

# Continuity and Change in Literacy Practices: A Move towards Multiliteracies

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## ABSTRACT

In this paper we present findings from an empirical study-in-progress that investigates how a teacher integrates technology, specifically an Interactive Whiteboard (IWB), to teach multiliterate practices when reading multi-modal texts. This research was a collaboration between a teacher and a team of university-based researchers as they used ethnographic action research to make visible the teacher's espoused and enacted beliefs as to what counts as multiliteracies in her classroom during the exploratory first phase of the inquiry. Social constructionism framed our theoretical orientation and our epistemological view of knowledge. Data based on observations, field notes, reflective journal entries, videotapes and cultural artifacts were analyzed from contrastive and holistic perspectives using micro-analytic techniques to interpret ways that meanings were negotiated when reading a multi-modal text on an IWB. Results reported indicate lack of congruence between the teacher's espoused and enacted beliefs, given that her practices focused mainly on traditional print-based modes of communication. These findings will inform the teacher's action in the next phase of the study where ethnographic action research methods will guide the teacher's planning in ways that will align her espoused and enacted beliefs about multiliteracies, multimodal texts and the use of the IWB in her classroom.

## INTRODUCTION

With the growth of internet and other interactive technologies in the past three decades, information and communication technologies (ICTs) have emerged as important tools for teaching and learning, resulting in significant changes in curriculum and pedagogy. A key aspect 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 the multi-modal ICT texts which

demand multiple literacy practices. These technology-mediated practices are viewed as essential for students in the 21<sup>st</sup> century to develop, and there has been an international push for educators to address these needs in their classroom practice (New London Group, 1996; Warshauer, 2000).

Within Australia, one of the major initiatives designed to address the changing educational and societal contexts is a curriculum focus on *multiliteracies* (New London Group, 1996), which has emerged as a significant area for reform across the disciplines and has been incorporated into policies, curricula and research initiatives both nationally and at state levels (See Kemp, 1999; Education Queensland, 2000a; b; Queensland Schools Authority, 2005). Despite the international push to focus on learning of multiliteracies, Neville (2005) found that literature in Australia reporting how teachers are translating theory into practice in relation to multiliteracies is not readily available. A similar trend in international contexts was reported by Kist (2005).

This article seeks to address the gap between empirical research and education reform policy by examining the effects of the implementation of Interactive Whiteboards (IWBs) on teacher practice in the area of multiliteracies. A focus on the integration of Interactive Whiteboard, which uses a computer, a touch-sensitive screen and a data projector to provide both audio-visual presentation and links to a host of electronic and multimedia resources, provides a context for examining in what ways a teacher implemented the multiliteracies and technology approach promoted in Queensland curriculum documents. Working collaboratively with one teacher in an ongoing ethnographic action research project, we were able to explore areas in which the teacher's *espoused* and *enacted* theories (Argyris & Schon, 1974) about multiliteracies were and were not congruent with the multiliteracies curriculum.

The importance of examining the issues of congruence and noncongruence were captured by Argyris and Schon (1974), who argued that people frame their ac-

tions with an espoused world view which often does not translate into practice. Further, if they are unaware of the lack of congruence between their espoused theories (beliefs) and theories-in-use (actions), they cannot manage their practices effectively and in a knowing way (Fletcher, 2005). From this perspective, teachers and researchers alike need to examine issues of congruence or non-congruence of teacher actions when faced with new reform directions, in this case multiliteracies in the IWB context.

Based on Argyris & Schon's argument, we undertook an ethnographic action research approach, a form of design experiment (Tacchi, Slater & Hearn, 2003; Schoenfeld, 2006), to understand factors of congruence or noncongruence that shaped the design and understanding of teaching practices using the IWB for multiliteracies teaching. This article reports analysis of issues of non-congruence uncovered during the exploratory first phase (February to June, 2006) of a larger, on-going ethnographic action research project focusing on the ways in which whiteboard technology supported and/or constrained the teaching and learning of multiliteracies. This study sought to understand if and how participating in research on multiliteracies supported the teacher and the university-based research team in gaining new understandings of: 1) the demands of teaching with new technologies and, 2) the lack of congruence between espoused theories (beliefs) and theories-in-use (enacted literacy practices).

Two questions addressed this overarching goal:

1. What counted as multiliterate practices and resources in this classroom?
2. How are teacher beliefs about multiliteracies demonstrated through their activity choices and in their interactions with students using ICTs?

These questions provide different views as to what counts as literacy in an IWB-supported classroom. Also they focus the research on an examination of how, and to what extent, the teacher's practices aligned with a framework for multiliteracies teaching (Cope & Kalantzis, 2000) and her beliefs about effective multiliterate practices.

### **THEORETICAL FRAMEWORK FOR THE STUDY**

In order to develop a deeper understanding of the way the teacher espoused and enacted multiliterate practices and integrated interactive technologies, it was important to frame this study within a theorized epistemological view of what constitutes knowledge. Central to this research is the argument by Bloome, Carter, Christian, Otto and Stuart-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). Their argument highlights for us 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).

Literacy researchers in the U.S. (Bloome et al, 2005; Gee, 1996), U.K. (Barton, 1994; Street, 1984) and Australia (Luke, 1993), among others countries, have argued that literacy is a socially constructed process. From a social construction perspective, what counts as literacy is locally and situationally defined through the actions of members of a social group. For our research, we draw on the definition of social construction proposed by Castanheira, Crawford, Dixon & Green (2001), who argued that literacy is:

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).

This definition focusing on multiple literacies, rather than a singular notion of literacy, as well as the variety of ways of engaging in literacy practices within and across social groups (Bloome et al, 2005; Castanheira et al., 2001; Rex, Green & Dixon, 1997), became a central point of the research reported here. Underlying the multiple literacies perspective is a view of literacy as both a construct of, and a cultural tool for the members of a social group to achieve both collective and individual goals and purposes (Lima, 1995). Within everyday interactions, group members are afforded and at times denied opportunities to construct and have access to the range of literate practices deemed necessary to participate in socially and culturally appropriate ways. The range of an individual's literacy practices within this collective group is contingent upon opportunities made available to, and engaged in by the individual (Castanheira et al, 2001). Therefore, together we sought to examine how multiple literacies were constructed through the interactions of teacher and students using an IWB.

The view of multiple literacies from a social constructionist framework is not a curriculum approach as is multi-

literacies. Rather, it is a theoretical framework that guides inquiry into how such literacies are developed by particular groups, leading to a situated view of what counts as literacy. Thus, the social constructionist approach provides a way of constructing a grounded understanding of the literacy opportunities afforded students, and lays a foundation for exploring in what ways these practices were congruent with the teacher's beliefs and the multiliteracies curriculum.

This view also implicates a methodological approach to data collection and analysis that involves identification of the full range of literate resources used by members of the class, including an exploration of how the resources were used and with what outcomes. Ethnographic methods served our research purposes in describing and interpreting the cultural practices observed and experienced in the classroom (Wolcott, 1987). The ethnographic framework guiding the first exploratory phase of this study allowed us to understand the processes that participants used to create meaning in the

classroom in relation to multiliterate practices (Anderson-Levitt, 2006). In the next phase, action research methods will be drawn upon to study particular curriculum directions identified in the ethnographic phase. The combination of ethnographic and action research methodology allowed us to examine how the curriculum directions impacted what was happening in the classroom and what opportunities students were afforded when engaging with multiliteracies.

**CONTEXT OF THE STUDY**

The study was conducted in a public primary (elementary) school in Queensland, Australia. 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. It is one of a few schools in Australia to have a whole school implementation of IWBs. The study presented here focuses on

**TABLE 1**

*Overview of Ethnographic Action Research  
(adapted from Bassey, 1998).*

Guiding questions related to research phases	Ethnographic Framework - Methods/Tools/Analysis
<p><b>Phase 1</b> <b>Immersion in Culture of the School</b> <b>(Whole school, Selected Classrooms)</b></p> <p>What is happening in this educational situation of ours now?</p>	<p>Topic-Oriented Ethnography from consultation with Participants (School)</p> <p>Macro Level – Analyze Education Qld (Queensland) documents Micro Level – Ethno-historical research at school level <b>* Micro Level - Classroom</b></p> <p>Artifact Analysis Descriptive and Focused Observations Domain Analysis/Taxonomic Analysis Contrastive Analysis of Events Multimodal Discourse Analysis</p>
<b>Ethnographic Data feeds into Action Research Phases</b>	
↓	
<b>Stages of the Action Research Cycle</b>	
<p><b>Phase 2 –Year Level</b></p> <p>What changes are we going to introduce? What happens when we make the changes?</p>	<ol style="list-style-type: none"> <li>1. Tackling a contradiction by introducing some aspect of change</li> <li>2. Monitoring the change</li> <li>3. Analyzing data concerning the change</li> <li>4. Reviewing the change and deciding what to do next.</li> </ol>
<b>Phase 3-Whole School Ethnographic Data feeds into further action research phases</b>	

\* Focus of the paper

the 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 Papua New Guinea. In this research site she has played a pivotal role in using IWBs within classroom settings and is currently involved as a mentor and instructor in a number of educational initiatives in regards to the use of technology within classrooms. Her participation in the ethnographic action research study was voluntary and part of her commitment to be a leader in this area.

## DATA COLLECTION

Data reported in this article were derived from an ongoing study that consists of three phases of an ethnographic action research methodology (Tacchi, Slater & Hearn, 2003) designed to empirically examine the fundamental question, "What is happening here?" In this ethnographic action research study, the findings of the various stages of the study form the basis for developing informed actions by the researchers and the teacher involved in the study. The purpose of this research was to support the teacher's integration of an IWB for teaching multiliteracies. Data represented in this article were drawn from the first phase (February to June) in a year-four (4<sup>th</sup> grade) classroom. This phase initiated the ethnographic action research project that was embedded in, and part of, an ongoing ethnographic study of school-wide implementation of IWB for teaching multiliteracies.

Data collection and analysis during this exploratory first phase of the research allowed the research team to collaborate with the teacher and develop insider or "emic" knowledge about the teacher's work in multiliteracies using IWBs. This shared knowledge became the foundation that the teacher used to take action during the subsequent phases (phases two & three) of the project. Table 1 provides an overview of the larger ethnographic project and illustrates how the ethnographic phases feed into, and provide a context for, the action research phases. The table also describes the analytic tools related to each phase of the project.

In seeking to answer the overarching questions presented previously, data were collected and analyzed in a variety of ways consistent within an ethnographic perspective framed by a social constructionist epistemology. The data included documents, videotapes of classroom interaction, teacher planning materials, and other records. Table 2 provides an overview of data collection and analysis for Phase 1 and makes visible the different types of data and analysis for each research question.

As indicated in Table 2, videotaped observations of classroom practice, ethnographic fieldnotes of observed classroom practices, planning documents, work samples and

artifacts were collected over a period of time from February to June 2006. All observations of classroom practices were documented and formed the basis of discussions with the teacher. During these discussions (recorded as field notes) the researcher asked clarifying questions based on her interpretation of the observational data. Following these discussions, the teacher wrote up her reflections on a structured reflection sheet or informally sent reflections to the primary researcher (Kitson) via email. This sequence of data collection from researcher observations to teacher reflection determined the sequence of analysis that follows. First, through observation we identified patterns of practice, and then we contrasted those patterns with the teacher's views identified by analyzing teacher-researcher discussions and teacher reflections.

## DATA ANALYSIS

In this section, we present analysis of the questions guiding this research. The first set of analyses examines what counts as multiliteracy and how this is demonstrated through teacher activity choices and interactions with students. The second set of analyses examines how teacher beliefs about literate resources and practices framed the use of the IWB and other resources to create opportunities for developing (or constraining) multiliterate practices.

### What counts as multiliterate practices and resources in this classroom?

The anchor for our analysis of *what counted as literacy* was a reflection Janelle recorded in February, 2006 where she espoused that "multiliterate people should be a) literate with a variety of texts, including print-based and ICT-mediated texts, b) able to locate and retrieve information in print or digital forms, c) be critical users (readers) when comprehending texts, and d) be purposeful composers and designers of digital texts considering audience and purpose". To explore in what ways Janelle afforded students such opportunities, we examined the range of resources and actions related to those resources during the period of February to June, 2006 of participant observation. A detailed representation of the range of resources used is presented in Figure 1.

As demonstrated in Figure 1, Janelle used a variety of resources during literacy events within the classroom. These have been categorized into three clusters: 1) Information Communication Technology (ICT) resources, 2) print-based resources, and 3) human resources. These clusters have been further grouped into sub-categories to reveal the range within each of the three clusters.

ICT resources were those Janelle and/or her students used on either the IWB or classroom computers. Literacy activities were often introduced on the IWB and later com-

TABLE 2

Data Collection for Phase 1 February to June, 2006

<b>OVERARCHING GOAL OF STUDY</b>			
How did participating in research on multiliteracies support teachers in gaining new understandings of: 1) the demands of teaching with new technologies, and 2) the lack of congruence between her espoused and enacted literacy practices?			
<b>QUESTIONS</b>	<b>DATA COLLECTED</b>		<b>DATA ANALYSIS</b>
<b>Level</b>	<b>Data Source</b>	<b>Data Quantity</b>	
<b>Year Level</b>	Planning Documents, Planning Meetings Action Plans Teacher Reflections	Two Two Two Weekly	Artifact Analysis of planning documents Discourse Analysis leading to Comparative Analysis Artifact Analysis of action plans and reflections Comparative Analysis of Events
<b>Q 1. What counts as multiliterate resources and practices?</b>			
<b>Education Qld (Queensland)</b>	Policy Documents	Periodic	Artifact Analysis of government documents
<b>School Level</b>	School Documents, Staff Meetings	Periodically Weekly	Artifact Analysis of school documents Discourse Analysis leading to Comparative Analysis, of meetings
<b>Year Level</b>	Planning Documents, Planning Meetings	Two Two	Artifact Analysis teacher/school documents Discourse Analysis leading to Comparative Analysis of planning process across meetings
<b>Classroom Level</b>	Video Observations Work Samples Resources Teacher Reflections	Weekly Weekly Weekly Weekly	Discourse Analysis leading to Comparative Analysis of discourse processes and demands across events Artifact Analysis of literacy texts & IWB resources Domain/ Taxonomic Analysis of literate practices Comparative Analysis of Events
<b>Q2. How are teachers beliefs about multiliteracies demonstrated through their activity choices and in their interactions with students?</b>			
<b>Year Level</b>	Planning Documents, Planning Meetings	Two Two	Artifact Analysis Discourse Analysis and Comparative Analysis, across meetings
<b>Classroom Level</b>	Video Observations Work Samples Resources Teacher Reflections	Weekly Weekly Weekly Weekly	Discourse analysis and Comparative Analysis of events Artifact Analysis of work samples and reflections Domain/ Taxonomic Analysis of events identified Comparative Analysis of Events

pleted by students individually or in small group situations on the IWB or computer. Within both these subcategories (ICTs and IWBs), a range of multimodal resources such as web pages, Learning Objects, interactive games and stories, computer software and teacher-created resources were the basis of activities. Multimodal resources were differentiated by the number of modes of communication that they afford readers/users for accomplishing a task at hand. For instance, web pages often consisted of written text, visual images, moving graphics, sound, and audio to support written text and pictures. As such, they use multiple modes of communication

to help readers construct meaning. Print based resources, included in our second cluster, consisted of items such as books, newspapers, activity sheets that used written text, supported by some visual images, for readers to construct meaning.

Parent and teacher-aides were human resources included in this taxonomy as they were central to achieving Janelle's intended goals when students were working in small group or individual situations. This included assistance in locating the relevant web-page information for web-based literacy activities and in scaffolding the task. At the end of March, Janelle no longer had access to parental assis-

tance. In an informal conversation she indicated that lack of parental assistance would constrain the ways of conducting her literacy activities, particularly computer-based activities.

While Janelle used a variety of multimodal resources, the taxonomic analysis did not identify the frequency of texts that afforded opportunities for learning multiliteracy practices. An examination of the literacy events observed over 12 days between February and June, 2006 (5 months) was undertaken using fieldnotes and teacher reflections (emails and formal) to uncover the multiliteracy practices afforded students. These two sources of data were used to identify observed and/or reported chains of events, which included descriptions of multiliteracy practices. The analysis of the multiliterate practices for these twelve days follows in Table 3.

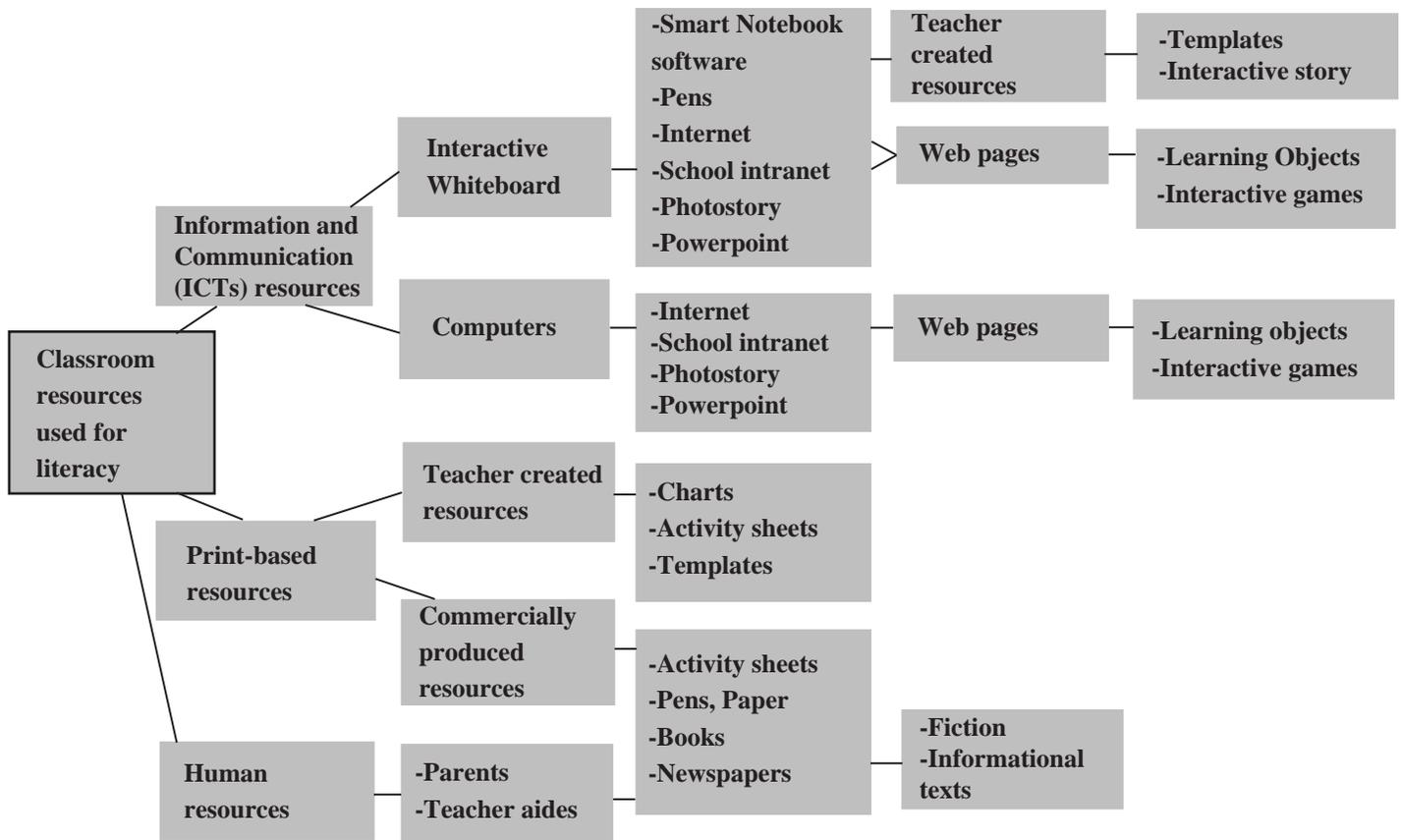
The first column of Table 3 recorded the date of observed events, with the events and data sources recorded in the second column. Three types of analyses are represented in the remaining columns. The third column represents analyses of the role of the IWB or technology by type of practice observed. Analyses of multiliterate prac-

tices and their evidence of occurrence are represented in the fourth column. These practices were based on descriptions of multiliterate practices by Cope & Kalantzis (2001) and constitute a deductively derived set of categories for analyzing the identified patterns. The fifth column presents a summary of the research team’s interpretations of teacher and/or student actions related to multiliteracies. As seen in Table 3, for some days both fieldnotes of observed events and teacher reflections (e.g., emails and other sources) for the same event were available, making possible a contrastive analysis between espoused and enacted (observed) practices.

Data sources as listed in the second column included fieldnotes taken during classroom observations and videotaped recordings of literacy instruction. From these data sources the research team developed a broad description of literacy events within the classroom, which were then compared with Janelle’s reflections, recorded in the form of structured reflections or emails. Structured reflections after the observed event were designed to provide more focused information and to reveal insights about teacher per-

**FIGURE 1**

*Taxonomy of classroom resources used for literacy events.*



spectives about the types of texts, teaching practices, and resources used. In seeking to examine espoused theories in relation to theories-in-use, planning documents were considered important artifacts to include during this phase of research, as they revealed Janelle's aims for student learning and how she planned to achieve them in her teaching. In six instances, patterns of practice identified in fieldnotes from videotaped observations were also visible in the analysis of teacher reflections. Given the range of data sources collected the contrastive approach used in analyzing the data supported an ongoing triangulation of data sources.

From an ethnographic viewpoint it was important to examine how Janelle incorporated the IWB and technology in events using a range of data sources. This information is represented in the third column of Table 3. The generic term "technology" was used to describe ICTs, ICT resources or computers. In these instances an analysis of the role of technology or the IWB was made based on key ideas presented in that artifact. A systematic analysis of videotaped observations and fieldnotes identified the following patterns of use for the IWB or the computer: the IWB was used as a presentation tool, a recording tool, a research tool, and a drawing tool. In ten of the events, the role of the IWB or computer served more than one purpose. However, when we examined the events more closely, in 14 of the events the overriding purpose was that of presentation, where Janelle presented information through a variety of multimodal texts.

Having identified ways in which Janelle drew on IWB and other technology resources to teach literacy, further analysis was undertaken to examine how the use of multiple resources and texts developed student learning about multiliteracies. This information is presented in the fourth column in Table 3. Here each data source was examined for evidence of dimensions central to a framework of multiliteracies proposed by Cope & Kalantzis (2000). Dimensions of multiliterate practices included: (a) multimedia and technology and the range of semiotic systems they use, (b) cultural and linguistic diversity, and (c) critical literacy. Anstey and Bull (2004) argue that the ability to acquire and use the semiotic systems of these technologies is inextricably linked to learning to be multiliterate. Semiotic systems here refer to methods/modes through which multimedia and ICTs convey their meaning, such as visual, written, oral, spatial or gestural modes. Therefore, for the purposes of analysis, the first dimension proposed by Cope & Kalantzis (2001) of multimedia and semiotic systems was separated into two aspects: 1) multimedia (MM) and information and communications technology (ICT) use, and 2) semiotic systems (SS) to allow for a more focused analysis of multiliterate practices.

MM and ICT refer to teacher use of any form of multimedia or information and communication technologies

(ICTs) or reference to technical skills associated with their usage. The MM and ICT category included such items as the IWB, computers, the internet, school intranet, web pages, Learning Objects, interactive games and computer software (for example Smart Notebook, PowerPoint and Photo story). In fieldnotes and reflective pieces MM and ICT were identified by looking for instances of any usage or referral to any items from this category. As identified in Table 3, in all 20 events there was either direct use of or reference to MM and ICTs. For example in the seven fieldnote entries which represented classroom observations, in each instance the IWB was used, as well as a variety of multimedia resources with which the IWB allowed interaction (See <http://www.education.smarttech.com/ste/en-us> for examples of interactive lesson activities for the IWB).

In further examining what counted as multiliterate practices, data sources were analyzed for evidence of take up of semiotic systems (SS) that multimodal texts offer – visual, written, audio, spatial or gestural. This analysis included examining how technical language was used to describe and understand the meaning-making functions of these systems. Only one classroom event on the 25<sup>th</sup> of May revealed a minimal discussion about two visual clues in an interactive story book designed to assist the construction of meaning. Overall, in 19 of the 20 events, the use of technical language to describe semiotic systems and features of interactive texts was limited. In classroom interactions, when guiding students to be "whiteboard teachers", Janelle used language such as "click on this", "choose that word" rather than using technical language such as icon and hyperlinks related to the multiliteracies context.

Cultural and linguistic diversity (C/L Div) is another important aspect of a multiliteracies approach, since the acquisition of literacy has been linked to the notions of social power, academic achievement and identity (Anstey & Bull, 2004). To identify whether the teacher promoted cultural diversity and built on the cultural and linguistic diversity of students in the classroom, fieldnotes, reflections and planning documents were inspected for indications of references to different languages, dialects, styles, discourses and different communicative modes. The only data sources that indicated evidence of cultural and linguistic diversity were found in the planning documents provided in February and April, 2006. For instance, in February, 2006 activities and the proposed learning outcomes sought to explore cultural similarities and differences among Australian, Chinese, and Aboriginal and Torres Strait Islanders. However, during the data collection periods, the researcher noted that there was no evidence supporting enacted practices in relation to cultural and linguistic diversity.

To identify evidence of a critical literacy approach

TABLE 3

Chain of Events related to Multiliterate Practices for Period February to August, 2006

Date	Event <i>Data source: FN = Field Notes TR= Teacher Reflection</i>	Role of IWB or technology  <i>P= Presentation R= Recording RE= Research D = Drawing</i>	Analysis				Comments
			Multiliteracy Practices (Cope & Kalantzis, 2000 ) E= Evidence ME = Minimal Evidence NE= No Evidence				
			MM & ICT	SS	C/	CL	
Feb	Planning documents	Integrating device, RE	E	NE	E	E	Variety of digital texts, Cultural differences among cultural groups
2/23	TR	Central to learning	E	NE	NE	NE	Students bring to school limited literacy resources
3/01	Note taking FN	P	E	NE	NE	NE	Skimming/scanning based on keywords
03/02	TR	P, R	E	NE	NE	NE	Appropriate skills for this type of text
3/14	Email - TR	P, RE	E	NE	NE	NE	Internet texts related to print only.
3/16	Sports profile FN	P, R	E	NE	NE	NE	Credibility of websites briefly discussed
3/16	Sports profile TR	P	E	NE	NE	NE	Credibility of websites briefly discussed
3/21	Literacy block FN	P, R, RE	E	NE	ME	NE	Students having difficulty locating information
3/21	Literacy block TR	R, D	E	NE	NE	NE	Lack of parental help related to lack of success
April	Planning documents	P, RE	E	NE	ME	E	Multimedia presentation – Combine and manipulate to persuade
5/03	Literacy block FN	P	E	NE	NE	NE	Focus of activities related to content of activity
5/17	Literacy block FN	P, R	E	NE	NE	NE	Students having difficulty locating information
15/17	Literacy block TR	P	E	ME	NE	NE	Texts offer different modes of communication
5/18	Email –TR	Individual task completion.	E	NE	NE	NE	Difficulty related to ability to compare
5/25	Story innovation –FN	P	E	ME	NE	NE	Unpacking of interactive text related to print-based features mainly.
5/25	Story innovation TR	P, Initial lesson focus	E	ME	ME	NE	IWB engaging, catering to learning styles of students
6/11	Multiliteracies TR	For demonstrating knowledge. Offers exposure to digital texts	E	NE	ME	NE	Does not explore critical aspects in regards to audience, perspective, purpose and context. All classroom examples in relation to print-based notions (sentences, conjunctions, etc)
6/12	Email TR	Basic literacy needs	E	NE	NE	NE	School focus on basic literacy
6/14	Learning Object -FN	P	E	NE	NE	NE	Picture this Learning Object – Impetus from previous structured reflection
6/14	Learning Object TR	P	E	NE	ME	NE	Engaging

(CL), we examined the fieldnotes, reflections and planning documents for indications of classroom interactions that make visible the ideology and power relations within print-based and multimodal texts (Anstey & Bull, 2004). Once more, critical literacy, as an aspect of multiliteracies teaching and learning, was only identified in planning documents in February and April 2006 and not enacted in practices observed. One of the planning outcomes drawn from the Queensland English curriculum document, states that when interpreting and constructing texts, and when drawing on the textual resources ‘students [should] identify positive and negative textual representations’ to critically recognize that texts are ideological constructs and position readers in particular ways. However, this was not translated into activities which might address this aspect.

These comparative analyses of planning documents and observed practices in relation to the multiliteracies framework made visible for us gaps evident in Janelle’s teaching. Furthermore, it offered a way forward for her to consider and address the differences between her espoused and enacted practices. One of the gaps was in taking up the meaning making potential of available semiotic systems and how technical language affords teachers and students opportunities to develop shared understandings of multimodal texts and how they work. Further, Janelle’s plan-

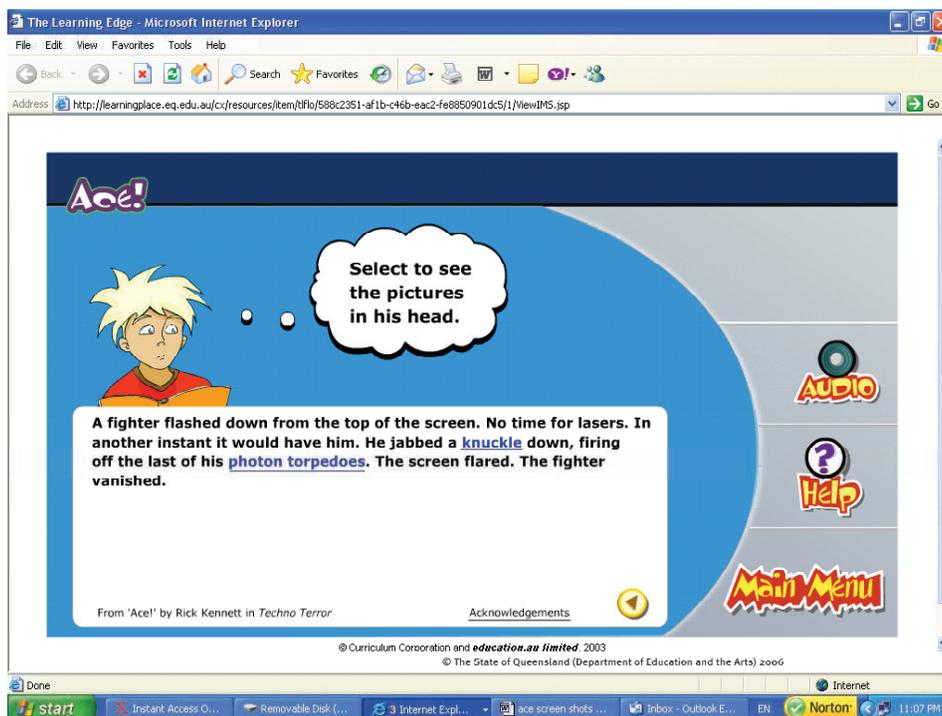
ning for explicitly addressing cultural and linguistic diversity and critical literacy were not supported in her practices. This made visible what counted as multiliteracy practices in Janelle’s classroom and allowed Janelle and the research team to develop a shared understanding of how teacher practices supported and constrained student learning of multiliteracies. This analysis also makes evident that an awareness of espoused and enacted theories allows teachers to manage their practices in an informed way. The micro-analysis of the following event explicates this process further.

### How are teacher beliefs about multiliteracies demonstrated through their activity choices and in their interactions with students?

In this section we look at one classroom event to examine how teacher beliefs (espoused theories) are translated into practices (theories-in-use) when working with the IWB, and how the espoused beliefs were used to create opportunities for developing (or constraining) multiliterate practices. The classroom event represented here (14<sup>th</sup> June, 2006, Chain of Events, Table 3) is the reading by Janelle and her students of a segment of the Learning Object called ‘Picture This’ (Learning Federation, 2004). A screen shot of this segment ‘Ace’ follows in Figure 2.

FIGURE 2

Screenshot of ‘Ace’ story, page 2 of 2.



A Learning Object is a multimodal resource with three parts: 1) a learning objective, 2) a learning activity, and 3) a learning assessment (Caterinicchia, 2000). This Learning Object was retrieved by Janelle from the Education Queensland web site and is one of the many resources available to teachers to support curriculum documents in a variety of learning areas. On the 11<sup>th</sup> of June 2006 (See Chain of Events, Table 3), 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.

Fieldnotes, transcripts from the video observation and teacher reflection after this classroom event were analyzed in Table 4 in relation to espoused theories in the first column, theory-in-use as practice in the second column, 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.”

The transcript excerpt in Table 5 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 4). 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. (This omission constitutes a *missed opportunity for learning*, which Dixon, Wyatt-Smith & Green, this volume, discuss). 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 scaffolding 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.

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 read-

**TABLE 4**

*Analysis of Classroom Event June 14<sup>th</sup>, 2006.*

Espoused Theory	Theory- in-use	Affordances	Constraints
			Background Noise
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 input: task 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	

TABLE 5

*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.	

ing, with authority located in the words of the text. In this instance, Janelle missed another opportunity for helping students to learn. She did not take up the hyperlinks afforded in the text. For example the link to "tricky words" afforded a potential opportunity to explore the meanings of "knuckle" and "photon torpedoes" (See Figure 2 underlined words, signaling a hyperlink) and to gain further information, including a dictionary meaning and audio pronunciation. Our 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.

Our analysis makes 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 approaches to reading digital 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 the activity. Missed opportunities remain invisible for most teachers as they go about their daily work and potential learnings may not be realized. As a consequence of participating in this research both Janelle and the research team developed a clearer understanding of the potential

that multimodal texts offer in supporting student learning.

## DISCUSSION AND CONCLUSION

The advent of new ICTs and multimedia resources have impacted significantly both the literacy resources that students bring to school and the school efforts to accommodate student needs and interests by providing classrooms that are technologically rich. The changes brought about by multimodal texts mediated through ICTs and the call for a “paradigm shift” (New London Group, 1996) have been actively promoted but have been slow on the uptake. At both local and global levels, the framework of multiliteracies has emerged as a response to this paradigm shift. Using a social constructionist approach, this study sought to investigate what counted as multiliteracies and how the learning of multiliteracies was supported or constrained in one teacher’s IWB classroom. It also examined how this teacher’s practices aligned with the framework of multiliteracies and her beliefs about effective multiliterate practice.

As evident in the taxonomy of classroom resources (Figure 1) and in the chain of events (Table 3), Janelle embraced the first dimension of a multiliteracies framework by using a variety of ICTs and multimedia or multimodal texts. However, her teaching practices essentially focused on a print-based approach, omitting the modes of communication that multimodal texts offer. While some attention was given to the different semiotic systems that these new texts employed, as evident in the planning documents, the

use of the multiple semiotic systems was not evident during observations. The second dimension of multiliteracies, that of cultural and linguistic diversity, was also espoused in the planning documents, but was not evident during the observational period. This was also the case with the third dimension of multiliteracies, that of critical literacy. These three findings made visible for Janelle ways her teaching practice might align more effectively with her espoused multiliteracies framework, something that was invisible to her previously. This new awareness will provide a foundation for her to determine what plans of actions she may implement in the next phase of this ethnographic action research project.

The IWB offers a technologically rich environment. However its potential will be realized only by exploring its affordances and constraints for multiliterate learning. In this paper we have demonstrated how methods of ethnographic action research made visible what counted as multiliteracies in the IWB context. It also made visible the invisible constraints and missed opportunities which will provide a foundation for future transformations. In particular the collaborative nature of this research, using a process of reflection and discussion, has equipped the teacher and the research team with ways to make empirically based decisions about actions to be taken in the next phase. The findings from the first exploratory phase reported in this article make visible the new understandings we all gained about the demands of teaching with new technologies as demonstrated in the lack of congruence between espoused and enacted theories.

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