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Chapter 3

Reading Together: Computers and Collaboration

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Contents

Introduction

Recent years have seen computer technologies being used to support children's reading development and a number of studies have evaluated the effectiveness of computer-based reading instruction (for a summary see Chera & Wood, 2003). Much of this work has highlighted the efficacy of computer software packages designed to enhance phonological awareness (e.g. Wise et al., 1989) and word recognition (e.g. Van Daal & Reitsma, 1990) in children experiencing reading difficulties. This emphasis on remediation neglects the potential role that computer technologies might play in supporting typically developing children's early reading. Mindful of this neglect, we have devised a programme of work designed specifically to investigate the use of 'talking books' with beginning readers. Part of this work has focused on the use of talking book software by novice readers working individually (Chera & Wood, 2003). More recently, we have embarked upon a series of studies examining the use of talking books by pairs of young children working together, and largely autonomously, in classroom contexts. Our overall aim is to understand both the processes and products of such peer-based work.

Our study of the collaborative use of talking books is underpinned by our commitment to a socio-cultural approach to understanding development and learning. Socio-cultural theory posits that cognitive processes are inextricably interwoven and enmeshed with social and cultural practices such that cognition and action are inseparable. Seen from this perspective, it is not just the texts (be they electronic or paper-based) that children engage with that are important, it is also:

'…the *ways* (our itals) in which they engage with them that shape reading and writing' (Wood, under revision, p. 23).

So from our perspective, understanding literacy and the processes of becoming literate necessitates understanding social practices. It also necessitates the recognition that:

'People read…differently out of different social practices, and these different ways with words are part of different ways of being persons and different ways and facets of doing life.' (Lankshear & Knobel, 2003, p.8).

In this chapter, we present data from a recently conducted study which was designed to investigate the ways in which beginning readers, 'doing life' in the reception classroom, engage with texts when they work collaboratively with talking books software. Our intention was to study the children's use of such software in a way that emphasized the importance of the learners 'talk and joint activity and that did not isolate the collaborators' interactions from the material circumstances and cultural context in which they were embedded.

The investigation reported here offers an initial evaluation of the potential of so called 'talking books' software as a resource for collaborative literacy activity with children who are beginning to learn to read. Consistent with a socio-cultural approach, this evaluation centred on the processes of learning and meaning making that the children engaged in during their joint activities. Our interest was in how the children made sense of a computer mediated literacy activity where there was minimal adult intervention. As skilled readers, adults recognize the potential of, and the intentions underpinning many of the features of talking books software. As teachers, it is easy to assume that the children will recognize the computer's identity as a 'book' in this context. However, we felt it important to understand the meaning of the task as understood by the children.

The context of collaboration: The literacy hour

At the time of writing, the 'National Literacy Strategy' for England and Wales has a pivotal role to play in shaping schooled literacy practices in English and Welsh primary schools. Introduced in 1998, the centrepiece of this programme for teaching children to read and write is the 'Literacy Hour'. The 'Literacy Hour' is a daily session that consists of thirty minutes of whole class teaching, twenty minutes of small group work with the teacher (referred to as 'guided study') while the rest of the class engages in independent study, followed by a final ten-minute plenary session. It has been adopted in some form by the majority of primary schools in England (Fisher & Singleton, 2000).

Our interest in the collaborative use of talking books software derives partly from a recognition that whilst the guidance associated with the independent study component of the Literacy Hour stresses that:

> 'Pupils should be trained not to interrupt the teacher and there should be sufficient resources and alternative strategies for them to fall back on if they get stuck. They should also understand the importance of independence for literacy, and how to use their own resources to solve problems and bring tasks to successful conclusion'

(Department for Education and Employment, 1998, p.13)

there is in fact little specific guidance on the form that these resources and alternative strategies might take. We thus began to consider whether the collaborative use of talking books software could represent one alternative strategy – affording an environment in which beginning readers could work together to solve their reading-related problems, independently of the teacher, via discussion and use of the resources and opportunities made available to them through the computer.

The 'Bangers and Mash' talking books

The talking books used in the observational work reported here were identical to those designed and developed by Chera (2000) and evaluated by Chera & Wood (2003). The books were designed in consultation with teachers, children and researchers in literacy, and were simple in nature. They were based on the first series of books in the 'Bangers and Mash' (phonic) reading scheme published by Longman. These books introduce the children to the adventures of two mischievous chimps, Bangers and Mash. The software allowed the children to hear the whole page read aloud when a button at the bottom of the page was clicked, hear individual words spoken when the cursor was moved over the word, and hear and see the word broken down into smaller parts when a word was clicked upon. In each book two pages had an additional 'click me!' button, by which the children could access simple phonic activities based on onset and rime blending. 'Onset' refers to all the initial consonants in a single syllable word, and 'rime' refers to the remaining part, from the first vowel onwards (e.g. str-ing). In the activity pages a featured rime from the book was shown in isolation on the right hand side of the page. On the left were a series of possible onsets. If the children clicked on an onset, they could see the new word that was formed and hear the segments put together to form the new word.

Reading 'Bangers and Mash' together

We observed sixteen pairs of beginning readers working with the 'Bangers and Mash' talking books. These children were recruited from a single reception class in a school in Buckinghamshire. In England all children begin to attend school in the year that they are five, and this is referred to as their reception year. Our sample comprised 14 boys and 18 girls, with a mean age of 4 years 9 months (SD 4.8 months). The children in this sample were allocated to one of a number of different (same gender) pairings that varied the degree to which the children worked with a child of similar, higher or lower reading ability to themselves. As pair type was not observed to affect the children's use of the software, the exact nature of and criteria for pairing are not

described here, but a full account of this and related data is presented in Wood, Littleton & Chera (2003). The allocation of pairings was undertaken in consultation with the teacher. This meant that pairings could be constructed so as to avoid potentially negative interpersonal conflicts.

The pairs of children were recorded working together once a week for two weeks. At the beginning of each session, the children sat with their partner at a Macintosh Powerbook, and had the features of the software demonstrated to them by a researcher. They were introduced to the functionality of the software and how to navigate forwards, backwards and from the main pages to the activities pages and back again. It was explained to the children that the computer was there to help them read the book if they got stuck, and that they were to read the pages aloud together. The children were also encouraged to help each other if they got stuck and to share and discuss their ideas. It was in this context that the children were talked through a set of 'ground rules' for working together on the computer: These 'ground rules', which are noted below, were also written on an A4 piece of card, along with small pictures to remind the children of the meaning of each sentence. This was placed beside the computer during the session to act as a reminder.

The 'ground rules' were:

- Share the computer.

- Help each other if you get stuck.

- Don't be afraid to have a go – remember that the computer is there to help you.

- Look and listen when the other person is talking.

- Praise each other.

After this introduction, the children were then left to work largely independently under the supervision of the researcher. The researcher was present in case there were any technical difficulties associated with the use of the computer. She was also permitted to offer limited encouragement. On occasion it was necessary for her to intervene directly to diffuse conflictual dynamics between the children, and at other times the children directly appealed to her for praise or support. The children worked

at the computer for as long as it took them to complete working with the first of the talking books – 'The Hat Trick'. The children were asked to recap the story briefly at the end of the session to bring it to a close. One week later the same procedure was repeated with the second talking book – 'Eggs'. The second session was video recorded so that the children's interactions with the computer and each other could be analysed in detail. The analyses presented in this chapter are based solely on the video-recordings of the second session of work.

Working together with 'Bangers and Mash': Modes of interaction

The video-recordings of the paired sessions were transcribed in a format that included full details of the children's talk and the contributions made by the computer (for example, when the children 'clicked' with the mouse to hear individual words spoken, or broken down etc.). Details of the children's actions are included in the transcripts only where they are integral to the interpretation being made. We undertook a detailed qualitative analysis of the transcripts, focusing our analytic efforts on the ways in which the pairs engaged with and constructed the meaning of the computer task – mindful throughout that:

'We shall be able to interpret meanings and meaning making in a principled manner only in the degree to which we are able to specify the structure and coherence of the larger contexts in which specific meanings are created and transmitted.'

(Bruner, 1991, pp. 64–65)

At the heart of our analysis lay a concern with the cultural context and dynamic processes of meaning making, in particular the learners 'engagement with and constructions of the meaning of the educational task they were working on. Our analytic work has revealed several distinctive 'modes of interaction' – where a mode of interaction is defined as:

'a certain type of interaction, a genre, with a typical dynamic. It is the framework giving meaning to the overall activity of the participants.'

(Hoogsteder, Maier & Elbers, 1998, p. 181)

By identifying the modes of interaction that characterized the children's activity, we gain some understanding of their expectations, understandings and constructions of the task. Such modes are not trivial observations of actions; they reveal how the children are characterizing the task, and therefore set parameters on the children's actions and, by implication, the scope for collaboration.

'….modes of interaction – classified globally and characterized locally – can be powerful frameworks for participants, although they not be aware in which mode they interact and how this affects their (inter)actions.' (Hoogsteder, et al., 1998, p. 184)

Our analyses revealed that when engaged in joint reading of a talking book, the pairs of beginning readers adopted diverse modes of interaction, sometimes within a single session. The extracts that follow illustrate the different modes observed overall. However, it should be noted that whereas some pairs adopted a single mode that dominated their interactions on the task, others were more dynamic – shifting their mode, for example, in response to their changing conception of the task or as their interest in it increased or decreased.

Some of the children we observed clearly adopted a 'reading' mode of interaction, where they followed the instructions they had been given at the outset and attempted to read the text together. These children usually only accessed the computer feedback if they got stuck or wanted to check that they had read a page or word correctly. Extract 1, which illustrates this, is taken from Becky and Julie's session – at the point in the story when Bangers puts the egg in his hat (NB. All names used are fictitious).

Extract 1: Becky and Julie

Julie: He puts

Computer: / he / puts / puts /

Julie: [Julie points to each word and looks at Becky as she slowly

                          says each one]. He puts the egg in the hat

Becky: the egg in the hat

Researcher: Well done

Computer: / puts /

Researcher: Well done, Becky

Computer: / the / egg /

[Julie whispers to Becky who nods and turns the page]

Julie: [Looking at the screen] Its

Becky: He

Julie: [Points to each word and looks at Becky as she speaks, as

                          before].

                          It's fun to throw the egg and catch it

Becky: It's fun to throw the egg

Julie: Now let's go onto the next bit

Becky: ( ) [Becky turns the page]

Julie: [points at words as she speaks] Bangers throws the egg up 1…2…3 times.

Becky: Bangers throws the egg up 1…2…3 times.

[Becky turns the page]

Julie: [points at screen]   Mash runs in he has no hat on

Becky: Mash runs in he has no hat on. Now we go to the next

                                bit. Let's go to the next bit.

Julie: Lets go to the next bit.

[Becky turns the page]

Here we can see that in this extract Becky and Julie check, by using the

computer, that they have read 'He puts' and 'the egg' correctly and then they continue

their joint reading of the text until they become unsure of the section that describes

Mash running into Bangers. Julie appears to adopt the 'teacher like' role of directing

her less able partner's activity on the task. Her attention is fixed on Becky rather than

the computer screen as she reads: note the way that the one time that her attention falls on the screen instead of on Becky, Becky makes her first mistake, and Julie immediately responds by restarting their reading of the line and re-establishing the 'point and read' procedure. She points to each word to cue Becky that they are to read together, and allows Becky full control of the mouse, much like an adult does with a child they are supporting. Throughout their session of joint work both children are concerned to mark when it is appropriate to move on 'to the next bit' and they keep focused and pre-dominantly on-task for the duration of their work. This extract is thus illustrative of a mode of interaction where the framework giving meaning to the overall activity is derived from the instructions given to the children by the researcher.

There was, however, considerable evidence of other modes of interaction, some of which had a clear correspondence with literacy practices developed in other contexts. As active learners, interpreting the meaning and use of an instructional activity they had not previously encountered, the children frequently recast the reading task so it complied with their own understandings and past experiences. A good example of this recasting and 'bridging' from the known to the new is the mode of interaction we termed 'listening'.

In this mode there was little, if anything, in the way of overt verbal interaction between the children. Their engagement with the talking book was achieved primarily through listening to the story being 'read' by the computer, whilst their engagement with each other was sustained via eye contact, gesture and positive affect, for example, laughing together. Extract 2 illustrates some of the characteristics typifying this 'listening' mode.

Extract 2: Tina and Sharon

| Computer: | It's Bangers. He is big. He has a red hat on. / it's / Bang / Bangers / Bangers / is / hat / big / Bangers / Bangers / Bangers / Bangers / Bangers / B- / angers / Bangers / Bangers / Bangers / |
| Tina: | ( ) [Tina turns the page] |

Computer:	/ gets / egg / Bangers / egg / the / gets / the / the / table / from / (…) Bangers gets an egg from the box on the table.
Tina:	( ) [Tina turns the page twice]
Sharon:	( ) [Sharon takes over control of the mouse]
Computer:	It's fun to throw the egg and catch it. [Tina points to the screen and Sharon turns the page]
Sharon:	Yes. Bangers throws.
Computer:	Bangers throws the egg up 1…2…3 times. [Sharon turns the page]
Sharon:	( )
Tina:	( ) [Tina points to the screen]
Computer:	Mash runs in. He has no hat on.
Sharon:	( )
Tina:	( ) [Sharon turns the page]
Computer:	He runs into Bangers
Sharon:	( )
Tina:	( ) [Tina points to the screen. Sharon turns the page]
Sharon:	( )
Tina:	( )
Computer:	Can you see the egg? Will it hit Mash?
Tina:	[points] ( ) …egg. [Sharon turns the page] ( )
Computer:	It did! Bang on top of his head! [Tina and Sharon both laugh. Sharon turns the page. Tina laughs].
Computer:	Mash cries as egg runs in his eyes. [Tina and Sharon both laugh. Sharon turns the page].
Tina:	( ) [Tina points at the screen and laughs].
Computer:	Mum runs in. She rubs the egg off. [Sharon turns the page] She is cross with Bangers. She tells him off. [Sharon turns the page] But she gives Mash a big hug. [Sharon turns the page] Bangers

cries. He has to have a hug as well. [Sharon turns the page]

Then they have eggs for tea.

As can be seen from the extract, Tina and Sharon typically access speech feedback from the computer without speaking, or reading aloud from the screen. So, apart from the comment 'Yes. Bangers throws.' and the repetition of the word 'egg', the children's session of work with the talking book largely consists of listening to the speech feedback generated by the computer – typically on a whole word or whole page basis. The adoption of a 'listening' mode is done with no explicit negotiation on the part of Tina and Sharon, and despite the instruction to read aloud together, these learners seem to share the presupposition that the computer is the 'teller' of the story and they are the 'told'. Whilst they evidently use pointing to establish joint reference and to progress through the story, the framework giving meaning to these children's work with the talking book appears to be one derived from our culture's broader repertoire of literacy related practices – and is one in which children listen to stories being read. So Tina and Sharon do not work with the talking book in the manner requested by the adult and their response to the task is one in which they have brought to bear their previous experiences and encounters in order to make sense of the new.

The use of listening as a basis for engaging with the talking book was also evident in a mode of interaction we called 'listen and repeat'. Here the children listened to the speech feedback, typically whole page feedback, from the computer, but then went on to repeat what was said, either in parallel or one after the other before moving onto the next page. In Extract 3, taken from Hayley and Monica's session of work with the computer, we can see the girls adopting such a mode of interaction, taking turns to repeat what the computer has just said.

Extract 3: Hayley and Monica

Computer: Mum runs in. She rubs the egg off.

Monica: Mum runs in. She runs the egg off.

Hayley: She rubs the egg off.

[Monica turns the page]

Computer:	She is cross with Bangers. She tells him off.
Hayley:	She is cross with Bangers she tells him off
Monica:	She tells him off. She is cross with Bangers she tells him off. [Monica turns the page]
Computer:	But she gives Mash a big hug.
Monica:	But she gives Mash a hug.
Hayley:	But she gives Mash a big hug. [Monica turns the page]
Computer:	Bangers cries. He has to have a hug as well.
Monica:	Bangers cries he has to have a hug as well. [Monica turns the page]
Computer:	Then they have eggs for tea.
Monica:	Then they have eggs for tea.
Hayley:	Then they have eggs for tea.

In this extract it is the use of speech feedback from the computer, and not Hayley and Monica's own attempts at reading the text, which initiates each phase of the work with the talking book. Other children, however, rather than listening and repeating would 'listen and elaborate.'

In the 'listen and elaborate' mode the children would listen to the computer 'tell' part of the story but would then go on to embellish that aspect of the story – elaborating and commenting on the text they had just heard, often empathizing with the characters. In Extract 4 we see Peter who is working with Tim doing just this. The boys are part way through their session of work and they have just reached the point in the story when Bangers puts the egg in his hat.

Extract 4: Peter and Tim

Peter:	[Peter takes control of the mouse]. I'll do this one.
Computer:	He puts the egg in his hat.
Peter:	[To the researcher] It'll get smashed in that.

Computer: / puts / puts / puts /

Peter: [To the researcher] Click on here?

Computer: He puts the egg in his hat.

Peter: ( ) [turns the page] Oh.

Tim: My turn. [Peter turns back a page] My turn [Tim turns the page]

Computer: It's fun to throw the egg and catch it.

Peter: [To the researcher] And it gets squished and smashed.

Researcher: Does it?

Peter: (   ) and click on [Tim turns the page] those numbers.

Computer: Bangers throws the egg up one, two / two / two / two / three /

                   three / three/

Peter: Oh! [To the researcher] He clicked on number three he did.

Computer: / throws / Bang- / one / one / [Tim turns the page] / hat / Mash

                   runs in. He has no hat on. [Tim turns the page]

Peter: Uh oh

Computer: He runs into Bangers. [Tim turns the page]

Peter: [To the screen]. Run then. Watch out there's an egg.

Computer: Can you see the egg? ⎡Will it hit Mash?

Peter: ⎣There it is! [leans across the desk to

                   point at the screen. Tim turns the page].

Peter: Get Mash! Oh no! [Peter covers his mouth with his hand. Tim

                   smiles at Peter and then at the researcher]. It's happened [to the

                   researcher] done the eggs crashed on each (tower).

                   The   ⎡Mash is cracked now.

Computer: ⎣It did! Bang on top of his head!

Peter   Yeah.

[Peter goes to turn the page using the trackpad on the front of the laptop, but Tim

brushes his hand away and turns the page with the mouse]

Computer: Mash cries as egg runs in his eyes. [Tim turns the page]

Peter: In his eyes? Ergh.

As with Extract 2, there is evidence that engagement with this software can be strongly mediated by the users' prior experience of literacy-related activities. In this exchange, Peter's way of interacting with the talking book dominates and he repeatedly elaborates and comments on the text – devices which are frequently used in storytelling to promote and sustain children's involvement and joint engagement with stories or texts. Such devices are used as ways of contextualizing or explicating key words, information or ideas and as a means of 'modelling' or moderating affective responses to the unfolding narrative. In this instance, however, Peter elaborates and comments on the story himself. His emotional engagement with the story is clearly evident as he warns Mash to 'Run' and 'Watch out' because 'there's an egg' and in his exclamation of 'Ergh' as he realizes that the egg is running in Mash's eyes.

Peter's is a creative response to the challenge of working with an unfamiliar piece of technology. It is one that suggests that as part of a process of meaning-making he is attempting to situate his experience of using the talking book in an appropriate cultural context in order to make sense of it. This is additionally illustrated by the way that he directs his comments towards the adult rather than to his partner. He 'recognizes' that this is a reading task that has been set by an adult in a school context, rather that one that has been initiated by the boys as a result of some form of genuine shared activity. He therefore expects his efforts to be aimed towards, and noted by the adult concerned. Thus he seems to be adopting a way of interacting with the talking book which parallels school-related practices he has encountered in other contexts.

An empathic response to the characters was also evident in a mode of interaction we termed 'acting'. Here the emotional engagement with the story was evidenced not only by the use of elaboration, but also by non-verbal articulation and gesture, which can be seen in Extract 5. In this extract, Olga and Susie are working with the software at the point in the story when the egg has hit Mash.

Extract 5: Olga and Susie

Olga: [Olga laughs, points at the screen and rubs her eyes like Mash.]

                 Ah, he's crying.

Susie: Bangers, Bangers, Bangers.

Computer: / Mash / Mash /

Susie: Banger Banger

Computer: / Mash /

[Susie pretends to cry and rub her eyes then Olga also pretends to cry and both girls rub their eyes in an exaggerated style]

Olga: ( )

Computer: / -ash / egg / egg / e- /

Suzie: ( )

Computer   / -gg / egg / [turns the page]

Suzie: ( )

Olga: [Olga laughs] There's his mummy isn't it?

Suzie: ( ) [Suzie is looking at the computer]

Computer: / r- / r- / r- / -uns / the / the /   / egg / she / egg / e- /-gg / egg /

                 is / in / Suzie: Apple apple   There's an apple

Suzie: Let me try.

Computer: /i-/[Suzie and Olga both try to click the mouse button at the

                 same time]

Olga: Suzie! [Olga takes over control of the mouse]

Computer: /-n/ / in / [Olga turns the page]

Olga: Your turn

Suzie: ( )

[Olga pretends to be Banger's mother telling him off and wags her finger at the image on the screen.]

Suzie: Shall we see what happens next?

Olga: Yeah.

Olga's laughter in response to the egg hitting Mash, is rapidly followed by the recognition that Mash is crying and she begins to rub her eyes like Mash noting: 'Ah, he's crying'. A little later Susie begins to make crying noises and rub her eyes too. Olga then joins in, both girls 'crying' and rubbing their eyes in a similar, exaggerated style. This acting out of the story is also evident when the girls reach the point in the story when Bangers' mum is telling him off and Olga makes 'telling off' noises and wags her finger at the image on the computer screen, pointing her finger in a similar manner to the illustration of Bangers' mum. Once again this is not a way of interacting around the computer that had been encouraged by the researcher, but it is a way of working with the software which is indicative of the girls 'awareness of and sensitivity to the characters' emotional states and active engagement with the storyline of the talking book, something that is positively promoted and encouraged when reading in other contexts.

In addition to the modes of interaction discussed previously, we also found evidence of a mode of interaction in which the children engaged with the story, but the framework giving meaning to the overall activity was one involving playful use of the computer and specific features of the software. This is evident in Extract 6 below.

Extract 6: Ruth and Carol

[Ruth has been in control of the computer, but has just shown Carol how to click on the words and Carol is now temporarily in control].

Computer: / his / he / h- / -ee / he / hat / h- / at / hat / egg / he / in / in / in / his / puts / puts / the / the / hat /

Carol: ( ) (.) [Ruth takes over the mouse]

Computer: / his / his / he / put / p- / -uts / puts / the / the / egg / e- / -gg / egg / hat / h- / -at / his / he / he / at / in / i-/ -n / in / [Ruth turns the page]

Carol: [To the researcher] What's he doing?

Computer:	/ it / it / is / fun / f- / -un / to /
Carol:	( )
Computer:	/ throw /
Carol:	( )
Computer:	/ catch /
Carol:	( )
Computer:	/ a / [Ruth turns the page] /B- / -ang / Bangers / throws / egg / e- / -gg / egg /
Carol:	[To the researcher] Not a very good thing to do. [Ruth turns the page]
Computer:	/ on / on / on / Ma- / g- / a / run / r- / is / hat h- / at / h- / at / on / [Carol sighs and Ruth turns the page]
Carol:	( )
Computer:	/ ee / h / ee / h / ee / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / ( ) / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h / ee / h /

In this extract Ruth and Carol have reached the point in the story where Bangers puts the egg in his hat. They move the cursor over the words to hear them read aloud or click on them to hear and see the word broken down into smaller parts and then turn to the next page. They work quickly through the next three pages, not reading aloud but moving the cursor over some of the words whilst omitting others, with Carol questioning what Bangers is doing and commenting that throwing an egg is 'Not a very good thing to do'. When they reach the point in the story that reads 'He runs into Bangers' Ruth repeatedly clicks on the word 'he'. This goes beyond the degree of repetition required to confirm the sound of the sub-components of the word 'he' and the girls appear to play with the software, rapidly clicking so that the sub-components of the word are read again and again. Thus the relatively fleeting exploration of some pages of the book, taken together with the repetition of 'h' and 'e', indicated that the girls appeared to be treating the talking book like a computer

game, and the task of reading together was not a central concern. For some children, then, the framework giving meaning to the activity was not one that had its roots solely in prior experiences of reading, but was one that was also mediated by prior use of computers and the playing of computer games.

Our analyses also remind us that when learners work together on a school task the business of building and sustaining mutually satisfying social relationships occurs in tandem with classroom activities. In Extract 7 we see Laura and Jill working together on the talking book. Laura's focus is on working through the story, despite the fact that her partner Jill is in a more playful frame of mind, being excited about the impending school disco. The extract reveals Laura to be skilled in managing the potentially problematic conflict between her partner's off task behaviour and her own desire to complete the activity they were set.

Extract 7: Laura and Jill

[The girls are whispering. Laura points, both nod and Laura clicks]

Computer: / on / It's Bangers. He is big. He has a red hat on.

Jill: You know, you know what? You know what?

Laura: What?

Jill: Tomorrow I'm going to the disco.

Laura: ( )

Researcher: You reading the story both of you?

Computer: / he / he /

Jill: ( )

Laura: ( )

Computer: / he / [Jill turns the page]

Jill: ( ) egg

Laura: What? [Jill turns the page] (Oh you) [Laura reaches across to
                 regain control of the mouse]

Jill: I like doing that [smiles].

Laura:	( ) like that. ( ) [Laura turns the page]
Jill:	( )
Laura:	( )
Computer:	/ gets / Bangers / -angers / Bangers / gets / the / Bangers gets an egg from the box on the table. [Laura turns the page while Jill's attention wanders]
Researcher:	Jill
Computer:	He puts the egg in his hat. [Laura laughs]
Jill:	Mine. [Jill takes over control of the mouse]
Computer:	/ he / puts /
Laura:	I'll do it. ( ) [Laura points and turns the page]
Jill:	You know what [Laura turns the page] When I go to the disco today I'm going to get ready right now after school.
Laura:	I don't know why ( ) it's a bit dumb.

In Extract 7 the girls 'interaction is mediated by and negotiated within the framework of routines and expectations concerning what it is and is not appropriate to talk about in classroom settings. Laura's management of her partners' off-task talk about the disco indicates her sensitivity to the researcher's concerns that they should be reading and the interaction is shaped by her understandings of 'the values, rules and common representations of school' (Murphy, 2000, p.140). Laura is not overtly dismissive of her friend's interest in the disco, but does not engage with it. Notable in this is the fact that Jill recognizes that it is acceptable for her partner not to pick up on her conversation: she does not get irritated, she instead recognizes that she should also be engaged with the task, and increases her activity on it, albeit temporarily. Both children show understanding of each other's immediate interests, and each tolerates limited participation in each other's preferred activity (Jill shows token efforts at engaging with the task, while Laura offers some limited contributions to Jill's conversation about the disco). The mode of interaction is one that is oriented towards

sustaining an on-going friendly relationship without compromising Laura's desire to
'get the job done'.

Before bringing our discussion of modes of interaction to a close, it is important
to note that whilst the vast majority of the children worked in pairs to complete the
session of work together, there were pairs whose work was characterized by a
'disputational' mode of interaction. These pairs were overtly conflictual and had
difficulties working together independent of adult support. They engaged in heated
disputes about control of the mouse and whose turn it was, appealing to the researcher
to intervene. These children were also frequently distracted, glancing around the
classroom. Extract 8, taken from Darren and Philip's session of work illustrates this
mode of interacting.

Extract 8: Darren and Philip

[Darren is using the mouse]

Computer:	Bangers gets an egg from the box on the table. [Philip reaches across and takes control of the mouse]
Darren:	No don't push me off
Computer:	/an/
Darren:	( ) [Darren turns to the side, with his back to Philip]
Computer:	/an / /an/ /an/ /an/
Researcher:	Darren, I'm going to ask you some questions at the end
Computer:	/Bang-/ /Bangers/
Researcher:	Darren, can you watch Philip, I'm going to ask you some questions at the end. [Darren turns to look at the screen]
Computer:	/box/ /b/ /ox/
Philip:	( )
Computer:	/box/
Darren:	( ) [Darren turns page. Philip takes Darren's hand off of the mouse]

Philip:	( )
Darren:	( )
Computer:	He puts the egg in his hat.
Darren:	( ) [Darren looks away. Philip points and takes over the mouse]
Computer:	/hat/ /hat/ /the/ /his/ /his/ /the/
Darren:	[To the researcher]. What's he doing? [Picks up sheet of ground rules and turns away from Philip again]
Computer:	/his/ /hat/ /hat/ /hat/
Researcher:	Its reading the story Darren
Computer:	/he/ /he/ /puts/ /the /egg/
Researcher:	Darren
Darren:	He won't let me have a turn. [Philip sits back from the computer]
Researcher:	It's your go now – he's letting you have a go. [Darren takes control of the mouse]
Computer:	/the/ [Darren turns page]
Philip:	[points] (do you like these)
Computer:	/its/ / fun/
Darren:	fun
Computer:	/the/ /and/ /fun/ /it/ /the/ /the/
Philip:	( ) [Philip takes over the mouse again]
Computer:	/throw/ [Darren becomes distracted]

At the beginning of the extract we see Philip trying to access the machine by out-manoeuvring his partner (e.g. the moment when he removes his partner's hand from the mouse, or takes control while Darren is distracted) rather than by mutual consent or asking. Darren looks at the sheet detailing the ground rules on a number of occasions but doesn't point them out to his domineering partner, whom he turns his back on when he does not have control of the computer. The boys seem unwilling to

talk directly to each other, and this is illustrated elsewhere in their session where almost all their dialogue is directed at the adult. It should be noted, as mentioned earlier, that all the pairs were constructed in consultation with the teacher, and were identified as children who would normally 'get on' with each other during a shared task. It would thus seem that these children do not recognize the task as affording the opportunity for collaboration. Their behaviour around the computer suggests that their understanding of either reading activities and / or many computer-based tasks is that they are individual activities rather than tasks that can or should be shared. Thus, their culturally influenced reading of the task results in the adoption of an overarching mode of interaction that is *individualized*. It is in these instances that we see the children adopting behaviours that exclude the scope for shared meaning making.

Summary and conclusions

The evidence that we have presented in this chapter demonstrates that the talking books software 'Bangers and Mash', when introduced into the life of a reception classroom, can resource many diverse modes of interaction. The modes of interaction we have discussed can be seen as constituting different computer-text mediated social practices, some of which echo or seem to involve the application or adaptation of practices encountered in other literacy-related contexts, such as hearing a story read aloud to them by an adult (illustrated by the 'listening' and the 'elaborating' modes of interaction). Other modes are more reminiscent of direct transfer of past computer use, such as in the 'playing' mode.

The diverse ways of engaging with the talking-books software observed can be seen as embodying culturally-based processes of meaning making, in which beginning readers are making sense of the social situation afforded by the availability of a partner and a novel piece of software. As the extracts illustrate, at times this process of sense making and the interpretation of the situation differed between peers, and was at odds with that intended by the researchers and the teacher. The learners were thus building and applying interpretative frameworks, adapting: 'classroom activities

such that they complied with their own understandings and past experiences'
(Jackson, 1987, p.86). The meaning of the reading activity the children had been set
was not a fixed or tangible commodity, rather, it was contextually constituted and
fundamentally situated.

Whilst in many cases the children's modes of interacting embodied creative
engagement with the collaborative reading task, it is important to recognize that
effective participation in classroom-based reading activities demands the recognition
and production of: 'the 'right' situated meanings…– that is those shared by the
community of practice to which …(the learners) are being 'apprenticed' (Gee, 2000,
p. 200). Beginning readers are expected to conform to expected behaviour patterns
and particular ways of relating and interacting, both with texts and others. The
implication here is that practitioners wishing to use talking books in the context of
collaborative work will need to give careful consideration to how best to enable
effective participation in these classroom-based reading activities – such that children
come to recognize and produce the 'right' situated meanings, discerning and
complying with the accepted learning patterns of their classroom (Jackson, 1987,
p.85).

Whilst we acknowledge that the modes of interaction we observed may reflect
particular cultural practices in the specific context studied, we feel that our work has
important implications for the design of evaluation studies in relation to computer-
based resources for learning to read. Such resources are seldom evaluated (Chera &
Wood, 2003; Hodges & Sasnett, 1993), and the evaluations that do exist tend to focus
on the products of learning – how much the children's reading attainment has
improved as a result of introducing this new resource (e.g. Olson, Wise, Ring &
Johnson, 1997; Van Daal & Reitsma, 1990). This inevitably means that the
evaluations tend to be controlled investigations in which the software is seldom taken
up and used as part of regular classroom-based work. As a consequence we have no
understanding of what children bring to the use of such computer-based resources.

Such an approach to evaluation risks construing the process of teaching literacy to early readers as a one-sided affair: the children, seemingly, having little to contribute to the situation that is relevant, being novices not just in reading, but in the educated discourse that surrounds learning about reading. This characterisation, which implies a somewhat passive role on the part of the children, over-simplifies the complex nature of their learning interactions and neglects their participation in learning activities as active 'meaning-makers'. Our observations thus point to the importance of exploring children's understanding of the literacy resources we provide them with – rather than designing evaluation studies in such a way as to deny that children's understanding of the task will impact on their potential to learn from the software, or in ways that simply assume that children will recognize the learning agenda that is implicit in the nature of the software's interactive features. We need to understand how the situations in which children are working and the meanings they ascribe to tasks support or constrain their activity and performance, mindful throughout that we never experience artefacts, such as computers and associated-software, in isolation but only in connection with a contextual whole. An object … 'is always a special part, phase or aspect of an environing experienced world' (Dewey, 1938, p.67). Children's reactions to and performance on a computer-supported reading task may thus be crucially determined by the context of activity within which the task is encountered. When studying and evaluating the efficacy of such computer-supported collaborative activity it is vital that we attempt to understand participants' goals and frames of reference, as opposed to working with our own assumptions concerning what these are or may be. Our studies of beginning readers thus need to treat children as people with concerns, not just objects of concern (Prout, 1998).

These observations offer an important insight into both 'learning to collaborate' and 'collaborating to learn' using computer based approaches to supporting literacy. Firstly, children have to recognize learning situations as offering an appropriate opportunity for collaboration. That is, some children may view computer-based literacy activities as a context in which shared working is inappropriate (perhaps

because of the emphasis in UK classrooms on assessment of literacy at an individual level), or even undesirable at a personal level, because they perceive computer use as something sufficiently attractive that they are unwilling to share the experience if it means that their own contact with the computer will be limited in some way. The first barrier to collaboration is not always to do with interpersonal factors such as age, gender or ability. Often, as our work illustrates, collaboration fails because the children see no opportunity or need for it.

When the children were observed to work together, their collaboration was not always directed towards the educational goal that we had in mind. This reminds us that collaborative activity is 'creative' in that it broadens the repertoire of experiences from which children can interpret the potential of the task they are presented with. While desirable, such diversity is at odds with the prescriptive nature of literacy tuition in the UK at the present time. In this way 'collaborating to learn' is fraught with potential pitfalls for both teacher and student who have to negotiate shared understandings of each other's expectations and needs.

Amongst this age group we see evidence of children working together, making sense of the task collectively. The children are collaborating to learn, but their interpretations of what the intended lesson might be (e.g. listening to a story, telling their own stories, reading independently, playing a game) can conflict with those that we have as educators. Developing a range of activities that can recast many of these modes of interaction as potentially productive forms of literacy learning, is the next challenge for those seeking to develop collaborative learning practices in the classroom.

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