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Young children's engagement with digital texts and literacies in the home: Pressing matters for the teaching of English in the early years of schooling

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ABSTRACT: Research has established young children's increasing use of computers and other new technologies in the home. Yet, teaching about digital texts and digital practices most often appears as an addition to early literacy instruction in classrooms where "business-as-usual" maintains an emphasis on print and print-based texts. This article examines two young children's literacy practices in the home during their searches for information about lizards using Google, Wikipedia and a reference book about reptiles. Conversation analysis of the young children's social interaction establishes how interaction resources produced socially recognisable actions, how social activity mutually accomplished knowledge about lizards, searches, images and print, and how children shifted seamlessly between various technologies and texts. It is concluded that the children's activities constitute the kinds of digital literacy practices that might inform, reform, or transform, the teaching of English in the early years of schooling.

KEYWORDS: Digital literacy practices, new technologies, young children, conversation analysis

INTRODUCTION

Studies of young children's use of new technologies in the home confirm that young children engage in a wide range of digital practices. These include the use of CD-ROMs, computer games and drawing tools, PlayStation games, the Internet, mobile phones and texting (Carrington, 2001, 2005b; Downes, 2002; Marsh, 2006). Computer games are by far the most popular activity for computers and predominate over use of the internet (Carrington, 2001) although children are increasingly accessing the Internet at younger ages (NetRatings Australia, 2005). Children are exposed to a range of multimodal literacies such that "the print is downgraded to an auxiliary source of information" (Carrington, 2001, p. 19) because digital texts tend to "foreground graphical information over printed text" (p. 19). Studies such as these confirm that young children are engaged with new technologies and acquiring new literacy practices from very early ages in their homes.

While young children's literacy practices out-of-school now encompass a range of digital technologies, school literacy practices remain largely focused on print-based skills (Carrington, 2005a; Lankshear & Knobel, 2003). The resilience of traditional views of English instruction are perhaps most obvious in the early years of schooling. Curriculum frameworks and documents that inform English instruction in the early years illustrate that the teaching of English for young children maintains a strong emphasis on knowledge and skills pertaining to print and print-based texts (Carrington, 2005a; Merchant, 2008). Largely, new technologies appear as add-ons in the core work of teaching about print-based texts, rather than the "constitutive

elements of new ways of doing things and new ways of being" (Lankshear & Knobel, 2006, p. 54). Lankshear and Knobel argue that computer technology is frequently harnessed to develop "abilities to handle conventional alphabetic print texts rather than to generate multi-modal texts and to understand principles of making multi-modal meanings" (Lankshear & Knobel, 2003, p. 77). So, young children are more likely to experience using computer programs designed to teach phonics or to develop comprehension skills rather than complete activities such as making a YouTube clip or designing and maintaining a personal website (Lankshear & Knobel, 2003).

Studies that confirm the increasing use of new technologies by young children in the home suggest the need for institutional changes in the early years: in early childhood settings and in school classrooms. Although there is evidence of increased incorporation of new technologies into existing practices (Downes *et al.,* 2001; Yelland, 2005), there is little evidence that instructional practices have been transformed by them (Downes *et al.,* 2001) despite the enormous potential of new technologies. Within literacy education, Labbo (2006) attributes the absence of transformed practice to a tension between "the pull of traditional literacies" and the "push of the new". One outcome is that new technology (such as computer-assisted learning software) is incorporated in ways that reinforce "old learning" and emphasise the acquisition of skills in a vacuum (Yelland, 2005, p. 208) rather than transformed practice (Labbo, 2006). Another is that educators continue to undervalue the digital practices and experiences that young children bring to school and early childhood settings (Marsh, 2006); children are less likely to experience authentic activities and educators are more likely to have limited knowledge of children's experiences of technology in their homes and to undervalue them (Plowman, McPake & Stephen, 2008).

Numerous other explanations have been provided for the relative lack of uptake of all things digital in the early years of literacy instruction. Labbo (2006) argues that high-stakes testing and "well-intentioned but short-sighted directives" from policymakers (p. 206) keep teachers focused on print-based knowledge and skills. Developmental views of young children's learning, and literacy learning emphasise print and the basics (Carrington, 2005a). Intriguingly, early childhood educators may see computers as not aligned with play-based philosophies (Zevenbergen & Logan, 2008), whereas primary teachers may view computers as just for "play" (Turbill & Murray, 2006). While digital practices have transformed our lives in the 21st Century, educators do not change readily (Labbo, 2006); they work from a mindset (Lankshear & Knobel, 2006) that is firmly located in their experiences of a print-based world. Hassett's (2006) theoretical consideration of why early-years, literacy classrooms remain "print based" points the finger at pedagogy; in particular, her critique names current approaches such as shared and independent writing, and assessment of early literacy (such as Clay's concepts about print), as perpetuating a print-based regime. This is accomplished through classroom interactions during reading and writing lessons whereby teachers produce texts that are print-based.

Of course, the matter of changing literacy pedagogy to more closely resemble out-of-school practices is contentious (Moss, 2001): is it possible and is it warranted? Lankshear and Knobel (2006) suggest that we should aim for a complementary relationship which draws together understandings of how the old and new technologies relate to each other and to practices that constitute literacies out-of-

school and in-school. Particularly, it is important that educators understand and experience the differences and points of convergence (Lankshear & Knobel, 2006).

In this article I argue that understanding *how* the social is done in relation to digital literacy practices in the home can inform the teaching of English in the early years of schooling. In other words, understanding how social practices around new technologies are constituted could lead to changes in social practices used for instructional purposes; we cannot replicate home practices in classroom but we can learn from them. First, a review of the literature is used to contextualize the focus in this article on the mutual accomplishment of social practices by young children when using computers in the home. Then, the research methodology is outlined – establishing the research intent to unpack digital literacy practices through the employment of conversation analysis, a sociological method for describing how the social is accomplished. The analysis that follows examines excerpts from a recording of two young children using the computer in their home to search for sites about lizards. Discussion of the social interaction that occurred during the use of the computer establishes the mutual accomplishment of what was meaningful, the interaction resources used to do this in socially recognisable ways, and how children's social actions shifted seamlessly between technologies and texts as they oriented to doing things about lizards and accomplishing it as integral to their everyday activity as members of this family.

YOUNG CHILDREN'S OUT-OF-SCHOOL DIGITAL PRACTICES AND THEIR RELATIONSHIP TO SCHOOL ENGLISH

Increasingly, studies of out-of-school literacy have examined children's social practices around new technologies. These studies focus more on older children and young adults (Zevenbergen & Logan, 2008) and have examined digital practices such as blogging and fan fiction (Thomas, 2007), anime and manga fanfiction (Black, 2005); game-playing (Beavis, 2004), membership of the Babyz community (Davies, 2004), girls' use of interactive cybersites (Guzzetti, 2006), and so on. Studies have been used to argue for changes in the ways that English is taught in classrooms so that it encompasses the kinds of texts and practices that prevail in online environments and ways of being online that represent insider mindsets (Lankshear & Knobel, 2006).

It is more difficult to find studies of out-of-school literacy that examine young children's digital practices and their engagement with digital texts (Lankshear & Knobel, 2003; Roberts, Djonov & Torr, 2008). Existing studies include: texting and PlayStations (Carrington, 2005b); console games (Pahl, 2005), media and popular culture texts (Marsh, 2005), virtual worlds (Marsh, 2008), e-games (Roberts, Djonov & Torr, 2008) and CD-ROM storybooks (Smith, 2002). Young children's computer activity includes use of computer games, drawing tools, word processing programs, desktop publishing, printers and chat (Marsh, 2008).

Examinations of young children's practices with computers in the home have established some of the distinctiveness of developing emergent digital literacies (Carrington, 2001). The multimodal nature of online texts means that young children experience meaning-making differently to that of print-based texts (Kim & Anderson, 2008). Computer games for young children, for example, provide narrative structures

and cueing systems that differ substantially from those available in print-based texts offline (Carrington, 2005a). In a hypertext environment, children "are no longer following a linear relationship with a text" (Carrington, 2001, p. 95) but are "navigating the text" instead (Plowman & Stephen, 2003). Further, young children are developing meaning-making strategies which enable them to use and acquire meaning from print on the screen long before they are able to decode (Levy, 2009).

Central to many of the above studies are understandings that literacy, and new literacies, are tied to identities – an understanding that is powerful for arguing that young children's literacy development is *more than* acquiring print-basics (Merchant, 2005b). Marsh has called for "further extensive and detailed analyses of children's multi-modal text-making and text-responses in the home" (Marsh, 2005, p. 46) in order that these studies might inform literacy pedagogy. In particular, Marsh and colleagues (2005) suggest the need for closer analysis of "the relationship between young children's reading and writing of print-based texts and the receptive and productive processes in which they engage in relation to media texts" (p. 7).

Young children's uses of computers in early childhood settings or classrooms have been examined more extensively. However, researchers have given emphasis to the ways that children are "developing a generic capacity to encode and decode alphabetic print" (Lankshear & Knobel, 2003). So we find a focus on reading and within these studies a focus on the development of decontextualized skills related to phonics and comprehension (see for example, McKenna & Walpole, 2007; Zucker, & Invernizzi, 2008) rather than studies of children's use and understanding of multimodal texts (but see Marsh, 2006; Nixon & Comber, 2005). It is probably the case then that technologies or software devoted to these do not contribute to new approaches or practices that closely resemble those that children are likely to experience in out-of-school contexts. While differences between in-school and out-of-school literacy practices is not a recent phenomenon (Davidson, 2009), the more salient issue is that literacy instructional practices have only superficially changed through the introduction of new technologies and certainly have not changed in ways that might allow children to harness their out-of-school experiences or build on them in powerful ways.

Meanwhile, the study of everyday literacy practices has produced definitions of literacy (or rather literacies) that shift the focus away from print and from understandings of literacies as *merely* skills to be taught. Lankshear and Knobel (2006) propose that literacies are "socially recognized ways of generating, communicating and negotiating meaningful content through the medium of encoded texts within contexts of participation in Discourses (or, as members of Discourses)" (Lankshear & Knobel, 2006, p. 64). Their discussion of the definition encompasses social practices (socially recognized ways) print, image and records of spoken language (all encoded texts), a focus on meaning content and Gee's notion of Discourse as *more than* language bits (or discourse). The definition is a powerful one: it sidesteps a focus on print literacy through the use of "encoded texts" and places the emphasis on what people do with texts (generating, communicating and negotiating meaningful content) rather than on texts themselves. Therefore, the definition is useful for challenging the incorporation of digital technologies as *additions* or *add-ons* to school literacy instruction whereby practices with new technologies maintain

traditional ways of teaching English and perpetuate mindsets tied to print and print-based texts (Lankshear & Knobel, 2003, 2006).

The incorporation of the social is central to understandings of literacy associated with out-of-school digital literacy practices, and certainly there is ample evidence that younger children's use of computers encompasses much social interaction (Clements & Sarama, 2003; Yelland, 2005) in homes and in institutional contexts including child care settings and classrooms. Collaboration on computers leads to shared thinking and talk about problems encountered using the computer in early childhood settings (Yelland, 2005) and leads to "helping and instructing" (Clements & Sarama, 2003). Interaction promotes young children's language use, social skills and learning, and young children prefer to work with others on the computer (Linderoth, Lantz-Andersson, & Lindstrom, 2002). The focus on the social aspects of young children's computer use suggests the need for educators to encompass young children's practices within new definitions of literacy that inform educators' instructional practices and understandings of how social interaction accomplishes meaningful content during use of technologies such as computers.

THEORETICAL PERSPECTIVE AND METHOD

The article draws on a small research project funded by Central Queensland University that examined young children's computer use in their homes, in order to understand their acquisition of new literacies. The project was informed by the theoretical perspective of ethnomethodology (EM), an approach to understanding people's ordinary actions. According to EM, members of society bring about an ordered existence as an everyday and local accomplishment. Members orient to sense-making in ways that provide for order, seek to find it, and account for its absence in orderly ways. What ethnomethodologists seek to do is to find, describe and explicate the methods by which members do this as an ordinary and everyday way of *doing life* (Garfinkel, 1984). One way of determining these methods is to examine social interaction.

Conversation Analysis (CA) is an arm of EM that focuses on the sequential analysis of talk. Central to the approach is the repeated reviewing of recordings of naturally occurring activity, detailed transcription of recordings and reporting of analysis that provides transcripts as evidence. The approach to analysing activity *in situ* results in fined-grained descriptions of how people "bring off" their social activity (Sacks, 1995). While the analysis is of aspects of interaction, such as turn-taking during talk, the intent is to provide understandings of how talk and interaction enable people to accomplish aspects of everyday social activity.

Data collection consisted of recordings of young children (under the age of eight) from four families. DVD recordings were made of children using the computer in ways they normally used them. Recording was up to 30 minutes in length on each occasion. This article draws on one recording where two children and their father used the internet. At the time of recording, Denny was aged 2 years and 11 months and Matthew was 6 years and 6 months. The children's mother (Leeann) was also present and engaged with the children and her husband (Gary) as they used the computer. The researcher made the recordings and occasionally participated in the interaction. The

analysis that follows is of three excerpts from the entire recording. These all relate to Google searches about lizards. Talk has been transcribed using Jefferson notation (Atkinson & Heritage, 1999), the transcription system employed in CA. A list of the symbols is provided in the appendix to this article.

ANALYSIS

At the beginning of the recording, the father keyed in the word "lizards" in order to initiate a Google search. This resulted in a number of search items which were then accessed by the younger boy (Denny) during the first part of the recording. The child selected from the items, seeking familiar sites that he had visited before. In the excerpt that follows, Denny has clicked on an image that was on a Wikipedia page about lizards. The image appeared to be a coloured drawing of a number of lizards that the father identified as fossil lizards.[1]

Figure 1. Wikipedia "lizard" graphic

Clicking on the image resulted in an enlarged version beginning to appear on the screen. The image became the focus for talk that sought to identify lizards that were known and unknown to the children and their father. The analysis establishes the ways in which they continuously produced and monitored social actions in order to do this. Central to accomplishing talk were summons, questions, attributes of lizards, reference terms, and physical actions of pointing with fingers and with the computer cursor.

Excerpt 1

The image is made noteworthy through responses by the researcher (2), Denny (3) and his mother (5) as it appears on the screen. After a silence, Denny asks a question about a specific lizard that he can see (7).

[1] See http://www.mypets.net.au/flex/articles/59/lizards.cfm

1 (5.0) ↔((enlarged image appearing of lizards))
2 R: wo::w
3 D: hey
4 (1.0)
5 L: oo:::h
6 (2.0)
7 D: what's dat one
8 G: I can see some we know don't we (.) can't we there Matt

Although a question powerfully requires an answer (Sacks, 1995), the father does not provide one (8). Instead his utterance indicates what can be seen on the screen ("some we know"). The use of "some" indicates that not all the lizards are known to them. His talk shifts from "I" to "we" thus encompasses what everybody knows, and his tag question ("don't we") creates the possibility for others to confirm this. However, his utterance is then self corrected; it shifts from "don't we" to "can't we" so specifically includes Matt as seeing things as well that they both know.

In the talk that follows, Denny again summons attention to a specific lizard through his talk and action with the cursor (9). His talk is more emphasized than in the question he had asked previously. His father asks a question that provides for the identification of the lizard that Denny is indicating (10) and has asked about previously (7). Matt answers the question (12) and Denny repeats the name, thus accepting the answer provided by his brother (14).

9 D: he::y (0.4) look ((places cursor on lizard))
10 G: who's that
11 (0.4)
12 M: frill neck
13 (0.2)
14 D: fri::ll neck

During this interaction, the father has used his talk to gain an answer to the young child's question, without directly answering it himself. In this way, he draws on his knowledge of what the older child knows and uses his talk to occasion interaction between the three of them. In CA terms, the question and answer sequence between the father and Matt accomplishes the mutual production of the answer required by Denny's initial question in line 7.

After a short silence that marks the end of talk about the frill neck lizard, the father initiates further interaction with a question about another lizard (16). He does not indicate who his talk is directed at but does mention an attribute that could identify the lizard – it's spiky. His utterance encompasses a clue to how the lizard might be identified or named. Denny's talk overlaps his father's with another summons (17) and the movement of the cursor to the lizard. The father repeats the question again (18). His use of "spiky" again repeats the attribute of the lizard's appearance and enables him to avoid naming it himself through the use of "one".

15 (0.6)
16 G: who's that [spiky
17 D: [hey ((cursor on the lizard))

18 G: who's that [spiky one
19 D: [a dorny devil
20 G: well done
21 D: dorny devil
22 (0.2)
23 G: good boy

The father's question occasions an answer that is provided by Denny. This answer is assessed in a way that acknowledges that it was a difficult identification (21 and 23). The words "well done" provide an assessment of the child's activity in identifying the lizard and Denny then repeats his answer. The father responds with words that provide praise for Denny (23).

Denny then summons attention to another lizard (24). He identifies it by naming it in his talk and through indicating it with the placement of the cursor. His naming of the lizard occasions confirmation from his father about the identification of the lizard (25).

24 D: hey ((moves cursor)) a plying lizard
25 G: he sure is
26 (2.0)

The father's turn encompasses "sure is" which serves to reinforce the accuracy of Denny's identification as something beyond question. Further, in responding, he indicates his hearing that Denny's use of "hey" warrants a comment from him. Denny's talk here confirms the father's previous proposition that there *are* lizards that they all know on the screen image.

While talk to this point has mostly been between the father and Denny, Matt makes an announcement that shifts the talk to another lizard (27). His father's response acknowledges Matt's claim, although he requires that Matt confirm it through producing the name of the lizard (28). The father's turn is a question followed by softer talk (28-29) which forms an aside to the mother and the researcher. His aside makes notable the previous turn by Matt: that is, he can name a lizard that the father can't.

27 M: I know that one ((pointing)) the one (0.2) that one
28 G: do you know that one what's it called (0.4) °I've never
29 seen him before°
30 M: that one's the running on top of the water lizard
31 G: ↑o:::h is [it
32 M: [he runs on top of the water
33 G: °oh yeah°

Matt's response to his father's request for information (in fact, further information) formulates the lizard through using its attribute – that it runs on top of water – to name it (30) and then to describe it (32). His father's response initially acknowledges new information through what is referred to in CA as a change of state token (31). That is, his elongated 'o:::h' acknowledges something he genuinely didn't know before. The father's tag question prompts confirmation by Matt through a repetition of

what the lizard does (as distinctive and relevant to its name). The father's agreement (33) provides acceptance of this information but also as a kind of remembered bit of information.

Denny initiates further talk with another question that occasions an answer specifically from his father through his use of Dad (35). When there is no immediate response from his father, he draws attention to the screen (and lizard) by climbing onto the table, pointing and asking another question (36-37). Although similar to his first question, the second question works to require a response from the father through the use of "what is" rather than "what's" and "dat" is said more strongly. So the question is not just a repeat but rather a question designed to get a response from his father. The father's utterance fails to provide the information but through the use of "either" encompasses both of them in the same situation: not knowing (39).

34 ((D moves cursor to a lizard on the image))
35 D: what's dat one called ↑Da::d
36 (0.6)↔((climbing onto the desk and pointing at screen))
37 D: what is dat one called
38 (0.4)
39 G: I don't know either
40 M: that's the flying gecko:::

Although Denny's questions have been directed at this father, Matt provides the answer to the question asked by his brother when his father indicates that he doesn't know what the lizard is (40). Thus, his talk completes the sequence of interaction that Denny's question initiated – questions need answers. Matt's elongation of the end sound of gecko draws attention to the name, perhaps a way of drawing attention to what he takes to be obvious.

Gary directs that Denny should sit, that is get off the table where he is still seated (41) and Matt takes a turn which indicates an addition to a previous comment through the use of "and". Talk overlaps in the following turns and produces some trouble in the interaction (Schegloff *et al.,* 1977). Denny initiates talk with his father and this talk overlaps Matt's. The father formulates a problem (45) with as aspect of the image (which he directs at the researcher) and Denny provides a candidate answer to his own question ("amealilen"). These overlaps are trouble in the talk as the father indicates when he uses a question designed to prompt a repetition (47).

41 G: sit on your seat mate
42 M: a::nd I:::
43 D: ((sitting)) hey [what is that called Dad ((pointing with cursor))
44 M: [need to (tell you something)
45 G: it's a shame because [you can't see that one (looking at researcher)
46 D: [amealilen
47 G: what's that?
48 (0.2)
49 D: amealilen
50 G: chameleon isn't it
51 D: [[yes
52 G: [[yeah that's right [sure is

Repair of trouble in talk is an important aspect of social interaction. Trouble occurs often during conversations and, as the talk above shows, asking a question is one way to prompt a repetition of a previous utterance that caused a problem and is in need of repair. Once Denny repeats his previous utterance ("amealilen"), his father repeats the word supplying the correct pronunciation and provides a tag question "isn't it" (50). This tag question reinforces that they are agreed upon about the name of the lizard. Denny then directly confirms that this is the name (51) in response to his father's question and the father provides another confirmation that consists of agreement, an assessment ("that's right") and a more emphatic agreement that it is the case (52).

Denny summons again using the cursor to index his talk (53). His mother directs that he sit although he does not respond verbally (56); instead his talk latches that of his mother and asks another question (56). The father responds to the question (57), although does not provide the name of the lizard. Instead, he indicates that he isn't sure. This answer does not admit to not knowing; rather it indicates uncertainty.

53 D: [↑he::y ((points with cursor))
54 (1.0)
55 L: sit on=
56 D: =what's dat one called
57 G: I'm not sure=
58 D: =skin lizard
59 G: is it like a::h (0.4) some sort of dragon?,
60 (0.4)
61 D: yea::h (0.2) or plying lizard ((turns to look at father))
62 (0.6)
63 G: a::w I think that other one's a flying lizard (0.4) flying gecko
64 (3.0)

Given his fathers' response, Denny provides two candidate answers for consideration: that it's a skin lizard and that it could be a flying lizard. His first candidate answer prompts his father to propose a different answer (59). In suggesting that it is "some sort of dragon", the father presents an opposing position to Denny. His use of "like" introduces comparison (and is referenced to his initial noticing in the recording that the image is of fossil lizards). Denny agrees tentatively with the likeness ("yea::h") and then suggests an alternative lizard (61). His father rejects this candidate answer: he considers it ("a::w") but then identifies another lizard in the image as a flying lizard (63). He then corrects his talk naming the lizard as a flying gecko.

Denny's next utterance requires that another lizard be identified (64) and indicates that he doesn't know what it is. Matt summons his father (66) but he does not receive a reply from him; instead the father provides a response to Denny – he doesn't know what this lizard is (67).

65 D: know dat one is (0.4) dat one (0.4) eider ((points with cursor))
66 M: Dad
67 G: no
68 (0.4)
69 M: °go go go go go°

Matt is heard to talk although it was not clear from the recording what he was doing at this stage.

Again, Denny summons attention and offers a candidate answer to his own previous question (70). His father does not confirm it as correct but formulates Denny's answer as his thinking about what it might be and provides a tag question, seeking further talk from Denny (72).

70 D: hey it's a ↑gink
71 (0.4)
72 G: some sort of skink do you think?
73 (0.2)
74 D: yeah [maybe
75 G: [o::h it could be too
76 D: it's a [gink lizard
77 G: [could be (0.4) could be a skink lizard
78 (0.4)
79 D: °yeah°
80 (2.0)

The talk that follows does not provide a definite answer: instead, Denny proffers "maybe". The father's next utterance overlaps his son but takes up the possibility that "maybe" offers; the identity of the lizard is up for discussion and agreement (75). His use of "o::h" suggests a change of thought and he confirms it in the rest of his utterance when he emphasizes "could". Denny repeats his identification (76) and the father again repeats his consideration that it could be, in talk that overlaps Denny's. The final answer is provided by Denny (78) who appears to take his father's previous turn as indicating that he is in agreement, and talk about that lizard then lapses.

Excerpt 2

During the interaction that follows, the older child goes to get a book about reptiles to identify the name of the lizard that he has described to his father as "the running on the water lizard". Denny notices that Matt is at the bookshelf and uses a non-specific summons followed by a formulation of Matt's actions as "checking his book" in order to draw attention to what Matt is doing (1). He provides a tentative reformulation (maybe) when there is no response to his talk (2 and 3).

1 D: hey (0.4) Matthew's checking his book
2 (0.4)
3 D: maybe ( ) check
4 G: he is he's checking his book
5 D: doing
6 ((Matt looking on the bookshelf that contains lizard books))
7 D: ( ) da lizard

His father agrees and confirms Denny's formulation by repeating it (4). Denny continues to talk as Matt looks for a book but his words are not clear (5-7).

The children's mother contributes a question that also provides her understanding that Matt is now looking for the lizard in a book (8). Matt's response indicates a problem about the information in the book – the images have no names (10). The mother's response repeats most of Matt's formulation of the problem and this prompts Matt to clarify his previous comment by adding the information that names aren't beside the pictures in the book (13).

8 L: do you think you can find it ↑Matt
9 (2.0)↔((Denny clicks and screen page closes))
10 M: bu::t I can't do tho::se ones (0.4) they don't have names
11 (0.4)
12 L: that don't have the names
13 M: next to them
14 L: o::h next to them (0.4) well [see down here
15 D: [look dis one
16 G: this one
17 D: ((clicking on a search term))

The mother acknowledges her understanding now of the problem through use of "o::h" and then extends her turn with "well" and a directive to look at a place on the page in the book (14). At the same time, the younger child and his father resume their activity on the computer (15-17); thus their talk and activity overlaps the interaction between Matt and his mother and this overlap continues as their talk proceeds.

The mother then offers a formulation of what she is about to do in the talk next – explain how to find the name of the lizard (18). This utterance is important because it prefaces an extended turn that she is about to take. This begins in line 21.

18 L: this is [what you do then
19 G: [hehe this is their favourite
20 R: hhhh.
21 L: this one (0.4) see you go eight see you find number eight (0.4) and
22 then you look for number eight there (0.4) and that's what it is
23 (0.4)
24 L: it's a (boa)
25 (0.4)

First the mother nominates a reptile ("this one") and then she draws Matt's attention to the number beside it ("see"). Her words "you go" formulate what to do (locate the number). She then names the action as "finding" the number. She further extends her turn with "and then" which indicates more to come and formulates what has to be done through the use of "look for". The word "there" is indexed to a position on the page which she is presumably indicating with her finger. She concludes her explanation with another formulation ("that's what it is", that is, its name) and then names the reptile – a boa (24).

Excerpt 3

Matt finds the lizard and identifies it correctly as a green basilisk lizard. Later his brother and parents leave the room and he is able to use the computer himself. He

copies the name of the lizard from the book in order to do a Google search to locate the lizard. His activity is spread over a long section of the transcript so only the initial section is examined here.

Initially, Mat draws the researcher's attention to his activity with the directive "look" and he formulates what he is about to do next – get the name of the lizard from the book (1). His use of "first" indicates that more is to come. The researcher's response, a formulation that he is going to find something on the computer (3), is confirmed by Matt. He then formulates what he is doing (trying to find) and uses the attribute that it can run on water rather than naming the lizard (5). He then goes on to meticulously type in the words "green basilisk lizard", working between the book and the Google search page.

1 M: look (1.0) I need to get the name from here first
2 (1.0)
3 R: oh you find something ↑there
4 (0.4)
5 M: yep I'm trying to find that lizard (0.4) that can run on water
6 (0.2) there
7 (0.8)
8 M: that's ( )
9 (10.0)↔((takes the mouse/brings up Google search/looks at his
10 book and then looks along the keyboard))
11 M: ooh
12 (11.0)↔((looking at keyboard and typing))
13 ((looks back at book))
14 M: r ((looks at keyboard))
15 (7.0)↔((continues looking at the keyboard))

As the transcript suggests, throughout keying the name of the lizard, Matt works back and forth between the book and the keyboard: he reads the first letter in the book and then he searches the keyboard for that letter (9-10). Once he locates the letter he types it in (12) and then looks back to the book for the next letter (13). He names the second letter of "green" and then he begins to search for it on the keyboard (14 and 15). Typing the three words takes a time (and is beyond the scope of the analysis here) but eventually he hits the enter button and he has a list of sites about the green basilisk lizard.

DISCUSSION

Clearly, the children who were the focus for recording already knew a lot about lizards; it was their regular practice to go online and to search for lizards. For the purposes of this analysis, the children's considerable knowledge of lizards can be taken as an example of what any children might know about something that is very important in their home lives and that could inform interaction when using the computer. In the discussion that follows, the intent is to show the mutual accomplishment of what was meaningful during computer use, how interactional resources produced socially recognisable actions and activities, and how children's social actions shifted seamlessly between technologies and texts as they oriented to

doing things about lizards as an aspect of their primary Discourse or everyday activity in this family.

During the use of the computer, the children and their parents mutually accomplished what was known and not known by them. That is, meaningful content (Lankshear & Knobel, 2006) was produced by participants, through talk that occurred about lizards. Identification of the lizards started as a kind of known answer activity when the father asked questions that required the children to name the lizards. However, the task was not a straightforward one (such as identifying a photograph of a lizard), because the names of the lizards had to be worked out based on their resemblance to modern day versions of the lizards. The children then took over and named the lizards. Eventually, lizards that were not known became the focus for negotiation and mutual identification. Integral to talk was the clear identification of not knowing: by the father and by the children in the identification of lizards, and in the talk that occurred between the mother and older child about how to read an information text. Paramount was the pursuit of information, which frequently entailed seeking the knowledge of others in order to know more. Importantly, it wasn't always an adult who knew and provided information, as the father's utterances and interactions clearly indicate at certain stages.

Central to "generating, communicating and negotiating meaningful content" of encoded texts (Lankshear & Knobel, 2006) was social interaction. That is, the family members used their utterances to provide continuously updated formulations of what they were doing, took to be going on, or proposed to do. Much of this related to images on the screen but encompassed more than the on-screen texts. For example, the father's talk accomplished the children as knowledgeable about various things: lizards, reptiles, using the computer, using the reference book, and so on. The younger child sought information from the father, thus attributed him with knowing about things. However, he also challenged information provided by his father and interacted with him to change his father's proposed name for one of the lizards in the computer image. That is, Denny did not just accept his father's opinion but actively negotiated it with him.

The family members used various interactional resources to accomplish doing searches and talk about them. For the younger child, linguistic and embodied actions were used to get the attention of others and locate the source for talk. So summons and directives, together with pointing and moving the cursor, were resources used. Emphasis was employed when a first summons failed. It was also used to support bringing attention to a specific lizard ("what is <u>dat</u> one called?"). The mother's directions for locating the name of the lizard required that she indicate places by pointing as well as referring to places. Matt produced much of the information by naming lizards and seeking the name of the unknown lizard that runs on water. In order to do the latter, he needed to indicate what he couldn't do so that his mother could help him. Matt's use of technologies enabled him to produce a text – the results of a Google search. This required drawing together sources of information from the book and the computer and integrating them to produce his search terms.

What is evident from the analysis are the seamless ways in which the young children moved between texts and technologies as they accomplished various social activities; whether it was talking about a computer image, doing a Google search, finding the

name of a lizard in a book, or keying in that name to do a Google search. In the process they were acquiring, using and generating "socially recognized ways" with those texts and technologies. There was no distinction between old and new for them. Rather they were able to draw on a plethora of experiences and knowledge and the affordances of various technologies that were available to them.

CONCLUSIONS

Despite the numerous changes that have occurred in our social lives due to digital technology, approaches to early literacy instruction remain steadfastly locked into narrow understandings of reading and writing and pedagogical practices that promote those in young children (Carrington, 2001; Marsh, 2005; Merchant, 2008; Lankshear and Knobel, 2003, 2006; Levy, 2009). This study contributes to the body of research which confirms young children's uptake of social practices in ways that make them powerful users of technologies in the home. More than ever, the challenge for English, if not schooling in general, is to provide educational experiences that mesh with these, and with other social practices that are constituted around various technologies in our world.

Primarily, the analysis suggests that distinctions between old and new need to be understood as blurred in relation to young children's out-of-school practices with computers and other technologies. That is, the children used what was at hand and did not make a distinction between the new (in the sense of digital), and the old (as in a print-based text). At the same time, this blurring suggests that educational settings such as classrooms should also encompass the use of technologies in ways that do not create a divide between the old and new; allowing children to experience and use various technologies in ways that harness out-of-school literacy practices and provide instruction that encompasses and adds to understandings of them in authentic ways. Using technology as an add-on to develop or practice isolated language skills will not accomplish this. Instead, educators need to situate the development of literacies in and around participation in practices whereby young children are "becoming" and "being'"experts at things that matter to them. This is possible, for example, when young children examine and record aspects of their own daily lives and communities using digital media (Shaikh & Abbott, 2005) or when teachers and students engage with online texts that relate to popular culture and children's worlds (Marsh, 2005). It would include the acquisition of knowledge about print, and use of print-based texts, as equally as it would knowledge about and use of digital cameras, computers, editing software and so.

Further, approaches to literacy instruction could be informed by understandings of the ways that social interaction accomplishes young children's digital practices in the home. Through interaction, children and adults *bring about* meaningful content and they accomplish participation in Discourses in competent ways. The uptake of this in educational settings would require that teachers understand how interaction contributes to the accomplishment of social practices, and to young children's learning about them. For example, young children are both acquiring and using language in the service of other things and their learning is meaningful because it is located in the "stuff of life". It would also require that teachers adopt more expansive definitions of literacy to encompass the literacy practices that children bring to formal

schooling. Understanding social interaction that constitutes digital practices in the home may be a powerful tool in attempts to transform literacy practices in the early years.

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Appendix: Transcription symbols

[[	Utterances that begin at the same time
[	Overlap in speakers' talk
]	Indicates point where simultaneous talk finishes
=	Talk between speakers that latches or follows without a break between
( )	Used to indicate length of silences, pauses and gaps e.g. (0.2)
(.)	Indicates micro intervals
:::	Indicates that a prior sound is prolonged e.g. li::ke
-	Word is cut off e.g. ta-
><	Talk enclosed within symbols is said at a faster pace than surrounding talk
?	Rising intonation
?,	Rising intonation that is weaker than ?
↑	Marked rising intonation
↓	Marked falling intonation
!	An animated tone
un	Emphasis with capitals indicating greater emphasis e.g. NO
:::::::	Emphasis and prolongation indicate pitch change e.g. stra:::p indicates stress on word but no change in pitch; stra::p pitch rise
CA	Upper case indicates loudness
°	Indicates softness e.g. It's a ° secret °
.hhh	Indicates in-breath
(it)	Indicates that word within parentheses is uncertain
( )	Empty parentheses indicate that word/s could not be worked out
(( ))	These are used to indicate verbal descriptions e.g. ((sits down))
→	Talk that is the focus for analysis
↔	Indicates action occurring during gap in talk e.g. (3.0)↔((watching screen))

(Jefferson Notation adapted from Atkinson & Heritage, 1999)