of 'scaffolding' or inter-thinking as described by Mercer (2000).

Combining and linking the analyses

Evidence of internalisation was then sought by mapping specific writing improvements against the discussion transcripts.

It was assumed (following Machado (2003) and Donato (1994)) that if a pupil amended their writing to reflect points raised in the paired discussion, this would constitute evidence to support the hypothesis that their understanding of the writing task had been developed as a result of the collaborative activity, and perhaps by specific ‘types’ of talk.

Further mapping was then carried out to see whether ‘improvements’ evidenced in the writing scripts stemmed from ideas initiated by the pupils themselves, by their discussion partner or through joint development/construction.

Findings

The writing scripts

First and second drafts of each pupil’s writing were analysed according to the framework shown in Table 1. The observable dimensions were rated in consultation with the class teacher. The results for pupils in both focus and control groups are summarised in Table 3 below.

The results show that:

- Pupils in the focus group, who had been involved in the collaborative peer-assessment task, made more improvements than the control group who had not
- Mean improvement scores were focus group 5.1 and control group 1.8.

Although the numbers were small, some limited statistical analysis was possible² and showed that the difference between focus and control groups was significant ($p < 0.001$).

²

The first draft scores were comparable for both groups (Mann-Whitney U Test; $p = 0.837$); both groups improved their scores significantly for the second draft (Wilcoxon Signed Ranks Test; $p < 0.01$ for both groups); the degree of improvement was significantly greater for the focus group (Mann-Whitney U Test; $p < 0.001$).

Table 3: Analysis of writing scripts – Results*(Focus group took part in collaborative discussion task. Control group had no structured interim discussion.)*

Name*	First draft rating	Second draft rating	Improvement rating
<i>Focus group</i>			
Laura	13	16	3
Michael	14	18	4
Sam	15	18	3
Paula	13	18	5
Joey	23	26	4
Henry	25	30	5
Emma	30	41	11
James	35	41	6
Mandy	35	39	4
Bill	35	42	7
<i>Focus Group (means)</i>	23.8	28.9	5.2
<i>Control group</i>			
Bella	9	10	1
Jack	13	13	0
Ben	18	21	3
Alex	20	21	1
Simon	20	22	2
Katy	23	25	2
Tom	24	24	0
Chloe	25	28	3
David	25	28	3
Ellie	28	30	2
Jason	28	30	2
Lois	33	34	1
Jonathon	34	36	2
Alison	34	38	4
<i>Control group (means)</i>	23.9	25.7	1.8

*All names have been changed to preserve anonymity of participants.

Key	Lower ability	Middle ability	Higher ability
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Further analysis indicated that the nature of the improvements were also qualitatively different between groups.

The focus group made more ‘higher order’ improvements such as:

- the addition of precise details or descriptive vocabulary
- improvements to the opening and closing paragraphs
- improved clarity and structure at sentence and text level
- more persuasive impact eg direct appeals to the reader
- effective headlines or slogans for impact.

The control group amendments were predominantly simple improvements such as:

- spelling
- punctuation
- improving the title of the writing (a few).

The actual number of improvements tended to increase with ability, although in some cases the differences were very small.

The paired discussions

Protocols of the paired discussions were first analysed by categorising dialogic utterances, as shown in Table 2 above.

Pupils were seen to use the full range of dialogic utterances although these varied in number from 23 to 79 per pupil, with some pairs talking more around the texts than others. The most common types of utterances across all paired discussions were opinions (30%), explanations (21%) and observations (18%). Given the nature and specific requirements of the discussion task these findings are not surprising.

Mercer (2000), examining “interthinking” between peers, highlights the important distinction between collaborative/exploratory talk and the kinds of dialogue he calls “cumulative” or “disputational” exchanges (Lillis and Mc Kinney, (2003), pp31-36). Our analyses indicated that much of the dialogue observed during this task was, in fact, collaborative, with little competitive conflict. Only one pair (Laura and Michael) were unable to agree on the order of the scripts.

Short, post discussion interviews were conducted where pupils were asked *Has this made you think about your own writing?* Although brief, it appeared that this period of reflection did help pupils to consolidate learning that had occurred during the discussion and to make connections between observations made during the discussion task and ways of improving their own writing. One pupil said *‘I’ve learned not to just chuck lots and lots of facts in – but to get the right amount and choose the right ones’*, while another said *‘If it’s too long people will just lose interest.’* One pupil stated his intention to ensure that his writing was clearer for the reader while another said she would try to use more interesting words. Although not all pupils were able to summarise and articulate their ideas during the interview, *all* pupils were able to apply a number of improvements to their writing re-drafts.

Combining and linking the evidence

Of all the ‘improvement points’ noted in the writing re-drafts, 47 out of 52 (90%) could be linked to the discussion transcripts. Only five (out of 52) improvements were noted that had not been mentioned at all in the paired discussions. Of these, four were improvements in punctuation and one involved the addition of a slogan, i.e. similar to the types of amendments made by the control group.

This reinforces the findings outlined above, adding more evidence that the paired discussions had a significant impact on the pupils' redrafting processes.

For example:

- | | | |
|---|--|---------|
| E | I actually think it's quite good, some of it didn't go right but he's got some nice describing words | C2 F1 O |
| J | I don't think the 'lime green pond' works - Lime sounds nice.... | C2 F1 P |
| E | Yes - 'Deadly green pond' would be better | Y C2 P |
| J | Instead of 'lime green' I'd make it 'slime green' it makes it sound worse | C2 F2 O |
| E | I'd use 'deadly' | C2 |

Emma added some descriptive vocabulary to her second draft (including 'deadly bacteria').

- | | | |
|---|---|--------|
| B | The last paragraph is important - £15 of water per head and it could change a whole village | C1 |
| M | Yes, the last paragraph is important | Y |
| B | Yes, it makes you see how simple it is – the simplicity of it. It makes it seem like hardly anything to do – but if everybody did it, it would change a whole village | Y F2 O |

Bill added this idea to his writing.

- | | | |
|---|------------------|-----|
| M | Lots of villages | C1P |
|---|------------------|-----|

Mandy added this phrase to her writing.

Impact of different talk patterns

In terms of the analytic classification of different types of dialogic utterances, patterns of talk appeared to vary considerably between pupils and any links with writing improvements were not immediately obvious. The actual number of utterances did not appear to be directly linked to the number of writing improvements made; neither did the number questions or the number of simple affirmative or negative responses.

Bearing in mind Mercer's (2000) findings relating to cumulative and exploratory talk (Lillis and Mc Kinney, (2003), pp31-36), some limited further analyses were carried out.

Two aspects identified in Mercer's 'exploratory talk' are *questioning* and *making reasoning explicit*. The proportions of 'exploratory' utterances of this kind were compared for each pupil. It was found that that within each pair, the pupil who had a higher proportion of questions, explanations and expansions were also the pupils who made more improvements in their writing. This relationship was not linear across pupils however, and improvements overall did not correspond directly with the percentage of 'exploratory' utterances.

Examining the writing scripts, the degree to which improvements could be linked with the pupils' articulation of their own ideas or from ideas presented by their partner was varied. The

majority of amendments related to each pupil's own talk but there were clear instances where jointly constructed ideas and partner's ideas were evidenced in the writing amendments.

In terms of the protocols, utterances developed from pupils' own ideas or responding to a partner's ideas were also compared. There was some indication that engaging with their partner's ideas might correspond with writing improvements. Paula, Emma and Henry who showed most improvement within their ability bands, also showed higher proportions of 'P' type utterances (i.e. responding to and developing partner's ideas). However, neither Mandy nor Michael conformed to this pattern so the evidence was not conclusive.

Only one type of utterance appeared to correspond more directly with 'learning outcomes' and this was 'Expansion'. This type of talk is reflective. It includes comments about the effect of the text on the reader, description of its impact and is used to develop ideas either of their own or their partner's eg. *'It makes you really think what it's like to live there'* or *'It's quite effective showing it's dangerous as well as inconvenient.'* Analyses of the use of expansive talk showed quite clearly that within each ability band the **pupils who tended to reflect openly made more improvements than those who used proportionally less of this kind of talk.**

The protocols were further examined and a number of talk patterns were identified.

The majority of pupil talk, overall, consisted of simple comments and opinions. In one example, whilst not 'disputational' (Mercer 2000) pupils appeared largely to ignore each other's contributions.

(Joey and Henry discuss script C)

- J They're saying it was dirty
- H It says here *how* they have to get the water
- J It tells you how far they have to go
- H from a deep well, so they have to have a bucket, and lower it
- J And they have to travel 5 kilometres, in Africa and Asia, and it's very hot there. It's usually the women and the girls that do all the work
- H And usually it's quite heavy – the things that they carry

Each pupil talks in parallel, until the last comment where Henry engages with Joey's idea. Henry observed that the script he was reading described '*...how they have to get the water...*'. In his own writing re-draft, he added much more detail and information generally, and added two new sentences: *When they get there they have to pull the heavy water out of a 45 foot well and carry it all the way home. It's really hard for them.* Joey also added some details to his writing.

In other instances pupils cumulatively developed ideas, listened to each other, made suggestions, offered some reasons and confirmed statements – constructing common knowledge by accumulation:

(Emma and James discuss script C)

- E And it's not like they have loads of things to do anyway, like they don't have much toys to play with
- J It's really difficult, when you look at the video, compared to what we've got here....all the animals and that
- E Yeah, it's like sand on the ground
- J in Tanzania, yeah
- E it's hard to imagine that that's their real life
- J that somebody's actually living there
- E in those conditions

In places, these cumulative exchanges were also seen to result in the formation, or crystallisation, of ideas that were later transferred to their writing re-drafts:

(Laura and Michael discuss script B)

- L Quite good, but not as good as the first paragraph
- M I think it's quite good, it gives good information
- L But would it make you want to come?
- M Not really...If there were no spelling mistakes
- L It would be OK except for that last bit
- M Well ...I suppose it's quite good

Laura appeared to take Michael's observation about the spelling on board, mentioning it herself later in the conversation and in the follow-up interview. She checked and corrected a number of spelling mistakes in her second draft as well as adding descriptive vocabulary and some details about how the water is collected.

The task itself requires explicit reasoning and where thinking was made explicit in the talk, a number of writing improvements could be linked to the talk.

Mercer points out that exploratory talk can occur either jointly, or through inner dialogue with oneself.

The discussion task did appear to support pupils in developing their own ideas by 'thinking aloud' (21%):

(Paula script B)

- P It says YOU can help - to make YOU want to help – it really sort of talks to *you* when you're reading it.

Paula improved her writing by adding a direct appeal to the reader.

There were also a number of clear, recognisable cases where meaning and understanding were jointly constructed, in a way that fed into the writing improvements of both partners (11%):

(Mandy and Bill discuss script A)

- M Did you know that half of *all* the hospital beds.... There's too many words...
- B I think that's not bad like 20 kg weight....like they have to walk around with quite a heavy weight on top of their heads
- M A really heavy weight
- B That's quite an effective piece of information – but it doesn't actually say how far they go
- M I mean there could be a lake outside and they just say Oh I'll fill it up de-de-de then back in the house.....No, so it could be just at the bottom of the garden
- B So you don't get the impression of how far you have to walk
- M But they do say 'walking and walking' that sort of suggests it's a lot
- B Yeah – but that could be clearer

By discussing and reflecting on Script A, Bill and Mandy became increasingly aware of the importance of clarity and precise detail in the piece and both amended their own scripts accordingly.

Although quite limited, there was even some evidence of 'scaffolding' in the more traditional sense of bridging the learning gap:

- J They make £15 sound like not very much, and it shows the community can do it for themselves too and look after it afterwards and be – what is it?...Self –sufficient?
- E Yes,what is it you mean... to keep it up, to maintain ...sustain....
- J Yes, self-sustaining!

James added '*self-sustaining*' to his second draft. It seems unlikely that he would have arrived at that particular term without the interaction with Emma and although there was intent to help him develop his thinking, she did not 'tell' him the answer as such. As is often the case, the distinction between scaffolding and help is tenuous.

This exercise demonstrated how intermental dialogue between talking partners (and between writers and readers) has been transformed into the intramental dialogue that informs learning as demonstrated through writing improvement.

Thus, learning has been interactive in two senses: they have interacted with external sources of knowledge and ideas, as well as taking an active part in reconstructing knowledge and ideas within their own minds.

It may be that the task itself is the scaffold, pre-constructed by the teacher, developing and engaging students collaboratively in a task that would be too difficult for them to complete on their own. The peer discussions represent a partial dismantling of that scaffolding.

Discussion and conclusions

The study demonstrates the benefits of collaborative dialogue in the context of peer-assessment. The application of AfL principles encourages pupils to offer opinions, to consider the views of others and, most particularly, to reflect on their learning. In this study, these were seen to have a positive impact on pupil learning. The provision of a range of work allowed pupils to compare and contrast features of writing and, by articulating and sharing their thinking during the task, they were able to use language (talk) as a tool for jointly constructing a scaffold to support their learning.

Answering the research questions

Can examples of scaffolding between peers be identified as they conduct a co-operative task?

Yes. Although scaffolding in the traditional sense of deliberate, unidirectional support is not prominent in these peer discussions, there is clear evidence of the exposition and exploration of ideas characteristic of Mercer's 'exploratory talk' which does appear to act as a scaffold to learning – even where there is no specified teaching intent on the part of the talking partner.

Can children's writing be improved through scaffolded interaction/collaborative dialogue between peers? Yes. The research evidence shows conclusively those pupils who engaged in the collaborative task made greater and better quality improvements to their writing.

The level of a pupil's basic language skills may affect the extent to which they benefit from this type of activity. Nonetheless, the collaborative task was seen to impact positively on pupils across the full range of abilities.

There are a number of implications for teaching and learning that emerge from this study. Providing learners with opportunities for collaborative talk can be significantly beneficial to learning, particularly in the context of a structured task that requires pupils to explain their thinking and reflect on what they have learned.

Language and thinking skills are at the heart of learning and are fundamental to the joint construction of knowledge. By encouraging pupils to develop the kinds of talk that sustain dialogic thinking – questioning *Why? How? What does it make you think?* and to reflect on their learning experiences - we can help them on their way to becoming fully independent learners.

Further Research

The small scale nature of this particular study gives rise to a number of further questions, such as the extent to which motivational and attitudinal variables impact on a pupil's learning or whether having a particular partner in the task may help or hinder any individual. It is possible that the focus group made extra efforts because of the novelty of the situation. The teacher reported that re-drafting writing is not normally a popular task and the performance of

the control group was fairly typical. Future investigations should aim to capture dialogue between peers in more normal classroom circumstances.

There may be other variable factors interacting within in the processes observed. Mercer (2000) suggests that dialogue stimulates thought in a way that non-interactive experience cannot. The results of this study appear to confirm this, although we have no way of knowing whether pupils reading the exemplar scripts alone might have made similar improvements. Not everyone is inclined, or able, to articulate their thinking explicitly and all will experience unobservable 'inner speech'. Further research into 'talk around texts', using verbal protocol analyses and 'think aloud' methodologies may enhance understanding of the learning processes at work.

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