

**The geography of opportunity: marrying multi-modal texts
and pedagogy to transform learning.**

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The geography of opportunity: marrying multi-modal texts and pedagogy to transform learning.

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This paper reports findings from an empirical study designed to examine how the integration of technology, in particular Interactive Whiteboards, effects teaching and learning practices in one classroom as a teacher and her students interact with multimodal texts. Data based on observations, field notes, reflective journal entries, videotapes and cultural artifacts were analysed. Findings indicate lack of congruence between espoused beliefs and enacted practices in regards to multiliteracies with teacher practice revealing a greater focus on print-based modes of communication and less attention to other modes of communication. The implications of such practice, as well as the consideration of multimodal resources as cultural products that afford and constrain opportunities for student learning is discussed.

Background to the Study

With the advancement of interactive technologies and the growth of the internet over the past three decades, information and communication technologies (ICTs) have emerged as potential tools for teaching and learning with educational institutions calling for changes to curriculum and pedagogy locally, globally, and internationally. A key feature of this change is in the area of literacy teaching and learning, where traditional print-based reading and writing practices have been revised to incorporate multimodal ICT texts which demand multiple literacy practices or *multiliteracies* (New London Group, 1996; Cope & Kalantzis, 2000). Multimodal texts, which come in print and non-print forms communicate meaning through a synchronisation of modes, which may incorporate linguistic, visual and spatial, gestural and movement, and audio modes. Children are exposed daily to a variety of multimodal texts in their recreation time and in classroom situations. Multimodal texts encountered in the classroom vary from picture books, information books, magazines, newspapers in

print form and film, video, television, the Internet, and digital mediums including learning objects, DVDs or CD Roms (Walsh, 2006).

Within Australia, a curriculum focus on multiliteracies has emerged as a significant area for reform and has been incorporated into policies, curricula and research initiatives. In Queensland it has been incorporated into such initiatives as the New Basics project (Education Queensland, 2000a) and Literate Futures (Education Queensland, 2000b), a state literacy strategy and Literacy-the Key to Learning: Framework for Action 2006-2008 (Department of Education, Training and the Arts, 2007). These have resulted in the development of professional learning materials and opportunities in relation to the teaching of reading in a multiliterate world.

The Learning by Design Project (Kalantzis, Cope and the *Learning by Design* Project Group, 2005) is a recent example of one professional development intervention that sought to translate state literacy priorities and Multiliteracies theory at the classroom level. Mary Neville (2005, p231), one of the team members in the Learning by Design project stated that the “meaning many teachers make of multiliteracies depends largely on their previous professional learning experiences, the reflective connections they make with the theory and how they have taught literacy, or have they have been taught to teach literacy, in the past.” She highlighted that many practices associated with multiliteracies theory are commonly found in schools in Queensland. However, literature which documents how teachers are translating theory into practice is not readily available to allow for a more critical examination of teaching praxis. This also is an issue in national and international arenas (Bearne, 2003; Kist, 2005).

1. Aims and Objectives of this Paper

This paper draws from a larger ethnographic case study of one public primary (elementary) Australian school. It sought to address the gap in empirical research in relation to multiliteracies by exploring if and how teachers integrate Interactive Whiteboards (IWBs) into the curriculum in ways that develop students’ multiliterate practices in the areas of reading, writing, shaping, viewing, listening and speaking. However, this paper reports on a case study of one of the teachers and her students as they interact with multimodal texts using an interactive whiteboard.

The paper focuses on the following three aims. First, it investigates how one teacher’s beliefs about multiliteracies is demonstrated through her activity choices and in her interactions with students. Second, the role of multimodal resources in framing opportunities for the teaching and learning of literacy practices are examined. Finally, factors that support and constrain literate practices are analysed.

2. Theoretical framework for the study

A theorised epistemological view of what constitutes knowledge frames this inquiry. Pivotal to this research is the argument by Bloome, Carter, Christian, Otto and Shuart-Faris (2005), that “Cultural practices (and correspondingly, literacy practices) are not just held in the minds of the group but are also ‘held’ in the material structure and organization of a setting” (p.50). This view highlights the multiple influences that

shape cultural and literacy practices and the complex ways knowledge is constructed through these practices. Therefore, the theoretical orientation of this research is grounded in work on social constructionism. Constructionism, as an epistemology, argues that “all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context” (Crotty, 1998, p.42).

In the international arena literacy researchers in the US (Bloome et al, 2005; Gee, 1996), UK (Barton, 1994; Street, 1984) and Australia (Luke, 1993) have argued that literacy is a process which is socially constructed. From a social constructionist perspective, what counts as literacy is determined locally and situationally through the actions of members of a social group. This research drew upon the definition of social construction proposed by Castanheira, Crawford, Dixon & Green (2001), who defined literacy as:

a socially constructed phenomenon that is situationally defined and redefined within and across differing social groups...What counts as literacy in any group is visible in the actions members take, what they orient to, and what they hold each other accountable for, what they accept or reject as preferred responses of others, and how they engage with, interpret and construct text (p.354).

A social constructionist perspective acknowledges the social dimension of meaning, with culture as a cognitive matrix that shapes individuals' lives. This approach allows for a more collective (Crotty, 1998) notion of literacy and multiliteracies as constructed in classrooms by teachers and students. Dias and Atkinson (2001) suggested that the process of transformational learning is evident in teacher beliefs, feelings and actions as they adapt new technology, such as IWBs to existing teaching frameworks. Therefore, a radical constructivist approach was relevant in attempting to focus on the meaning-making of the individual teacher and her students.

The idea of knowledge as created by individuals witnessed the rise of “constructivism,” a philosophical perspective derived from the work of Kant (1787). This perspective views “reality as existing mainly in the mind, constructed or interpreted in terms of one's own perspective” (Harris & Hodges, 1995, p.43). New understandings are developed when our current knowledge and beliefs interact with new experiences. These new experiences are either interpreted in line with our prior knowledge or if disequilibrium occurs, new rules are created to accommodate this new experience.

Glaserfeld (2002) advanced a cognitive perspective of constructivism originating from the work of Piaget (1970), who viewed knowledge construction as exclusively being in the mind of the individual. Glaserfeld proposes two key points that are relevant for this study. First, even though people may have the same experience of an event, the knowledge constructed may be different. New knowledge gained from reflection upon practice and discussion also may result in different teaching practices of participants if this new knowledge is not assimilated into their teaching frameworks or belief systems. Second, prior knowledge and experience determine our understanding of the world. Information is either assimilated into our existing constructs or accommodated

with modifications made to fit into existing frameworks or schemes. Knowledge is kept or discarded by individuals if it is deemed viable or useful at the time or in the future. This is important in considering what teachers value in their classroom or what may have worked in the past as suggested by Neville's (2005) research on multiliteracies and will impact on future teaching practices. It is also important in the work teachers do when guiding their students through the complex multiliterate practices needed to interpret multi modal texts accurately.

3. Methods

A social constructionist view implicates a methodological approach to data collection and analysis that involves identification of the full range of literate resources used in the classroom, including an examination of how the resources were used and with what outcomes. Ethnographic methods served research purposes in describing and interpreting the cultural practices observed and experienced in the classroom (Wolcott, 1987). A radical constructivist approach places the importance on individual meaning-making so these data were supplemented by teacher interviews and reflections upon observation to ascertain teacher beliefs. The methods guiding this exploratory study allowed both researchers and participants to collaboratively understand the processes that participants used to create meaning in the classroom in relation to multiliterate practices (Anderson-Levitt, 2006). Furthermore, they allowed the examination of how the curriculum directions impacted upon what was happening in the classroom and what opportunities students were afforded when engaging with IWBs and multimodal texts.

4. Data Sources and Data Analysis

Data reported in this article were derived from a larger ethnographic case study, designed to empirically examine the fundamental question, "What is happening here?" Whilst the place of the IWB as a technological tool to create interactive learning environments was central to this study, it was the phenomena of multiliteracies which was under exploration. Over a period of two years this study sought to investigate what counted as multiliteracies at three levels: 1) the whole school level, 2) the year level, and, 3) the teacher level.

The site of the study was one of a few schools with a whole school implementation of IWBs. The school is situated in a low socio-economic area, and has significant numbers of students with special educational needs and students with home languages other than English. The study presented here focused on one Year-4 teacher, Janelle (pseudonym), who was teaching 28 students at the time, 13 boys and 15 girls. Janelle has taught for approximately 11 years in a variety of schools within Australia and the South Pacific. In this research site she played a central role in using IWBs within classroom settings. Janelle was involved also as a mentor and instructor in a number of educational initiatives in regards to the use of technology within classrooms. Her participation in this study was voluntary and part of her commitment to be a leader in this area and a self-reflective practitioner.

Consistent with an ethnographic approach and framed by the epistemological perspectives of social constructionism and radical constructivism, data were collected

and analyzed in a variety of ways to address the overarching aims of the study. Earlier data analysis (See Kitson, Fletcher & Kearney, 2007) examined what counted as multiliteracies. It used a reflection by Janelle in February, 2006, as the anchor for what counted as multiliteracy. The case study classroom event discussed here was selected purposefully for further analysis as it involved Janelle using a multimodal text. In a reflection on the 11th of June 2006 Janelle reflected on her teaching practice in respect to multiliteracies. This reflection provided the impetus for the lesson and focused on an area she self-identified as not enacting in her teaching practice: how texts have different meanings for different people. This has emerged as a consistent 'reading problem' in our national testing where students will use prior knowledge of a topic as the preferred strategy when answering comprehension questions (Queensland Studies Authority, 2007). Different meanings when based on prior knowledge and not located in the text are wrong. In the classroom reading event reported below, the teaching aim was to read a text and visualise the meaning 'making a picture in one's head'.

This classroom event provides us with a snapshot of what counts as multiliterate practice in Janelle's classroom and allowed a shared understanding of how teacher practices support and constrain development of student's multiliterate practices. This analysis also makes evident that an awareness of espoused and enacted theories allows teachers to manage their practice in a reflective and informed way. Further, it allows for a review of how, why and under what conditions well-intending teachers alter their instruction when dealing with multimodal texts and different meanings interpreted by students when reading these texts.

In this classroom event Janelle and her students reads three texts from a Learning Object called "Picture This" (Learning Federation, 2004), which was retrieved by Janelle from the Education Queensland website. The Learning Federation is an Australian Federal and State/Territory initiative which seeks to produce and deliver to schools a collection of multimedia learning objects to support a range of curriculum areas. A Learning Object as defined by the The Learning Federation, "is one or more files designed to be used as a standalone learning experience – a 'chunk' of material (which might consist of audio, graphic, text, animation or some relevant mix of components) that will make sense to the learner by itself" (Learning Federation, 2002).

A descriptor of the "Picture This" Learning Object retrieved from the Learning Place (Education Queensland, 2006) identifies the teaching focus in the statement:

"Explore how words can trigger pictures in people's heads. Look at some thought bubbles. Recognize that two people may think of very different pictures when reading the same text. Choose five words from a list to describe a picture. Read one of three fiction texts or a factual description. Then watch an animation showing how a boy pictures the text happening. As you go, look up the meaning of tricky words."

The three texts discussed in the results section of this paper that are embedded in "Picture This" (Learning Federation, 2004) are: 1) "Snake", a poem, 2) "Ace," and 3) "Crocodiles. A micro-analysis of a) field notes from the classroom observation, b) transcripts from the video observation and c) teacher reflection after the classroom

event, was conducted during which we examined how teacher beliefs (espoused theories) are translated into practices (theories-in-use) when working with the IWB and the Learning Object, and how the espoused beliefs were used to create opportunities for developing (or constraining) multiliterate practices.

5. Results

The results section addresses the aims and objectives of this paper which are threefold. First, how teacher beliefs about multiliteracies are demonstrated through their activity choices and in their interactions with students; second, the role of multimodal resources in framing opportunities for the teaching and learning of literacy practices are considered. Finally, factors that support and constrain literate practices are discussed.

Field notes, transcripts from the video observation and teacher reflection after this classroom event were analyzed in Table 1 in relation to each of the three reading events to allow for comparison. Aspects of analysis were: espoused theories in the first column based on interview data where the teacher identified her beliefs about teaching practice, texts and their use; theory-in-use in the second column based on video and observation data recording the practices implemented during the teaching sequence, and affordances and constraints of the Learning Object in the third and fourth columns. All data sources were examined for evidence of espoused beliefs in relation to multiliterate resources and practices. Two beliefs were espoused in the reflection: 1) "prior knowledge facilitates comprehension", and 2) "digital texts require different reading approaches to print-based texts." These will be examined in relation to a transcript for each of the three texts from the classroom event.

As the purpose of this inquiry was to investigate those factors that afford and constrain learning, it is important to recognize the effect that the classroom context, both physical and conceptual, may have on teaching and learning outcomes. On the day of this observation, as the transcripts indicated there was considerable noise coming from the other class sharing the double teaching space. Throughout all three text readings during the classroom event there were various behavioural aspects and other disruptive influences, such as students with special needs causing distraction and the IWB not working well in the weeks prior. These constraints are typical in many open classrooms and impact on the quality of the learning environment for teachers and students and the capacity for the teacher to deliver quality learning experiences.

Table 1. Analysis of Classroom Event 14th June, 2006

| Reading Event | Espoused Theory | Theory-in-use | Affordances | Constraints |
|--|---|---|--|--|
| | | | | Background Noise |
| Snake (Poem) | Prior knowledge facilitates comprehension | Prior knowledge acknowledge of rainforest and snake acknowledged as correct but cross-checking with text not explored | Select to see pictures in his head option -Image, voice over of snake and grass provided | Procedural and behavioural aspects interfering with reading task |
| | Digital texts require different reading approaches to print-based texts | Contextualizing information not taken up | Audio/visual input: Select to see pictures in his head option | ↓ |
| Ace (narrative) | Prior knowledge facilitates comprehension | Contextualizing information not taken up | Picture This front page: Title, author details | ↓ |
| | | Question/confirmation - Comprehension | Digital Text "Ace" | |
| | Digital texts require different reading approaches to print-based texts | Reading is word knowledge: focus on question through question/ confirmation | Intertextual link: Tricky Words | Main Menu Access |
| | | Teaching practice focuses on repeating responses. No further references to use of visual images as a reading strategy | Audio/visual input: Select to see pictures in his head option | ↓ |
| | | Reading discourse: point, click on this, choose a word | Technological discourse: icon, hyperlinks, audio | |
| | | Multiliterate approach taken up for 'nova' and 'vessel' but not taken up for second page- 'knuckle', 'photon torpedoes' | Pop up box prompts reading strategies | Text box partly covers the text |
| Reading is located in the text: focus on words | Help; Main menu | ↓ | | |
| Crocodiles (factual description) | Prior knowledge facilitates comprehension | | Question/confirmation - Comprehension | Title – Crocodile Intertextual link: Tricky Words |
| | Digital texts require different reading approaches to print-based texts | Contextualizing information not taken up Reading is located in the text: focus on words | Audio/visual input: Select to see pictures in his head option Provided reading strategy of skimming but slide of crocodile not accessed by teacher. | ↓ |

“Snake” reading event

“Snake,” a poem was the first reading task in this classroom event. As revealed in the transcript (Table2) Janelle directs students to close their eyes and to make a picture in their head while she read the poem to them. After the reading, Janelle minimises the screen so that students cannot see the text. She then asks students to share the “pictures” they have made in their minds. Julie (pseudonym) puts her wrist to her mouth and pretends to make a biting action and says that “when you go past a snake it goes ppphh” (line 167). Janelle acknowledges Julie’s response, valuing the picture she has made in her head. However, Janelle fails to link it back to the purpose of the learning object to “make a picture in your head to match the text” and only bases correct responses on student prior knowledge as evident in the pictures in their heads. (line 161). This omission constitutes a missed opportunity for learning (as cited in Kitson, Fletcher & Kearney, 2007) and suggests the value given to meanings based on a students' prior knowledge rather than meanings based on the text .

Table 2 Transcript excerpt “Snake” Poem

| Line | | Speech | Gestures, Comments |
|------|------------|---|--|
| 159 | T | Okay. You need to listen now because we are changing the activities slightly. Darren. | Teacher puts her hand up to signal to stop and listen. |
| 160 | T | Okay we might look at the snake please. Can you select the snake for us up here. | Teacher looks at options on IWB screen. Tracey selects the snake and a new screen appears. |
| 161 | Voice over | See if you can make a picture in your head to match the text. Think about what could be happening just as if it is a movie | |
| 162 | T | Ok. I want you to close your eyes first. I am going to read this to you and I want you to make a picture in your mind. | |
| 163 | T | The crooked wiggly slithering snake Slides along the grass. The crooked wiggly slithering snake Bites us when we pass. His jet black eyes Are very bright. In knots he ties Himself at night. The crooked wiggly slithering snake Slides along the grass. The crooked wiggly slithering snake Bites us when we pass. | There is a thought bubble which says to “select to see pictures in his head. (Teacher doesn’t select this option) |
| 164 | T | Open your eyes. Who would like to come out and share what you picture you made in your mind. Julie that would be great. | Teacher gets up and removes text with snake poem on it. Sits back down on chair |
| 165 | | Guys you need to listen carefully. Mark. Sorry Julie when you are ready. | Julie moves out to the front of the group, beside Tracey at the IWB. Julie puts her wrist to her mouth and pretends to make a biting action. |

| | | | |
|-----|----------|---|--|
| 166 | | Okay so when what comes past? | |
| 167 | Julie | When you go past a snake it goes ppphh | Makes biting action again. Classroom is very noisy. Unsure of whether it is this class or the other adjoining class. |
| 168 | T | Excellent thank you. Ok who else would like to share what picture they had in their minds? Megan. You will have to stand up and be really loud. | Teacher looks over to the other class. |
| 169 | Megan | A snake slithering | |
| 170 | T | A snake slithering. Excellent. Mark. | |
| 171 | Mark | I was in the rainforest and saw a snake xxxx | |
| 172 | T | And why were you in the rainforest? | |
| 173 | Mark | Because snakes live in the rainforest. | |
| 174 | T | Excellent. Did the text say ..Let's put that text back up. Did the text say anything about a rainforest? Can you click there for it Tracey | Rephrases Speaking to Tracey? (Teacher doesn't select the thought bubble to see what pictures the person had in their head.) |
| 175 | Students | No | |
| 176 | T | But that's ok that Mark did that because he is bringing his own meaning to the story when he reads it. | |

Later in the transcript Janelle prompts Mark to share his picture in his head. Mark responds “I was in the rainforest and saw a snake xxxx” (line, 171). Janelle further explores this notion by asking Mark why he was in the rainforest, linking it back to the text “Did the text say anything about a rainforest?” (line 174). All students confirm that it the word “rainforest” was not in the text in line 175 with a resounding “no.” Janelle’s response is that “But that’s ok Mark did that because he is bringing his own meaning to the story when it reads it”.

As a well- intending teacher, Janelle acknowledged Mark’s prior knowledge for bringing meaning to a text, but misses another opportunity in advancing students' strategic reading practices with a multimodal texts by not selecting the visual and audio support provided in the “Select to see pictures in his head option” (see Figure 1). So whilst Janelle espoused that digital texts require different reading approaches to print-based text, this is not enacted. Selecting this option would have allowed Mark to cross-check his interpretation of the task, to make a picture in his head of rainforest based on prior knowledge, to knowledge based in the text in which grass does. Selecting this option would have explicitly demonstrated to the class the need to base one's interpretation on the actual text and not on one's prior knowledge. Mark needs to understand that his prior knowledge is 'interfering' with a more accurate text based interpretation.

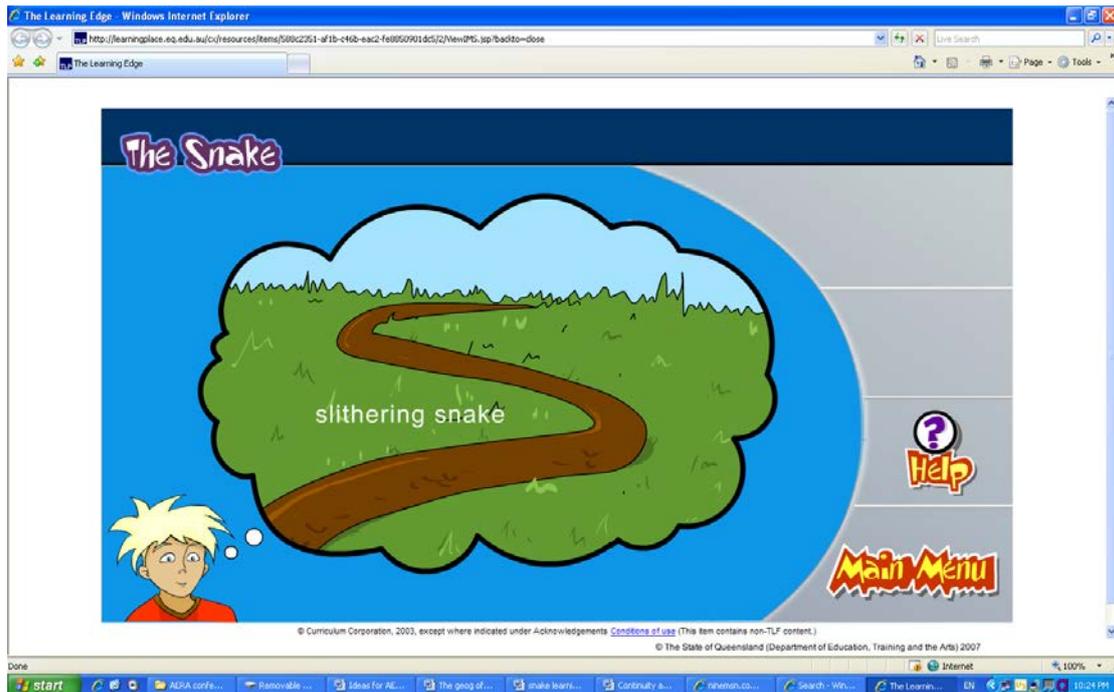


Figure 1. Screenshot from “Snake” poem, Select to see the pictures in his head.

“Ace” reading event

The next text reading was “Ace.” The transcript excerpt in Table 3 below includes a question Janelle posed that reflects her belief that prior knowledge facilitates comprehension: “So do you think that when you read something and it’s about something you like and you know about, do you think it makes it easier to understand what you read?” (Line 227). While Janelle's question indicates her awareness of the relationship between prior knowledge and understanding, this awareness was not evident in her actions when using the Learning Object (Table 1). Once again, she did not take up the contextualizing information available in the Learning Object in the form of the story title “Ace”, nor did she follow up the link to find out the author details (Figure 2). Had the opportunities provided on the learning object been pursued, it may have resulted in a different level of reading and understanding of this text. In her reflection, Janelle indicated (lines 217 -219) that students did not understand “Ace” because they did not have sufficient prior knowledge of lasers and vessels (line 224), yet she provided no attempt to help students gain this information. Only after the lesson, when she had time to reflect on what occurred did she identify areas of needed knowledge and a missed opportunity to develop students as strategic readers of multimodal texts.

Table 3. Transcript excerpt “Ace” Story

| Line | | Speech | Gestures, Comments |
|------|---|---|------------------------------|
| 212 | T | So what else can we add to the story now that we have read that little part? What pictures are we forming in our minds? | Teacher points to a student. |
| 213 | S | XXXX | |

| | | | |
|-----|----|---|---|
| 214 | T | Fighters | Teacher pauses, then points to another student. |
| 215 | S | People disappearing | |
| 216 | T | People disappearing. Good girl. | Students speaking in background. Not sure if it is a response or not. Teacher points to a student in a different direction. |
| 217 | T | Ok that one's quite a tricky one. Why do you think that one's a bit trickier than the first one? | |
| 218 | S | Lasers | |
| 219 | T | Laser's good. Good girl. So why is this one trickier than the one we read about the snake? | Teacher points to a student. It is hard to see. I think this may be Leanne (pseudonym) (learning support). |
| 220 | S | Because they are different. | |
| 221 | T | How are they different? | |
| 222 | S | They're different stories. | |
| 223 | T | Do you know much about lasers and vessels and spaceships? | |
| 224 | Ss | No | |
| 225 | T | Do you know much about snakes? | |
| 226 | Ss | Yes | |
| 227 | T | So do you think that (pauses) when you read something and it's about something you like and you know about do you think it makes it easier to understand what you read? | I can hear students talking. Teacher pause -This may be to gain student attention. |
| 228 | Ss | Yes | |
| 229 | T | It does, doesn't it? And that is the same with all of us, even as adults. | |

The second espoused theory that digital texts require different reading approaches to print-based texts is evident in Janelle's reflection, where she wrote that a feature of this text was that it was "non-linear". However, the approach evident in the transcript excerpt was a traditional linear reading, with authority located in the words of the text. In this instance, Janelle missed another opportunity for helping students learn. She did not take up the hyperlinks afforded in the text. For example the hyperlink to "tricky words" afforded a potential opportunity to explore the meanings of "knuckle" and "photon torpedoes" (See Figure 2 underlined words, signalling a hyperlink) and to gain further information, including a dictionary meaning and audio pronunciation. Analysis of these links indicated that they provided information designed to assist students in decoding the meaning of this text; however, they were not taken up in the interaction, creating another missed opportunity to bring forward information that could support student understanding.



Figure 2. Screenshot of “Ace” story, page 2 of 2

“Crocodiles” reading event

The next reading event was based on a factual description of crocodiles and a portion of the transcript (Table 4). In examining the espoused theory of prior knowledge as facilitating comprehension, Janelle prompts Sally (pseudonym) by asking “what are you thinking when you are reading this?” (line 235). Sally, a student with learning difficulties responds with “frogs” which is met by laughter by some students. Being a supportive and well-intending teacher, Janelle attempts to scaffold Sally’s understanding through reference to the text and establishing how crocodiles and frogs are related (line 243). Sally identifies that crocodiles eat frogs and refers to the word “prey” in the text (line 252). Whilst one student has an understanding of the term “prey” it is unclear if this is the case with all students in the class. Once again Janelle, misses the opportunity to enhance student understanding through an elaborated discussion of vocabulary. Janelle did not take up an opportunity to use the reading strategy of locating the main idea of the text, through skimming the text and using contextual clues like the title “Crocodiles” (see Figure 3).

Table 4. Transcript excerpt “Crocodiles” factual description

| Line | | Speech | Gestures, Comments |
|------|---------|---|--|
| 235 | | Ok what are you thinking of when you are reading this? Sally? | Tracey hasn’t finished reading the piece but teacher presses on. |
| 236 | Sally | Frogs | Some students laugh |
| 237 | T | Frogs? | Teacher looks at passage on IWB about crocodiles. Pauses |
| 238 | Student | xxxxx | |
| 239 | T | What makes you think of frogs? | |
| 240 | Sally | Cos they’re....XXXX | |

| | | | |
|-----|---------|--|--|
| 241 | T | Excellent. What do you think the main story is about? What is it mainly about? | Giving a positive evaluation when not main focus of story. What about clueing students into title? |
| 242 | Sally | Crocodiles. | |
| 243 | T | Crocodiles. So how are crocodiles and frogs related? | |
| 244 | Student | Because.... | |
| 245 | T | No come on stop I want Sally to keep on going. | |
| 246 | Sally | Because crocodiles eat frogs | |
| 247 | T | Because crocodiles eat frogs | |
| 248 | | Excellent. What word helped you with that? | |
| 249 | Student | Um. XXXX | |
| 250 | T | It doesn't actually say that they eat them but it says something else that helps you. Who can help Sally with that word? | |
| 251 | Student | Prey | |
| 252 | T | Prey. Good girl | Teacher points to word prey. |
| 253 | | Um Mark? | |

Like Janelle's reading of "Ace," the approach to the reading of "Crocodile" was mainly linear, as is the nature of hypertext and she selected one option (billabong) to foster student understanding. Unfortunately, Janelle did not explore the "select to see pictures in his head" option which was an animation which incorporated visual, audio and written modes which may have consolidated student comprehension of the text, an aspect which is extremely important in classrooms with diverse learning needs. The background noise made it difficult for her to elaborate and discuss students' responses and by this stage she was struggling to maintain their engagement.

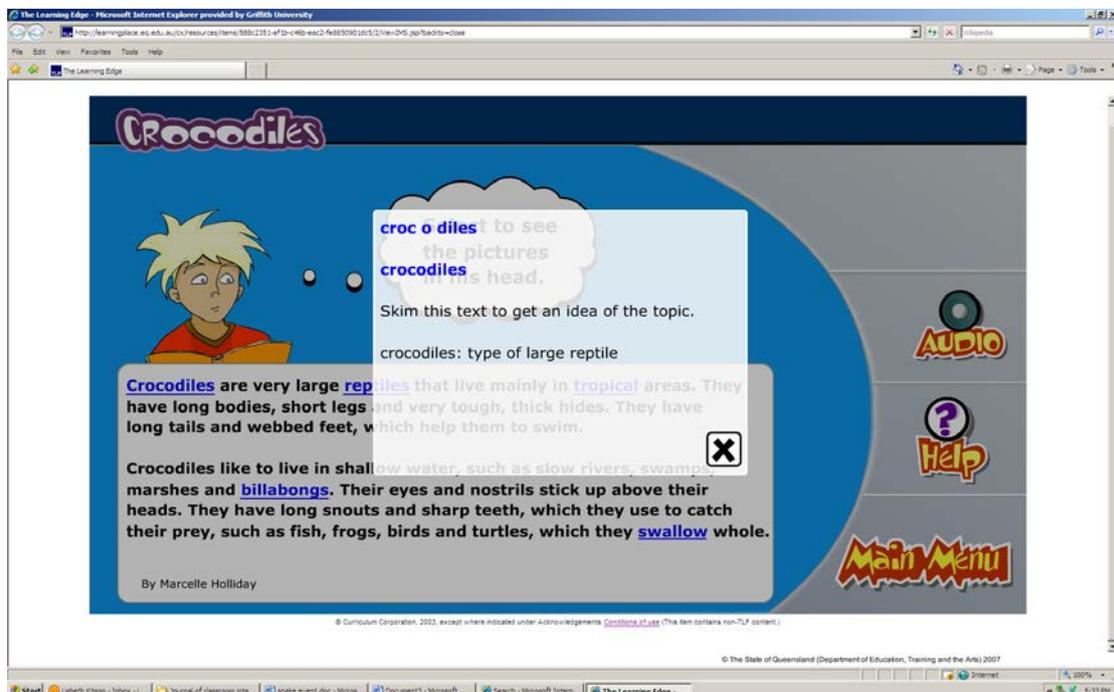


Figure 3. Screenshot of "Crocodile" factual description

This analysis and comparison of the three reading events made visible how Janelle's beliefs about multiliteracies were demonstrated through her activity choice and interactions with her students. Her actions did not enact her espoused beliefs about comprehension and strategic reading behaviours with digital multimodal texts. While the learning object included resources designed to enhance reading, these were not taken up, and suggested that Janelle was working from a traditional print-based approach throughout all three reading events. Missed opportunities remain invisible for most teachers as they go about their daily work and potential learnings may not be realized. In addition when there are distractions from background class and student behaviour, it is difficult to maintain one's focus on the teaching goal. While multimodal texts offer opportunities to explore reading practices through the variety of resources available such as hyperlinks, voice overs etc, they add a further complexity for the teacher managing the resource. First, a teacher needs to be very familiar with these resources and know what affordance they offer. Second, a teacher needs to know how these resources will support a strategic teaching approach to the meaning making process. Finally, knowing when to access and activate these resources in response to a student's interaction should advance learning beyond what is known to a more strategic and accurate interpretation of a text. As a well-intending teacher and as a consequence of participating in this research, both Janelle and the research team developed a clearer understanding about the geography of opportunity that multimodal texts offer in supporting student learning.

6. Discussion

This study identifies a need for teachers to consider how the semiotic codes available in multimodal texts such as the Learning Object Janelle used offer affordances and constraints upon meaning-making. Walsh (2006) highlighted that the similarity between reading print-based texts and multimodal texts occurs in the meaning-making and interpretation process. Readers need to be able to understand the message to make meaning. Prior knowledge plays a role in this process but when it results in a different meaning the interpretation may be incorrect within the context of the text. The value of technology is knowing that different modes such as written, audio, visual, sound and movement separately and collectively contribute to the process. The interpreted meaning will be affected by the affordance of the modes as well as the purpose of the reader and the social purpose and the cultural context of the text (Bearne, 2003; Kress, 2003). As suggested in the above analysis, teachers need to juggle declarative, procedural and conditional knowledge as they make complex decisions about how best to use a technological resource to develop students' multiliterate practices. In a noisy and problematic learning environment, the potential learning opportunities afforded by multi modal texts may be just too difficult to access. In these instances, teachers revert to a more familiar and less complicated traditional teaching approach that reflects that of print based texts.

As highlighted in this study, all of these aspects need careful consideration by classroom teachers for developing effective multiliterate practices when using multimodal texts on the IWB. There is a need to explore the geography of opportunity these texts offer or don't offer and marry this with teacher pedagogy in order to develop effective practice. Unless espoused and theory-in-use practices are made

visible through a study such as this, through a collaborative process of reflection and discussion, teachers may not act in a knowing way that aligns what they believe with what they do.

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