RESEARCH ONLINE

University of Wollongong
Research Online

Faculty of Education - Papers (Archive)

Faculty of Social Sciences

2006

Visions for literacy learning: the quest for meaningful use of computer-based technology in reading and writing experiences

Lisa K. Kervin
University of Wollongong, lkervin@uow.edu.au

Jessica Mantei
University of Wollongong, jessicam@uow.edu.au

Publication Details

Kervin, LK and Mantei, J, Visions for literacy learning: the quest for meaningful use of computer-based technology in reading and writing experiences, In Rennie, J (ed), Voices, Vibes, Visions AATE/ALEA National Conference 2006 Proceedings Australia: Australian Literacy Educator's Association/The Australian Association for the Teaching of English.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

RESEARCH ONLINE

Visions for literacy learning: The quest for meaningful use of computer-based technology in reading and writing experiences

Lisa Kervin

Jessica Mantei

Faculty of Education
University of Wollongong

Abstract

The changing nature of literacy is well documented within the literature. The notion of 'multiliteracies' and the development and creation of multimodal and non-linear texts within classrooms is of current interest in this age of Information and Communications Technologies (ICT). Both researchers have had opportunity to observe children over an extended period of time as they engage with the construction of such texts. Two case studies will be reported herein providing an overview of how two cohorts of primary school students (one in lower primary, one in middle primary) responded to the challenge to create texts using ICT. What is interesting about these cases is the process that the two cohorts of students engaged with as they planned and constructed their texts. This paper describes this process and the implications it presents to what we understand about writing, the creation of text and to the classroom literacy experiences made available for students. In the presentation of this paper work samples created by the students will be shared.

Introduction

Literacy requirements have changed with new technologies. Durrant and Green (2000, p. 89) assert, "literacy is changing". The highly competitive and changing world that now confronts students has increased the demand for schools to develop competent citizens, capable of flexible thinking and independent learning. Stokes (2002) identifies that this flexible thinking and independent learning can be fostered through the integrated use of a wide range of multiple literacies, including computer literacy, visual literacy and media literacy. Many students demonstrate increasing comfort and aptitude with many computer-based mediums. Therefore, it seems appropriate that such mediums be integrated into classroom learning experiences. However, it is imperative that educators take a lead in developing appropriate pedagogical frameworks for the incorporation of Multiliteracies in elementary classrooms.

The New London Group's (Cope and Kalantzis, 2000) landmark work on Multiliteracies challenged the notion of 'text' and associated language features. Whilst it is understood that literacy is a set of practices situated within particular contexts (Morgan, 2001), the introduction of new technologies has impacted significantly upon how we can use language to interact with each other. Computer based technologies have brought new texts such as email, chatrooms, hyperlink texts and search engines to the contemporary reader and writer. Indeed, 'computers are as natural in children's environments as TV was to the last generation, movies and radio was to the generation before that' (Wepner, Valmont & Thurlow, 2000. p. 4).

Information and Communications Technologies (ICT) has impacted significantly upon language and how it is used. Kress (2003) asserts that as ICT becomes more sophisticated so too do the consequent impacts it presents to the way we use language within our society. While technology has often been considered an 'add-on' to literacy, the reality is that the use of technology has always and will always be deeply embedded within our use of language (Durrant and Green, 2000). It is argued that the connections between literacy and social practices are exemplified within this multimodal digital era (Jewitt, 2003). This is supported by Sefton-Green and Nixon (2003, p. 243) who assert, "...it is almost a truism now to point out that most texts enjoyed by children are screen-based". As educators in this time, we have to acknowledge that technology has the power to change the nature of what we consider 'text', which in turn poses implications for the authorship of such texts.

However, the previous decade has seen little classroom-based research that identified the presence of computer technology or the Internet as being significant to literacy learning. For example, Asselin (1999) identified computer software and the Internet only as *possible* sources of authentic texts to be incorporated into a balanced literacy program. Leu, however, is passionate in calling teachers to embrace new information technologies in order to 'prepare children for the futures they deserve' (Leu, 2000, p. 424). He warns that there is little time to waste in making a fundamental shift toward a view of literacy that includes information technologies *and* traditional book literacy because the working future for our children is a competitive global one that values creative thinkers and problem solvers (Leu, 2000).

Leu, Kinzer, Coiro, and Cammack (2004) argue that we are confronted by new literacies every time we read, write and communicate using the Internet or other Information and Communication Technologies. They provide examples of such literacies; using a search engine to locate information, using e-mail to communicate effectively, evaluating the accuracy and

usability of a web page in relation to one's purpose. Indeed the rapid development and use of Information and Communication Technologies (ICT) has significantly impacted upon the range and volume of texts available for inclusion in the classroom.

The literature also clearly acknowledges that without mastery of the reading and writing processes, a child will be unable to successfully operate the Internet and other digital technologies (Lewin, 1999). Texts accessed through computer technologies demand faster, more efficient reading skills to sift through the vast amount of information available. Similarly, computer technologies offer much variety in the way that text can be constructed and organised by the writer. It can be argued that the traditional processes of reading and writing have become more complex through the affordances of computer-based technology. Interestingly though, technology is promoted as a way to close the literacy gap as it is '...motivational and provides another means of learning' (Gunning, 2006, p. 183). Computer based texts such as web pages, e-books and software packages have the potential to support the literacy learner as they engage with 'text' in written, visual and audio forms.

The importance of meaning making has been consistently recognised as a vital strategy of literacy teaching (for example, Cambers and Cantrell, 1998; Eide, 2001). Research encourages teachers to select a broad range of authentic texts from which to teach children to read, to critically evaluate and respond to text, and to create text. Leu (2002) argues that in order to better understand an author's intention and the context in which it was created, a reader must be able to critically evaluate that text. Further, Durrant and Green (2000) encourage students to consider context, history and power by approaching all texts in a 'spirit of informed scepticism' (p. 97). Such skills impact on the types of texts that can be authored by students. The volume and complexity of text generated through computer mediums requires consideration about how to best incorporate these in classrooms to support literacy learners.

The practice of writing has undergone some rapid changes with the influence of ICT, as the purposes of writing, the genres of written communication and the nature of audience and author are impacted upon (Warschauer, 2004). Jewitt (2003) argues that with every new ICT, new kinds of texts are introduced into the classroom. Whilst we acknowledge that the nature of texts have always been multi-modal, this has increased significantly with the incorporation of Information and Communications Technologies, particularly with the construction of non-linear texts. Teachers are called upon to work within their students' experiences of such texts and provide opportunities for the creation of new texts that "...integrate visual and auditory modalities" (Hill and Broadhurst, 2002, p. 269). The multi-modal nature of such texts allow for

authors to "...draw on more than one medium at the same time and deploy genre and forms from media across platforms and text types" (Sefton-Green and Nixon, 2003, p. 243). Classroom experiences need to allow students time to work within the creation of these new ICT genres.

Durrant and Green (2000, p. 97-98) state that classroom experiences that aim to integrate literacy and computer technologies need to include a focus on each of three dimensions they refer to as: the operational, the cultural, and the critical. An exploration of the understanding behind these terms presents the notion that children need to know the 'skills' in terms of both language and technology, but with the opportunity to make use of these within an authentic, contextualised experience. Further, children need time to approach and engage with texts with a critical eye. Such understandings further exemplify the connections between text genres and society and the ways these position viewers.

The climate of the classroom and the workplace in the 21st century has changed, challenging traditional concepts of what it is to be literate (Mckenna, Reinking, Labbo and Kieffer, 1998) and in the process demands new literacy skills. We need to know more about how teachers can adapt to the literacy paradigm that recognises and integrates Multiliteracies within classroom literacy experiences. The research encapsulated within the following two cases aims to present an overview of how two cohorts of primary school students (one in lower primary, one in middle primary) responded to the challenge to create texts using ICT. These cases are not revolutionary, they are however, examples the types of experiences teachers offer within their classrooms on a day-to-day basis.

These cases aim to explore three key questions:

- What happens when the students are encouraged to create text using computer-based technologies?
- What affordances do computer-based technologies offer to classroom writing experiences?
- How can teachers make best and judicious use of computer-based technology to facilitate classroom writing experiences?

Case One: Lower Primary

This case reflects data gained as part of an action learning project in an independent primary school in metropolitan New South Wales conducted by the first named researcher. The researcher worked with a Stage One (grades 1 and 2) teacher for ninety minutes each week over a period of twenty weeks. The researcher had opportunity to work with a focus group of students during these visits. Students incorporated within this group were

identified by the Stage One teacher as needing ‘extension’ with literacy. The researcher collected data with a focus on the process the students engaged with as they constructed their text using computer-based technologies. Data included the use of researcher observations, semi-structured interviews with the teacher, group focus interviews with the students and the collection of student work samples. Field notes and transcribed interviews were analysed by coding into categories based on the emerging themes. The researcher’s conclusions were checked and discussed with the teacher at the research school and the second-named researcher.

Prior to the beginning of any writing task, the researcher and the students explored the notion of non-linear texts. Together they spent time exploring different web sites with particular emphasis on how they were organised. The researcher deconstructed a number of these with the in a modelled format, according to the key navigational and design features they could identify within the text to help the author tell their ‘story’. At this time, it became increasingly obvious to the researcher that these students were knowledgeable and confident with these types of texts and their organisation.

The students were then presented with the task of creating a non-linear text using the PowerPoint application. The students were studying a unit of work on ‘toys’ in their classroom at this time, so this became the focus of the text. As some of the students were less familiar with PowerPoint and the researcher was interested to see the process that emerged as the students created the ‘text’, a guided approach was used. This guided approach was spread over a period of six weeks, as the researcher and students worked together weekly for an average of ninety minutes. Over this time, there were a number of key elements that contributed to the experience. Each of these elements arose from the perceived ‘needs’ from the students and through negotiation between and among the researcher and students. The researcher took the role of trouble-shooter with the technology, and also supported the students when they needed it as they constructed text.

The researcher encouraged the students to story-board their ideas in order to plan how their text was to look. As the students had previously spent time investigating websites and demonstrated their familiarity and understanding of this structure they were able to diagrammatically create a representation of their text.

Together, the students shared their ideas and with the researcher, developed a plan for how their presentation could look. Working through this process appeared to enable the students to see the different ‘parts’ that would make up their text,

how the reader would view these and to also think about what each of their ‘pages’ may look like.

The need for ‘information’ to be included in the presentation became the first priority. In order to find this information the students used a variety of resources they themselves identified. These resources included using the search engine “Ask Jeeves”, using books within the school library, stories they had previously written in class and asking those they perceived to be experts. The students worked either independently or with a partner and identified sections of the text construction that they were to be responsible for. The students planned and researched information to be included in the text. During this experience, opportunities were made for the students to share their plans and sample information to be included within the text. Interestingly, all students decided to construct their text in their books, which they edited and proofread before entering it into PowerPoint. Throughout this process of writing ‘information’ for their text, each of the students took the opportunity to conference their writing with the researcher, and other class members.

Once the students had written their text and created slides, it was time to revisit their initial plan. This enabled the students to begin to work on the ordering of slides, but also the navigation within them. At this point, the language of ‘webpages’ became apparent as the students began to talk about having a “home page with links”, the need for a “back or home button” and a “next button for when the information was spread over lots of slides”. However, while they had the language to describe the design of a non-linear text, the students did not know how to physically do this. The researcher led a very structured session, explicitly demonstrating to the students how to create ‘action buttons’ and control the ‘action settings’ within PowerPoint. Two students from the group demonstrated understanding of this process very quickly and assumed responsibility for working with the other group members to ‘teach’ them what to do as the group organised their assortment of slides into one cohesive non-linear text.

Once the students had organised their text, they took it to a number of different audiences. They began by demonstrating to their teacher and the school principal how to ‘use it’. When questioned why these people needed to be taught, one student made the comment ‘kids learn this stuff quicker, people like my mum need help’. At this time it became evident to the researcher that each of the students within this focus group were able to articulate how they created the text and also describe the organisational features and associated navigation. The students also presented their work to the other Stage One students and their teachers.

Case Two: Middle Primary

This case reflects data obtained as part of a case study examining the role of Information and Communications Technologies (ICT) in literacy learning and teaching. The research was conducted by the second named researcher in a grade four classroom at an independent primary school in metropolitan New South Wales. The researcher was a participant observer for one hour each week over an eleven week period as the students engaged in learning experiences around a topic of personal interest – a personal interest project (PIP). The classroom teacher and seven students became the focus of the researcher's observations; Seth, an average student working alone, Shannon an above average student also working alone, Mark and Phil, average students working together and Suzy, Andrea and Jillian, below average students working in a group of three. The classroom teacher identified these ability descriptions for each student. Data was collected with a focus on the process that these children went through as they utilised both print and computer based technologies to construct texts. Data included researcher observations along with semi-structured interviews with the teacher and students throughout the period of the study. Emerging themes were identified and coded into categories following analysis of field notes, interview transcripts and video footage from observations. The researcher's conclusions were checked with the teacher at the research school and the first named researcher.

In introducing the task, the teacher provided a list of topics from which the students chose a focus, designed questions and conducted research. The students planned their research using a KWL chart, identifying what was known, what was still to learn about their topic and possible sources of information that they could draw upon in answering their questions. The teacher had instructed the students to create a final product using computer technologies, but encouraged them to use a range of research strategies and sources of information in fact gathering. With the exception of Mark and Phil, the students located their information on preselected websites, highlighting and pasting text into a Word document for construction of their own text later. Conversely, Mark and Phil rejected the Internet as a trusted source of information, because 'people on the Internet can just lie' but 'if you look it up in a book you know that it's true because people don't write it unless it's true'. Mark and Phil adopted a traditional method of research, reading texts borrowed from the library and making notes in their writing books.

Once their information was compiled, the students were instructed by their teacher to construct a first draft using whatever recording method they desired and then publish the text using computer technologies. The teacher indicated he would

collect both the draft and published product for assessment. Shannon's draft incorporated pasted text from the Internet, handwritten notes from interviews with parents and her existing knowledge about the uses of sound in saving lives. The information was organised into paragraphs under subheadings and resembled an information report. She then selected PowerPoint to present her information and the researcher observed significant differences between her draft and published text. The titles of the PowerPoint slides reflected the contributing questions posed by Shannon in planning her research. But, rather than copying the text from her draft report, Shannon summarised the pertinent information from each answer and recorded it in point form under the appropriate heading on each slide. The researcher was interested in Shannon's understanding of the genre of PowerPoint and asked about her decisions. She explained, 'if you look on big companies when they do speeches and they use PowerPoint, they only put up little bullet points and they... do the speech.'

The other students, however, utilised technology differently in meeting their needs. Working together, Mark and Phil copied their bulleted information directly from the paper to the PowerPoint slides, bypassing the step of constructing a first draft. Proofreading and editing of text occurred as the boys published their work in PowerPoint, blurring the boundaries between the steps in the writing process. Seth discarded his 'information page' that contained the results of his Internet search, preferring to combine the location and identification of information with the drafting and publishing of text into one step. Suzy, Jillian and Andrea struggled throughout to locate relevant information to answer their questions about animation, but they pasted their information into the Dreamweaver frames they had selected for publishing their research.

Throughout the process of locating and identifying information and then constructing their own texts, the researcher observed that all of the students appeared comfortable with the workings of the computer and that the ones who were less experienced with computer technology referred to their peers in solving problems. The researcher noted, too, that the students communicated with each other and their teacher using language particular to computer use, for example, they referred to 'apple c, apple v' when using computer shortcuts to move text between frames and held lengthy discussions about the 'custom animations' and 'slide transitions' needed to create a polished final product.

It was these animations and effects that the researcher observed were popular among the audience when the students presented their work to their peers. The researcher observed that affirmation from peers was important to these children in middle

primary school, throughout both the construction and presentation of their final product.

Findings

The tasks incorporated within the cases we present highlight the importance of the teacher or facilitator identifying the associated purpose and rationale for the inclusion of technology within the learning experience. In classrooms that are already 'busy' it is easy to force-fit technology with what is already happening. Indeed, technology as an "add-on" has been reported as an inhibitor to its inclusion within the classroom (Durrant and Green, 2000). The first case provided an example of how technology can be linked to specific learning objectives (i.e. how to construct a non-linear text) and work to the achievement of this.

Each of these cases challenged the "power" relationships traditionally present within the classroom. In a more traditional classroom environment the teacher controls not only the experience but also the timeframe within which the students complete it and the methods by which the task will be assessed. The focus group structure of the first case allowed the researcher to include identifiable modelled, guided and independent learning experiences. Evident in the students' final product is the high level of teacher support, and the role the researcher played as teacher throughout each stage of the process. In the second case, however, the teacher relinquished the power over content and process, providing more opportunity for the researcher to investigate the students' 'independent' engagement with the task as they identified a topic of interest and the methods they would employ to locate answers to their questions. As the students in both cases engaged with the classroom experience they required very different levels of support at often very different times throughout the experience. The contrast between Shannon's experience and that of Suzy, Jillian and Andrea demonstrates the importance of the teacher knowing the strengths and limitations of the students and how to support them as they work towards the completion of a task. For students to be able to work 'independently' on such tasks, that is at their own pace and within the task guidelines, they must be supported at a meaningful and authentic level by the teacher or facilitator.

What actually constitutes this 'support' is an interesting issue. The cases that we present were facilitated by people with different pedagogical understandings, teaching approaches and experience with the use of computer-based technologies in classroom environments. The first case provided a clear demonstration of modelled, guided and independent learning cycles with varying levels of support from the facilitator. This could be perceived as a more unusual case as the researcher worked with a small group of students who were identified as

being around the same ability, working on the same content through similar processes. The needs of these students were paramount as the other 'demands' of teaching were absent. The second case provides explicit examples of how individual students worked through the task in the context of their classroom with one teacher and twenty-eight other peers working at a range of literacy tasks. Each student or group of students in the second case had differing abilities, approached the task differently and followed a different path to its completion. With such a range in ability and process between students, the teacher is called on to monitor each student carefully to ensure that the most effective and appropriate feedback and support can be provided in a way that is least disruptive to a student's independent learning.

Computer-based technologies enable teachers to structure tasks differently for individual learners. However, it is the teacher's responsibility to ensure that all tasks are closely associated with the rationale and purpose of the learning experience. These cases revealed the need for clarity about the results students are working towards; what their final product is to be and how it will be assessed. The second case provided example of students working within their own interest areas to collect "information and organise it under main headings...to be presented using technology". The classroom teacher invited the children to 'share what you have learned with us', but explained after the presentations were complete, 'I was at least expecting you to tell me *why* you went to find out about that particular question'. It appeared the students understood that they should share their new knowledge about the topic they researched, but that the teacher's expectation, as stated in his previous comment, was that they also share the process they had engaged in. This example highlights the importance of the teacher and students having a clear understanding of the task, subsequent implications for audience and how it will be assessed.

Computer-based technologies have significant impact upon what we know about writing conventions and how these can be taught within the context of classroom writing experiences. The focus on spelling and grammar remains an integral part of the construction of written meaning, however, the ability for computer software to identify errors to the author presents significant implications for how teachers support students' learning. Teachers in both cases demonstrated the limitations of the computer's spelling and grammar checking applications by encouraging the students to use manual proofreading techniques, to check printed authoritative sources and to draw upon the knowledge of peers.

The affordances of computer-based technologies allows for students to engage with and create a variety of different types of

texts. It provides avenue for the students to create texts that challenge the more traditional linear structure and organisational features. Indeed, the students within these cases were able to acknowledge and describe these differences in their interactions with the researchers. However, while the students in these cases were able to 'talk' about what can be achieved through the use of technology, a disparity became evident between the students' knowledge about how these new literacies work and the skills they possessed that are required to create them.

Our observations of these students throughout each reported case provided significant insight into what the writing process can 'look' like when computer-based technologies and the writing process come together. While we have known for some time that the writing cycle is made up of a number of recursive stages (Turbill, 1982, Walshe, 1981), we believe that when there is a real nexus between writing and the use of technology. These stages became more minute and more recursive as students engage with pre-writing, during-writing and after-writing stages simultaneously as technology affords composing, editing and publishing on the one draft. Our research provided some example of this. However, our research also showed that for many of these students, the technology was an add-on and something that was done in the 'publishing' stage of writing. For example, both cases provide example of students first constructing their text in their books rather than straight onto the computer. It appears that the marks on the page were an important part of the process for these students before marks on the screen could be made.

Discussion

We believe that computer-based technologies have the potential to transform and enrich the writing experiences for primary students. However, for this to happen it is imperative for teachers to carefully plan for and provide classroom tasks that promote the nexus between writing and using technology. This means that teachers must understand the affordances of the technology, the stages within the writing process and how these can come together to create meaningful classroom experiences. In addition, students must be risk-takers as they challenge and expand upon what they do as writers in the construction of text. Technology must be used in a way that is both *authentic* and *pedagogically appropriate* for the experience.

References

Asselin, M. (1999) Balanced Literacy. Teacher Librarian. 27(1) 69-71

Cambers Cantrell, S. (1998) Effective Teaching and Literacy Learning: A Look Inside Primary Classrooms. The Reading Teacher. 52(4) 370-379

Cope, B. & Kalantzis, M. (2000). Multiliteracies: Literacy Learning and the Design of Social Futures. London: Routledge

Durrant, C. & Green, B. (2000). Literacy and new technologies in school education: meeting the l(IT)eracy challenge? Australian Journal of Language and Literacy. 23(2) 89-105

Eide, P.A. (2001) Coping With Change: Educational Reform in Literacy Practice. Primary Voices K-6. 9(3) 15-24

Gunning, T. G. (2006). Closing the Literacy Gap. Pearson: Boston

Harste, J. (2003). What do we mean by literacy now? Voices from the Middle. 10(3), 8-12

Hill, S. and Broadhurst, D. (2002). Technoliteracy and the early years. In L. Makin and C. J. Diaz (Eds), Literacies in Early Childhood: Changing Views Challenging Practice. Maclennan + Petty: Sydney

Jewitt, C. (2003). Re-thinking assessment: Multimodality, literacy and computer-mediated learning. Assessment in Education. 10 (1): 83-102

Kress, G., (2003) *Literacy in the New Media Age.* London: Routledge

Leu, D.J., Jr. (2000) Our children's future: Changing the focus of literacy and literacy instruction. The Reading Teacher. 53(5) 424-430

Leu, D.J., Jr. (2002) The New Literacies: Research on Reading Instruction with the Internet and Other Digital Technologies. In S. J. Samuels and A. E. Farstrup (Eds.) What research has to say about reading instruction. Newark, DE: IRA

Leu, D.J., Jr., Kinzer, C.K., Coiro, J.L., Cammack, D.W. (2004) Toward a Theory of New Literacies Emerging From the Internet and Other Information and Communication Technologies. In *Theoretical Models and Processes of Reading. 5th ed.*IRA.

Lewin, L. (1999) “Site Reading” the World Wide Web. Educational Leadership. 56(5) 16-20

Merriam, S. B. (1998). Qualitative Research and Case Study Applications in Education. San Francisco: Jossey-Bass Publisher

Mckenna, M. C., Reinking, D., Labbo, L. D. and Kieffer, R. D. (1998). The electronic transformation of literacy and its implications for the struggling reader. Reading & Writing Quarterly. 15(2), 111-126

Morgan, W. (2001). Computers for Literacy: Making the difference? Asia-Pacific Journal of Teacher Education. 29 (1): 31-47

New London Group (1996). A pedagogy of multiliteracies: Designing social futures. Harvard Educational Review, 66 (1), 60-92

Sefton-Green, J. and Nixon, H. (2003). The Challenge of Popular Culture, Digital Technologies and Curriculum Change. In B. Doecke, D. Homer and H. Nixon (eds.). English Teachers at Work: Narratives, Counter Narratives and Arguments (p 242-254). Wakefield Press / Australian Association for the Teaching of English: Kent Town, South Australia.

Stokes, S. (2002). Visual Literacy in Teaching and Learning: A Literature Perspective [online]. Electronic Journal for the Integration of Technology in Education. 1(1)

Turbill, J. (1983). Now we want to write. Primary English Teachers Association: Sydney, Australia

Walshe, R. D. (ed.). (1981). Every Child Can Write! Learning and Teaching Written Expression in the 1980s. Primary English Teaching Association: Rozelle, Australia

Warschauer, M. (2004). Technology and writing. In C. Davison and J. Cummins (Eds.), Handbook of English Language Teaching. Kluwer: Dordrecht, Netherlands.

Wepner, S.B., Valmont, W.J. & Thurlow, R (eds) (2000) Linking Literacy and Technology: A guide for K-8 Classrooms. International Reading Association: USA.