USING e-ANNOTATION TOOLS FOR ELECTRONIC PROOF CORRECTION

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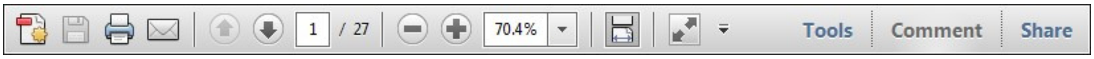
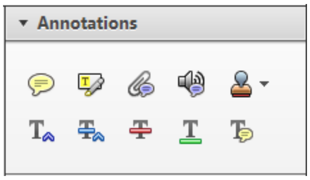


This will open up a panel down the right side of the document. The majority of tools you will use for annotating your proof will be in the Annotations section, pictured opposite. We've picked out some of these tools below:

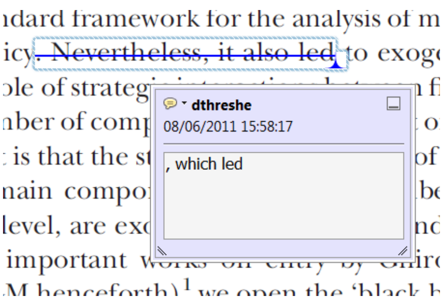


1. Replace (Ins) Tool – for replacing text.

Strikes a line through text and opens up a text box where replacement text can be entered.

How to use it

- Highlight a word or sentence.
- Click on the Replace (Ins) icon in the Annotations section.
- Type the replacement text into the blue box that appears.



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2. Strikethrough (Del) Tool – for deleting text.

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How to use it

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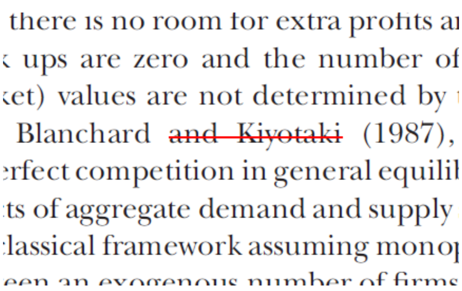

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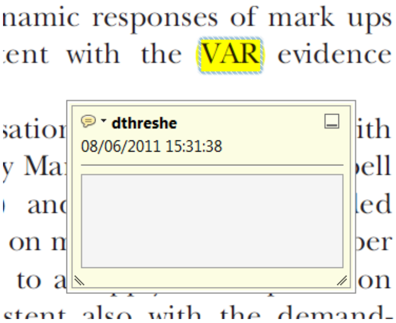
3. Add note to text Tool – for highlighting a section to be changed to bold or italic.

Highlights text in yellow and opens up a text box where comments can be entered.

How to use it

- Highlight the relevant section of text.
- Click on the Add note to text icon in the Annotations section.
- Type instruction on what should be changed regarding the text into the yellow box that appears.



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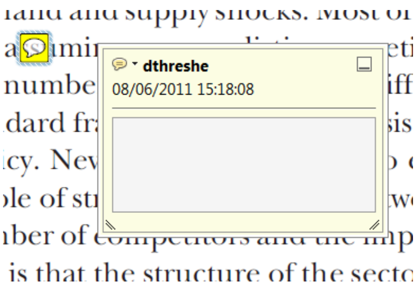
4. Add sticky note Tool – for making notes at specific points in the text.

Marks a point in the proof where a comment needs to be highlighted.

How to use it

- Click on the Add sticky note icon in the Annotations section.
- Click at the point in the proof where the comment should be inserted.
- Type the comment into the yellow box that appears.



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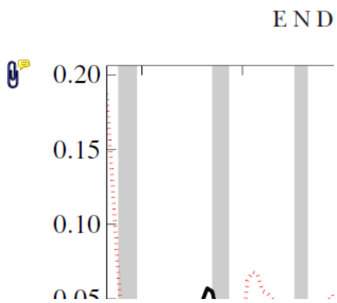
5. Attach File Tool – for inserting large amounts of text or replacement figures.

Inserts an icon linking to the attached file in the appropriate place in the text.

How to use it

- Click on the Attach File icon in the Annotations section.
- Click on the proof to where you'd like the attached file to be linked.
- Select the file to be attached from your computer or network.
- Select the colour and type of icon that will appear in the proof. Click OK.



6. Drawing Markups Tools – for drawing shapes, lines and freeform annotations on proofs and commenting on these marks.

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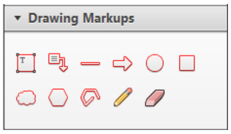
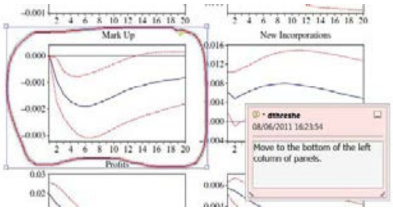


How to use it

- Click on one of the shapes in the Drawing Markups section.
- Click on the proof at the relevant point and draw the selected shape with the cursor.
- To add a comment to the drawn shape, move the cursor over the shape until an arrowhead appears.
- Double click on the shape and type any text in the red box that appears.



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British Educational Research Journal
Vol. ••, No. ••, •• 2014, pp. ••–••

DOI: 10.1002/berj.3176

Making the tacit explicit: children's strategies for classroom writing

Mike Watts[a]* and Alison Silby[b]
[a]*Brunel University London, UK;* [b]*University of Reading, UK*

A key highlight of this study is generating evidence of children 'making aware the unaware', making tacit knowledge explicit. The research explores the levels of awareness in thinking used by eight 7–8 year-old children when engaged in school-based genre writing tasks. The focus is on analysing children's awareness of their thought processes, using a framework originally devised in 1989 to investigate ways in which children can transform their tacit knowledge to explicit within the writing process. Classroom 'think aloud' protocols are used to help children 'manage their knowledge transfer', to speak the unspoken. The 1989 framework distinguished between four levels of thought that was viewed as hierarchical and 'increasingly metacognitive'. However, there is little evidence in this study to show that levels of awareness in thinking are increasingly progressive and observations made during the study suggest that young writers move in and out of the suggested levels of thinking during different elements of a writing task. The reasons for this may depend on a number of factors that are noted in this paper. Evidence does suggest children in this age group are consciously aware of their own and others' thought processes both with and without adult prompting. By using collaborative talk, their awareness of these thought processes is highlighted enabling the co-construction and integration of new ideas into their existing knowledge base.

Introduction

Tacit knowledge is contrasted with explicit or propositional knowledge, both terms brought to prominence by Polanyi (1958), a chemical engineer turned philosopher of science. His aim was to give attention not just to the propositional, encoded, formulaic knowledge in science that is exchanged between scientists, but also to their embodied, personal, hands-on, messy laboratory knowledge, unwritten implicit 'rules of thumb'. Explicit knowledge is captured in words, writing and drawings, knowledge that has possibilities of being universal, supporting the capacity to act across contexts. Tacit knowledge, on the other hand, is unarticulated, 'as yet unspoken', tied to the senses in movement skills and accumulated physical experiences. It 'indwells' (Polanyi, 1966) and is rooted in local action, procedures, routines, commitment, ideals, values and emotions.

Not everyone sees the notion of tacit knowledge as a distinct or, indeed, useful form of knowledge (Fodor, 1968). For example, Hildreth and Kimble (2002, p. 6) point out that,

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*Corresponding author. Department of Education, Halsbury Building, Brunel University London, Uxbridge, UB8 5PJ, UK. Email: Mike.Watts@brunel.ac.uk

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Journal Code B E R J
Manuscript No. 3176
WILEY
Dispatch: 25.11.14
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> if we accept Polanyi's view of tacit (implicit) knowledge as being inexpressible, it cannot be converted into explicit knowledge because it can never be externalized and written down in an explicit form.

This incommensurability of the two forms is a point also underscored by D'Eredita and Barretto (2006), Gourlay (2006), and Ribeiro and Collins (2007) among others. **4** Hildreth and Kimble (2002), though, go on to re-shape the argument and make the case that tacit and explicit knowledge are seldom entirely distinct and inherently inseparable, but interact dynamically along a continuum. For example, to speak a sentence that captures explicit knowledge one needs tacit knowledge to utter it, to pause, shape sounds, find and use rhythm (Ambrosini & Bowman, 2001). As Polanyi (1958) himself said, the tacit is required in order to achieve the propositional form. In this way, it is possible to discuss the idea of the tacit being made explicit through 'knowledge conversion', 'knowledge management' and 'knowledge transfer' (Nonaka, 1994; Nonaka *et al.*, 2006). Along this continuum, knowledge can momentarily **5** take on different forms and, importantly, tacit knowledge can be made accessible through conscious awareness when it leans towards the explicit side of the continuum. The tacit and explicit interact so that an individual might, for example, shift understanding between a task and the tools, reflect on his or her own experiences, use language to remind him or herself of what he or she already knows, thematise certain circumstances and discuss these with others (Tsoukas, 2003).

In an educational arena, tacit knowledge plays a dominant role in the formation of teachers' and learners' knowledge systems, world values and value concepts. It is embodied both in personal action and in collective social knowledge, and clearly difficult to make fully explicit and propositional. Nevertheless, it is knowledge that enables teachers and pupils to move around in the world and is learned principally by participating in a social context, interacting with other people. Learners are often able to perform a task successfully without being able to describe how or what they did to succeed (e.g. Siegler & Stern, 1998).

Learning to write in the primary classroom, a working model

Writing is considered one of the most cognitively challenging activities with which children are faced (Fisher *et al.*, 2010; Medwell *et al.*, 2009; Torrance & Galbraith, 2006). Jones (2010, p. 21) maintains that writing,

> . . . requires the motor skills to form letters and words, the oral and cognitive skills to match a phonetic sound to a written letter and then to build these letters into words conforming to conventional spelling, and the ability to translate spoken language into written forms, as well as linguistic knowledge about sentence formation, punctuation and grammar.

Such researchers have argued that, since writing is largely an expressive activity, it provides greater challenges for the learner, often resulting in significant differences between children's reading and writing abilities (for example, Medwell *et al.*, 2009). **6** This is particularly noticeable where, as for 7 year-olds in Key Stage 2 of the UK's National Curriculum, there is this considerable change in the breadth of study expected, often resulting in less curriculum time for engaging with the recursive features of written composition (Cremin, 2006). In the UK, the National Curriculum

7 for English (Department for Education (DfE), 2013) programmes of study for writing are separated under the headings 'transcription (spelling and handwriting)' and 'composition (articulating ideas and structuring them in speech and writing)' (DfE, 2013, p. 15). Table 1 shows the statutory requirements under the heading of 'composition'.

8

In this paper we consider classroom practices for teaching within these requirements and, as part of this study (Silby, 2014; Silby & Watts, 2014) we are particularly interested in investigating ways in which children can transform their tacit knowledge to explicit within the writing process. We have used an analytic model for depicting children's approaches to writing, as follows,

- ***T*** – *Tacit Use*: writers display an implicit understanding of the task or imply that it makes little demand on their thought processes.
- ***A*** – *Aware Use*: writers become consciously aware *that* and *when* they are using specific strategies during a writing task.
- [***C*** – *Collaborative Use*: writers use language to share and co-construct their thinking when collaborating on a writing task.]
- ***S*** – *Strategic Use*: writers organise their own thinking by selecting the most effective strategies to help them complete the writing task.
- ***R*** – *Reflective Use*: writers reflect on their thinking, before, during and after the writing task, pondering on progress and how to improve.

This is based on an original model by Swartz and Perkins (1989), which distinguishes between four levels of metacognition, later adapted by Fisher and Williams' (2000) to delineate the decision-making processes used by writers in the production of writing. Swartz and Perkins (1989) described pupils' 'tacit use' of their thought processes as being 'a kind of thinking – say decision making – without thinking about it' (p. 52). Later, Perkins (2008) referred to tacit learners as being 'unaware of their metacognitive knowledge' (p. 102). Likewise, Fisher and Williams (2000), when applying the levels of awareness specifically to writing, define 'tacit use' as 'children making decisions without really thinking about them' (p. 12). In addition, Harvey

Table 1. The programmes of study for writing under the heading of 'composition' (Department for Education (DfE), 2013, pp. 38–39)

Pupils should be taught to:
Plan their writing by:
Discussing writing similar to that which they are planning to write in order to understand and learn from its structure, vocabulary and grammar
Discussing and recording ideas
Draft and write by:
Composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures
Organising paragraphs around a theme
In narratives, creating settings, characters and plot
In non-narrative material, using simple organisational devices
Evaluate and edit by:
Assessing the effectiveness of their own and others' writing and suggestion improvements

and Goudvis (2007) have used the framework to discuss children's reading, describing tacit learners as 'readers who lack awareness of how they think when they read' (p. 26).

A key highlight of our own study, however, is generating evidence of children 'making aware the unaware'. We are interested in ways in which children verbalise their thinking, the points when they articulate what they are doing, or what they normally take for granted. We focus on the interrelationship between children's prior knowledge and conceptual understanding of a task as well as their capacity to 'convert' thought processes that help them to 'manage' and strategise their knowledge of writing to complete a writing task successfully. Specifically, throughout the classroom work we describe below, we help children take advantage of opportunities to share their thinking when collaborating on their writing. In this way they have been able to make explicit some of their awareness of the writing task at hand, making collaborative use of their previously unspoken thought processes. Within this, our identification of children's awareness of their own and each other's thought processes has been placed within a collaborative learning classroom context.

Important in our work, therefore, is an addition to the original model by insertion of a fifth (third in the list) category, ***C*** – *Collaborative Use*. Our critique of Swartz and Perkins's (1989) framework is that each of their levels of awareness in thinking views the learner as an individual with no reference to the fact that learning is often a collaborative process that relies on joint inquiry and the stimulation of prior knowledge within social contexts. Although this category has been placed between 'aware use' and 'strategic use' in the model, this does not indicate that the additional level is viewed as being part of a hierarchical ladder.

Children's 'knowledge management'

There are three key issues to be considered here. First, there is an ongoing debate as to whether, at an early age, children actually have available and can make use of the terms necessary for discussing their own thinking. Second, because it might be understood but not expressed, it is generally seen as difficult for either adult or child – even with the relevant vocabulary – to make tacit knowledge flow. Third, in the usual busy activity of classroom life, of the give and take of children's exploratory talk, such transfers along the continuum are difficult to identify and record.

Our response to each issue is positive. For example, Jacobs' (2004) and Valkanova and Watts' (2008) classroom-based research supports the view that even young children are capable of displaying awareness of their own thinking within the context of thought provoking learning situations. Jacobs's research indicates that when children are exposed to sets of predictable questions related to their writing, as suggested by Graves (1994), they become more able to acquire and use the vocabulary necessary for talking about their thinking. Jacobs uses evidence such as the children being able to use mental state words like 'thinking', 'mind', 'idea' and 'remembered' (2004, p. 22) as an indication that they were able to think about their own thinking regarding the writing process. Similarly, Myhill *et al.* (2006, p. 28) argue 'that altering our speaking and listening practices as teachers is a powerful tool in promoting learning' as talk is the device that aids the structure and development of new learning. Teacher and pupil talk can facilitate the formation of connections between what is known and what is to be learnt,

> Through talk, children can articulate for themselves what they know and understand, and the process of verbalizing thought in words helps to crystallize emerging understandings. (p. 23)

Wray *et al.* (2002, p. 134) found that effective teachers, '. . . begin by demonstrating particular language features in use within a clear context before deriving a definition. . . . Children in the classes of these teachers were thus much more heavily involved in problem solving and theorising about language for themselves rather than simply being given "facts" to learn.' Blachowicz *et al.* (2006) use the term 'semantic relatedness' to describe this ability to consider how words and concepts are related, and Sinatra (2008, p. 176) argues that certain strategies can be applied to aid such relatedness in children, leading to more competent writers and an increased ability to deal with a wider variety of writing tasks. Along these lines, Wergerif *et al.* (2004) have developed the 'Thinking Together' approach through sustained classroom-based research designed to inform pedagogy. 'Thinking Together' assumes that all children have the ability to engage in sustained and meaningful interactions in every subject area, and encourages children to think and reason together during learning experiences across the curriculum, not simply in writing tasks. More specifically directed, Myhill *et al.* (2006) promote the use of paired discussion or partner talk throughout literacy lessons. They emphasise the importance of asking the children to share their own experiences within the context of classroom writing. Likewise, Larkin (2010) argues that it is through talk that children are able to bring their thoughts to a conscious level and that in this way knowledge is socially constructed. She summarises the importance of a child's own consciousness by arguing that,

> . . . social interaction and especially talk is important for developing higher levels of reflection. It is through sharing and explaining our ideas that we bring our own thinking to conscious awareness. (2010, p. 114)

Consonant with this body of research, we have used three 'thought provocative' learning situations with children in our study: (i) an infusion approach, (ii) specific classroom questioning and (iii) 'think aloud' techniques.

In our case, the classroom teacher embedded her development of children's thinking strategies within standard classroom work. Swartz and Perkins's (1989) advocate such an 'infusion approach', 'infusing teaching for thinking into everyday classroom instruction by restructuring the way traditional curriculum materials are used' (p. 68). This approach highlights ways in which children can be shown how to become aware of their own thought processes when undertaking tasks within a range of curricula contexts, and developing specific thinking skills and metacognitive awareness in response to teaching.

The study

Our study was set within the context of a UK primary school using a genre approach to the teaching of writing. This approach identifies both the social and linguistic features of different text types as well as placing an emphasis on the context and purpose for which the writing is produced. The genre approach introduces children to a range of texts and language structures before asking them to produce something similar. The genres observed during this study were: information report, exposition (letter of review), and narrative (playscripts, quest myth). During the period of study the children were given opportunities to

- read specific genre texts;
- explore features of each genre;
- practise joint construction of a genre text with both adult and writing partner;
- make explicit links between reading and writing genre texts;
- write independently using knowledge of genres.

Specific classroom questioning focused on the use of open-ended questions as prompts to encourage children to make their thinking explicit. Data from this kind of questioning, with the researcher acting as an interested adult and adopting a register similar to the teacher, was collected through open-microphone recordings, during each lesson, and semi-structured interviews after each lesson. In this brief illustration of a transcribed recording the children are turning the story of Odysseus and the Cyclops into a playscript,

Researcher	*Let's help Zoe with the bit she is finding tricky.*
Zoe	*What shall I say? Shall I say he kills him by burning the stumps of his head?*
Researcher	*How is he going to use the Hydra claws?*
Joanna	*Perhaps they are really sharp and they can dig into people?*
Zoe	*Yes, we have to think of a reason why he does each thing.*
Researcher	*Why is he doing it?*
Zoe	*The first reason was to save a beautiful princess from an evil ogre.*

Think-aloud techniques (Barnes, 1976; Branch, 2000; Mercer, 2000) were used during the course of common classroom interactions to generate spoken data revealing how the children approached the task of planning and producing their written texts and what thinking strategies they were using. These techniques included:

- Modelled 'think-alouds' where the teacher modelled each process of the writing task while sharing her own thought processes;
- Reciprocal 'think-alouds' where the children shared their thought processes with their writing partner while engaged in the task;
- Retrospective think-alouds where children recalled and shared their thought processes retrospectively during semi-structured interviews.

A naturalistic study of cases (Bassey, 1999) seemed the most appropriate for the purposes of this investigation because the aims of the research required a rich description of individual children's 'talk of thought'. This brought considerable ecological or context validity (Selvaruby *et al.*, 2008) to this work. The research strategy consisted of 'low-participant' observations made in sequences (Edward & Mercer, 1987), 9 allowing for comparison and analysis to be made of the children's oral responses to questioning through transcripts of informal child/teacher interactions, informal discussion between children, semi-structured group interviews and annotation of children's written work. Our study entails detailed observations of eight Year 3 (7–8 year-old) children, assessed by the class teacher using Assessing Pupils' Progress (APP) levels as being of average ability in writing. APP is a formative assessment practice introduced as a key approach to school improvement from a project called Monitoring Pupils' Progress (Qualifications and Curriculum Authority, 2008). The assessment levels used in APP are also linked to the UK National Curriculum attainment targets in use until July 2015.

An audio recording device was selected and used in as discrete and unobtrusive a way as possible. These open-microphone recordings took place during each session, in a systematic way, in order to explore ways in which children made their thought processes explicit. As the children often worked collaboratively during writing tasks, it was deemed appropriate to talk with them in pairs or groups of two pairs as their writing progressed. These discussions were transcribed and analysed after each session. Blaxter *et al.* (2002, p. 171) described this method as an unstructured interview, or as 'naturalistic', as it records a social event that may include two or more participants in a familiar context, which governs the course of interaction. In truth, the informal discussions that took place as open-microphone recordings fell somewhere on the continuum between structured and unstructured owing to the nature of literacy sessions and the objectives set by the teacher.

Semi-structured interviews, which took place after each writing session, were also recorded and transcribed. Larkin (2010) suggests that interviews that require children to reflect on their own cognition can pose further difficulties as they may not be able to recall the mental processes experienced. She points out that it was beneficial to use a concrete stimulus while conducting her own interviews such as samples of the children's work to prompt reflections. In the case of this study, the children were asked to look at and refer to their own writing throughout each interview. This proved successful in the sense that each child was able to refer to their work when recalling the context in which the writing took place and the processes undertaken.

Using 'what', 'why' and 'how' questions can encourage 'exploratory reasoning' (Littleton *et al.*, 2005, p. 179) as they are open-ended and task related. **10** The class teacher also used these questioning strategies and therefore questions developed for this study drew on those that have facilitated exploratory reasoning in younger children such as shown in studies by Fisher *et al.* (2010). Children in the study frequently worked with a writing partner and therefore semi-structured group interviews were conducted with two sets of writing partners. The questions aimed to stimulate thoughtful responses in the children. The following are just a few examples:

- Where do you think your ideas came from for your (*state genre*)?
- What do you think you have done well? Why?
- If you were going to help a friend write a (*state genre*) how do you think you would help them?

The sample for research was drawn from a mainstream state school in the South East of England. The school was chosen because of its willingness, and the teacher's generosity, to allow access to a group of Year 3 pupils across a full academic year. In this way it was possible to observe learning responses in a range of contexts related to specific genre writing tasks. The purposive sample (Newby, 2010) of eight children was chosen and parental permission sought. 'In purposive sampling researchers hand-pick the cases, to be included in the sample, on the basis of a judgement of their typicality' (Cohen *et al.*, 2005, p. 103). These children (names suitably pseudonymised) [11] were chosen to be representative of average ability in literacy and specifically in writing for their year group as evidenced by formative assessment. The small sample was not chosen arbitrarily but carefully considered and well-planned in consultation with both the head teacher and class teacher. The pupils chosen were seated together for all observed sessions as literacy was taught in ability groups for a majority of the writing sessions. This was in response to previous government led initiatives, allowing teachers to plan for 'Assessment for Learning' (DCSF, 2008) opportunities. [12] The eight children, of mixed gender and race, are described in Table 2.

A well-recognised weakness with observations in qualitative research remains the effect the observer has on the observed (Denscombe, 2010). However, the nature of this study recognises the inevitability of the observer becoming a participant, albeit at a low level. To assume the possibility of wholly non-participant observation would be almost impossible in today's classrooms because of the presence of additional adults

Table 2. The children in the sample

Pupil	
Aidan	An enthusiastic and talkative member of the class. This was conveyed by his lively engagement with peers. He displayed a clear enjoyment, when participating in most writing activities, showing that in peer and adult discussion he had some prior knowledge of certain genre formats.
Amelia	A quiet and sensitive girl who became anxious when uncertain of the key concepts and concept vocabulary relating to some written tasks. She showed more confidence when working with a literacy partner. As the year progressed she began to show more confidence when working independently.
Emma	A thoughtful and confident individual who enjoyed sharing her own experiences related to a task with both peers and adults. She was able to discuss her opinions, give reasons for her choice of strategies and collaborate effectively with a literacy partner.
Jack	Jack displayed a confident attitude and thoughtful approach to all written tasks. He enjoyed sharing his wide reading experiences with peers and adults and was able to collaborate effectively with a literacy partner. He used his prior knowledge of genre form and format to inform the choices he made during writing tasks.
Joanna	A mature and reflective member of the class who enjoyed working collaboratively with a literacy partner. She displayed a level of self-awareness when working independently, as conveyed in the verbal descriptions of her working preferences.
Molly	A positive and happy individual who valued both her own ideas as well as those of others. She worked well collaboratively and was equally confident when sharing thoughts and opinions with a literacy partner or following the direction of an adult.
Sophie	Sophie displayed a level of maturity in her approach towards all writing tasks and this was evidenced in the structure and content of her written work. She was an effective literacy partner sharing her prior knowledge of the genres and topics encountered as well as her thoughts on the choice of strategies needed to complete tasks.
Zoe	An independent and confident member of the class who was quick to form opinions and share her understanding of the writing task with her literacy partner and other peers. She was able to talk about her thought processes though occasionally sought approval for her ideas from both adults and peers.

and the nature of their roles. It was necessary to 'respond when directly addressed by a child' (Larkin, 2002), and so a period of orientation was planned to gain an understanding of how the teacher used the classroom space for learning and how the children moved around the classroom. At this point the observer's role was established and shared with, and accepted by, the children: that of a teacher interested in the writing that took place in the classroom. To minimise the effect on the data, the observer (AS) adopted a register similar to the teacher to encourage the children to draw on each other's ideas or to explore their own ideas further. The time periods for observation were set according to the school terms and weekly organisation of the year group topics and writing genres with observations made for the duration of each genre (approximately 4–5 weeks).

Data collection for this study involved using participant observations, informal discussions (both pupil/pupil and adult/pupil) and a detailed examination of completed writing samples. In relation to the issue of participant observation, this study adopts what Lankshear and Knobel call 'peripheral participation (which involves a fluid mix of full participation, partial participation and non-participation, depending on the events or activities being observed)' (2004, p. 225). The risks involved in all these types of participant observation mean that it is difficult to remain objective. However, we believe that by reading carefully and critically reflecting on the observations, then drawing on a range of data sources, the possibility of subjectivity was reduced. Evidence of children's levels of awareness in thinking, collected during each genre writing session, was identified, analysed and organised under the heading 'task awareness' for each child (see example in Table 3).

Research outcomes

Individual attempts to make the tacit explicit

Tacit knowledge, knowing how to do something implicitly, relies a great deal on the relationship between children's prior knowledge and conceptual understanding, the ways in which this translates into action and the expressions children use as they attempt to articulate what they already know. Our approach was to work within a classroom context where children were expected to talk and share their thoughts and ideas as openly as possible. In terms of their tacit knowledge alone, we were able

Table 3. Task awareness for play script (Emma)

Level	Evidence	Data source
A	Was aware that the strategy of re-reading her written work helped her to decide what to write next. When asked what helped most, she stated '*I think read through what I've done already.*'	R1.2
C	She worked collaboratively with Aidan, at this stage, responding to some of the 'think aloud' questions that he posed. Aidan – '*Now what could he* (Odysseus) *be doing?*' Emma – '*If we read the story again I think we can find out.*' When Aidan posed the question (*How can we get it in the right order*?) Emma suggested '*If we act it we can see if it fits together.*'	O1.2

observe children at work, making judgements about the prior knowledge and understanding they clearly brought to a task and, through this, to infer the tacit knowledge they were using. We argue that children show tacit awareness of their thinking in two ways:

(1) By displaying an implicit understanding of all or part of the task
(2) By implying explicitly that all or part of the task was understood.

We were able to question the children, and prompt them to 'think aloud' about their ideas. In this way, by observing and recording the 'think aloud' strategies being used, and by encouraging children to describe their thinking both during and after a writing task, we gathered evidence showing that all the children in the group were consciously aware of their own thought processes. Our content analysis (Mayring, 2000) looked for 'thinking words' or descriptions of how thinking happens. For example, when Molly was asked how she thought of her ideas, she pointed to her head indicating their origin, and replied '*They just came to my brain, just like that*'. Similarly, Emma indicated that ideas for her narrative did not require any conscious thinking that she could explain,

Researcher	*How did you come up with all your ideas?*
Emma	*I don't know. They just came into my head.*

The data we use here illustrates the occasions when we could record individual children struggling to articulate their thinking. In these situations, the child was working at the task and prompted by the researcher to describe his or her thought processes. Aidan, for example, implied that part of the task was already understood and therefore made no overt demand on his thought processes when writing a non-chronological report on lions,

We know all our facts so it will be quite easy because we don't have to keep thinking

Amelia made use of tacit thinking by displaying an implicit understanding of the procedural aspects of the writing tasks. She was inclined to rely on having the task modelled and explained several times and did not seem to be aware of the thought processes she had employed during the task.

Researcher	*If you were going to help a friend write a report what advice would you give them?*
Amelia	*I don't know. I think you have to read the sheet and remember bits and then write it.*

Conscious awareness of thought processes

Evidence showing that all the children in the group were consciously aware of their own thought processes, across all the writing genres, was obtained in two ways:

(1) By observing and recording the 'think aloud' strategies being used;
(2) By encouraging children to describe their thinking both during and after a writing task.

By using the 'think aloud' strategy some children were able to make their thinking accessible to others. While writing his playscript Aidan posed questions aloud.

> *Now what could he* (Odysseus) *be doing? I think he could be making a plan.*

Emma was able to ‘think aloud’ as she edited her notes and organised her report on crocodiles.

> That bit doesn’t fit in there. That sounds better under the bodies section.

Joanna was aware that she needed to improve reader interest in her quest myth.

> *I think if I write the monster fell to the ground with a thud it will be more fun for everyone to read.*

However, a few children experienced difficulties with articulating their thinking in this way. In response to a question about note-making, from Amelia, Molly tried to explain her thinking but had difficulty in finding the vocabulary to articulate her ideas.

Amelia	*What do you think we should highlight there?*
Molly	*Well, it could be that word cos it’s sort of, or it could be this one but I don’t know. Let’s read the bit about male lions.*

Aidan was aware that thinking and talking as part of a group helped him to develop his ideas when writing a letter of review.

> *If you weren’t thinking and talking about it on the carpet and you went to your chair and you had to think of it on your own it would get harder and harder because you might change your mind but I just talk about it and think of it on the carpet and I am like, I’m fine with that.*

When revising and editing her quest myth Zoe was aware of some perceived difficulties with the use of appropriate adjectives when describing different characters’ thoughts and feelings.

> *Using describing words, about the characters’ feelings, is really hard because you are trying to imagine what it’s going to be like if you were in that world.*

The majority of the evidence of ‘aware use’ of thinking was gathered from children’s descriptions of their thought processes both during and after the writing tasks. Asking children to articulate their thinking in retrospect can sometimes result in inaccuracies because of difficulty in recalling a train of thought. Nevertheless, adult/children and peer group interaction during group discussion and semi-structured interviews did encourage children to verbalise their thinking providing evidence that Year 3 children are frequently consciously aware of their thought processes both with and without adult prompting. Aware use of thinking was observed on 53 occasions and was used by all the children across all four genres as can be seen in Table 4.

Collaborative conversion

During this study it was noted that the teacher encouraged the children to work together both with a response partner and as a group. Opportunities were provided for them to collaborate during each of the different genre writing tasks, in groups and in

Table 4. Levels of awareness in thinking frequency table

	Playscript	Report	Letter	Narrative	Totals for each level
Aidan	Aware 2 Collaborative 2	Tacit 1 Aware 2 Collaborative 1	Aware 2	Aware 3	Tacit: 1 Aware: 9 Strategic: 0 Collaborative: 3 Reflective: 0
Amelia	Tacit 1 Aware 1	Tacit 1 Aware 1	Aware 2	Aware 2	Tacit: 2 Aware: 6 Strategic: 0 Collaborative: 0 Reflective: 0
Emma	Aware 1 Collaborative 1	Aware 1 Collaborative 1	Aware 2	Tacit 1 Aware 2	Tacit: 1 Aware: 6 Strategic: 0 Collaborative: 2 Reflective: 0
Jack	Aware 2 Strategic 1	Aware 1 Strategic 1	Aware 2 Strategic 1	Aware 2 Strategic 1	Tacit: 0 Aware: 7 Strategic: 4 Collaborative: 0 Reflective: 0
Joanna	Aware 3	Tacit 1 Aware 2	Aware 1 Strategic 1 Collaborative 1	Aware 1 Strategic 1	Tacit: 1 Aware: 7 Strategic: 2 Collaborative: 1 Reflective: 0
Molly	Tacit 1 Aware 2	Tacit 1 Aware 2	Tacit 1 Aware1	Aware 2	Tacit: 3 Aware: 7 Strategic: 0 Collaborative: 0 Reflective: 0
Sophie	Aware 2	Aware 2 Strategic 1	Aware 1 Strategic 1	Aware 2 Strategic 1	Tacit: 0 Aware: 7 Strategic: 3 Collaborative: 0 Reflective: 0
Zoe	Aware 2	Aware 2 Strategic 1	Aware 1 Strategic 1	Aware 2 Strategic 1	Tacit: 0 Aware: 7 Strategic: 3 Collaborative: 0 Reflective: 0

paired activities. This enabled them to discuss problems and listen to ideas and explanations from their partners or others. This kind of 'exploratory talk' entails the ability to engage critically and constructively with others, that is, to use language in order to think together and share ideas, described by Mercer as '*a way of using language for reasoning, engaging critically but constructively with each other's ideas*' (Mercer, 2000, p. 16).

The children were aware that thinking and talking as part of a group or as a pair helped them to build and exchange ideas. Most of the talk observed and documented was clearly focused on each writing task with the children making just a few digressions, particularly when they experienced difficulties. Evidence of ‘paired’ collaborative thinking, of partners’ ‘thinking talk’, can be seen in the recordings of Aidan/Emma, Joanna/Sophie and Jack/Zoe and was observed on eleven occasions (see Table 4). These pairings employed interactive discussion during most of the writing tasks with Joanna experiencing difficulties when her partner Sophie was absent. Aidan worked collaboratively with Emma on a play script scene, posing ‘think aloud’ questions to which she made thoughtful and constructive responses,

Aidan *Now what could he* (Odysseus) *be doing? I think he could be making a plan.*
Emma *If we read the story again I think we can find out.*

Emma also collaborated with Aidan when writing a non-chronological report. She responded to her partner’s thoughts by consciously directing her own thinking in order to qualify and improve the written report on lions.

Aidan *Do you think we need this bit because that’s about lions and that’s* [also] *about lions? This is about how they live and that is as well. So we could add that up to there.*
Emma *Yes. That’s where they live and that is how they live.*
Aidan *No. That’s like how many days they live* [a discussion about life span follows].

Aidan and Emma were also able to discuss problems and uncertainties while working collaboratively.

> *I waited for her* [Emma] *because I didn’t know what else I could write and then we shared some ideas.*
> *. . . she* [Emma] *helped me most with thinking of ideas.*
>
> *I read it back and think with Emma.*

Joanna and Sophie used language to generate and develop their ideas, rehearse sentences orally and reach a shared understanding of the task.

Sophie *Like if you do male lions first, instead of just putting the key words again you could just put – the male lion protects the pride.*
Joanna *I’m just looking to see what I can make up about that.*
They continued sharing ideas with prompting from an open-ended question posed by the researcher,
Joanna *I’ve thought of a short sentence: ‘Lions are most active at night because the temperature is cooler’.*
Researcher *How did you think of that sentence?*
Joanna *I was thinking when lions are most active and then I thought it’s cooler at night.*

Although most of the talk employed by the children was symmetrical, in that they all enjoyed equal status when expressing their views and ideas, nevertheless, there were a few occasions when this became asymmetrical with one child taking control of the discussion. For example, Jack and Zoe spent some time discussing ideas and vocabulary choices for a play script. They both made appropriate suggestions for how characters might speak for the stage directions. When Jack suggested that they could use the word '*puzzled*' to explain how the Cyclops was speaking, Zoe overruled his suggestion and insisted on using the word '*confused*' instead, '*because it shows how he's feeling*'.

It was interesting to note that none of the children made collaborative use of thinking when engaged in writing the narrative. Children's sociocultural experiences of the narrative genre vary greatly but it is the genre with which they are most familiar. The stories that are read or told to children from an early age introduce them to the conventional linguistic and structural discourse patterns representative of the genre. We propose that it may be that familiarity with this genre gives children more confidence to write independently. Although the evidence for this proposition is not conclusive it would provide an interesting area for further study.

Strategic use of thinking

Evidence of children making strategic use of thinking was observed on eleven occasions (see Table 4). Observations show that Jack and Zoe organised their thinking by making conscious use of strategies at least once during each genre writing task whereas Joanna did so when engaged in writing letters of review and narrative, and Sophie only when writing narrative. When revising and editing the playscript Jack suggested that he and his partner employed the strategy of acting out the scene in order to make decisions about its effectiveness.

> Jack *If we act it we can see if it fits together.*

Zoe explained that she and Jack employed the strategy of acting out their thoughts and ideas in order to develop characterisation.

> *... me and Jack tried to act it out. I was Odysseus and he was Cyclops. It was really hard because it was really hard thinking what would happen if we were there now.*

Jack was able to direct his thinking by using specific strategies consciously when writing his reports on both lions and crocodiles.

> *I got the important words and I remembered the information on the sheet so it was easy to write the sentences.*

Jack consciously deployed the strategy of using ideas from a previously written book review and then extended these ideas.

> *I remember my ideas when I did a book review and I can add bits.*

Joanna chose the strategy of using direct speech in her story to help the reader understand the character's thoughts and feelings.

> *Well, I was thinking, what could he (the hero) say because he is facing a terrifying monster? How would he feel?*

Strategic use of thinking was observed in those children who were assessed as Secure/High, at UK National Curriculum Level 3, using APP formative assessment, across all four genres. A Secure/High Level 3 represents an achievement expected of the average ability 8–9 year-old in the UK. However, an exception to this was Joanna. She was assessed as Low/Secure for the play script and explained that she found it difficult to start writing unless she was working with her literacy partner Sophie, who was absent, '*It's difficult when you haven't got anyone to talk to*'. This may have affected her confidence, which, in turn, was reflected in her level of achievement. She achieved Secure/High and High in subsequent genre writing tasks when she was able to work collaboratively with her partner discussing and sharing ideas.

Reflective use of thinking

There was no observed evidence of the children reflecting upon their thinking independently or pondering on strategies that could help them make improvements to their writing. Sophie was aware that changes could be made to her review letter both during and after the writing task but did not express these thoughts until prompted.

Researcher	*If you could change your letter what changes do you think you would make?*
Sophie	*Maybe I would change the star rating if I changed my mind about the book. I think I like it more now because the pictures and writing match really well.*

In order to make reflective use of their thinking the children needed to be able to ask themselves questions before, during and after each task.

- How do I feel about the task?
- How can I overcome that problem?
- Which strategy will work best?
- What went well?
- What might I do differently next time?
- How can I improve?

Although all the children were able to give appropriate answers to these questions after adult prompting there was no evidence to show that they undertook reflective thinking independently.

Knowledge conversion in action

The nature, range and frequency of the children's responses, collected during each genre writing session, were identified, analysed and organised under the heading 'task awareness' for each child (see example in Table 3). Extracts from these responses, after close analysis of the full range of many hours of data, have been selected for illustrative purposes as being specific and significant examples of children making their tacit knowledge explicit.

Conversion between tacit and explicit knowledge requires the articulation of personal thoughts and ideas, subjective insights and prior understanding of skills and concepts, into a defined written form. During this study the class teacher regularly conveyed tacit-to-tacit knowledge by modelling and remodelling the procedural skills required for each genre. However, by using 'think aloud' strategies while modelling she was able to make her tacit knowledge, of both concepts and skills, explicit. In addition, the children were encouraged to use 'think aloud' strategies, sharing their own prior knowledge and understanding of the concepts and skills required for each genre with both adults and writing partners. It was within this learning context that we were able to investigate ways in which children were able to transform their tacit knowledge to explicit within the writing process.

As part of the curriculum, all the children had experienced reading playscripts during previous years as well as engaging in role play activities. Joanna, Aidan and Zoe made explicit reference to the tacit-to-tacit experiences of reading scripts for class assemblies and the Christmas play with Zoe explaining how these prior experiences helped her with the writing task.

Joanna	*We had to read and learn our lines for the Christmas play.*
Aidan	*We did a play in assembly.*
Zoe	*We did a Greek assembly which actually helped me because we did the play of Odysseus and the Cyclops. Then we acted it out so we knew what to write down.*

In addition Zoe, Sophie and Jack showed that they were familiar with the oral discourse patterns for playscripts as well as the conventions for organisation, meaning and formal features.

Zoe	*A play script tells a story with speech.*
Sophie	*The narrator tells the story.*
Jack	*You have to say what the characters are doing in the stage directions.*

Although all of the children had some prior experience of writing play scripts, generated from role play situations, and were aware of the linguistic and textual structures of the genre, they were unfamiliar with the concept of text transformation when transforming a story into a playscript. Difficulties were encountered, by some children, with identifying which part of the narrative could be transformed into speech in speech bubbles, as part of the planning stage, and then into speech in a playscript. Consequently conversation sequences in some of the completed transcripts were disjointed with parts of the story missing. In addition Aidan, Amelia and Joanna made limited use of the narrator at key points in the story to help move on the action. Emma, Jack, Molly and Zoe were more successful and consequently produced play scripts where speech, narration and stage directions flowed as a sequence. For example, Jack wrote

Narrator	Odysseus' soldiers gave Cyclops some wine.
Soldier	*Here you go, some wine.*
Cyclops	*Why, thank you. What is your name?*
Odysseus	*(worried) My name is Nobody.*

The teacher encouraged children to make explicit the connections they had made between previous experiences with narrative texts and play scripts. Zoe, Sophie and Joanna discussed similarities and differences between the two forms.

Zoe	*A playscript tells a story with speech.*
Sophie	*The narrator tells the story.*
Joanna	*You have to say what the characters are doing in a play and in a story.*

When children were able to make collaborative use of their awareness of their own and other's thought processes they were able to construct and co-construct new ideas and make them explicit through their writing. For example Aidan worked collaboratively with his writing partner Emma on a play script scene. He posed 'think aloud' questions to which she made thoughtful and constructive responses.

Aidan	*Now what could he* (Odysseus) *be doing?*
Emma	*If we read the story again I think we can find out.*

When Aidan posed the question (*How can we get it in the right order*?) Emma suggested '*If we act it we can see if it fits together.*'

Summary

Data collected and shown in Table 4 suggests that Year 3 children can be consciously aware of their thought processes and, as observations show, this can be both with and without adult prompting. The majority of the evidence was gathered from children's descriptions of their thought processes both during and after the writing tasks. Asking children to articulate their thinking in retrospect can sometimes result in inaccuracies owing to difficulty in recalling a train of thought. Nevertheless, adult/children and peer group interaction during paired/group discussion and semi-structured interviews did encourage children to verbalise their thinking particularly when they were able to use their completed transcripts as memory prompts.

In both the framework and their 'ladder of metacognition' Swartz and Perkins (1989) distinguish between four levels of thought that they view as hierarchical and 'increasingly metacognitive'. However, there is little evidence in this study to show that levels of awareness in thinking are increasingly progressive as children move towards the successful completion of writing tasks. Observations made during the study suggest that young writers move in and out of the suggested levels of thinking during a writing task (see Table 4). The reasons for this may depend on a number of factors: the complexity of certain elements of the task, children's prior knowledge and understanding of key concepts and skills related to each part of the task and an ability to verbalise their thought processes. However, further study would be required in order to gain evidence for these factors. Nevertheless, the classroom 'think aloud' strategies used did highlight ways in which children were able to 'manage knowledge transfer' and make their thinking explicit.

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