

Literacy for the 21st Century

Lynde Tan

Rethinking Literacy

Traditionally, the notion of literacy was confined to the ability to read and write (Crystal, 1987) and the emphasis was on the acquisition of a set of discrete skills to be learnt for the reading and writing of printed paper-based texts (Christie, 1990). The advent of information and communication technology (ICT) necessitates a broader conception of literacy so that literacy today is relevant in preparing students for the 21st century learning. Proponents for a broader definition of literacy contend that:

(1) Many current literacy approaches focus on behavioural and cognitive psychology of learning that were constituted in an era of stable systems whereby adherence to conventions and rules was of central importance (Cope & Kalantzis, 2000; Freebody & Luke, 1990; Kress, 2005; Luke & Freebody, 1999; New London Group, 1996). Such approaches are not capable of developing education that inculcates creativity, innovation, ease with change and other dispositions that are highly valued in the 21st century.

(2) ICT has led to the proliferation of multimodal texts where language is no longer the central and major resource for making meaning (Callow & Zammit, 2002; Halliday & Hasan, 1985; Kress, 2003; New London Group, 1996). Such texts incorporate sound, image, video and written texts in various forms. Hence, a new definition of literacy is required to encompass literacies related to multimedia technology.

(3) ICT has offered new modes of representation and communication from print to screen which has implications for reading (Kress, 1997, 2003). Table 1 below summarizes the consequences of multimedia on reading as noted by Kress (1997, 2003).

Table 1: Consequences of multimedia on reading (Kress, 1997, 2003)

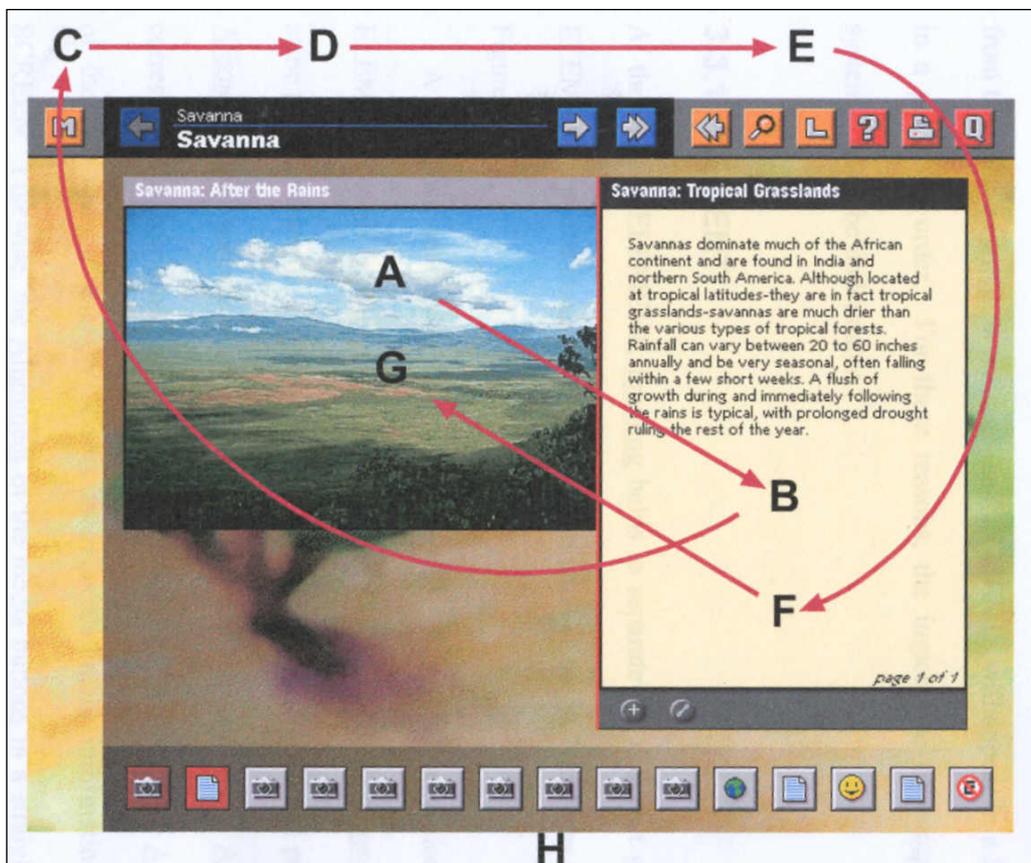
Consequences	Printed page (on a book)	Screen
Reading path	A fixed order of reading from top left to bottom right as determined by the author and by the conventions which the author and reader adhere to.	Indeterminate path constructed by the reader. The reading path is dependent on the criteria set by the reader based on his/her interest.
Reading goal	To acquire truth from the authority of the text who is the source of knowledge.	To construct truth which arises from the reader's interest. Knowledge is what the reader produces for himself/herself out of that which he/she has selected as information.
Task of the reader	Follow the lines of the text in sequence.	Construct his/her understanding of the world presented in the text according to his/her interest and form his/her practices of reading.



To further illustrate the point, let's take reading a screen as an example. Figure 1 shows a possible reading path (from A to H) when a reader views the *Savanna* screen. The screen is taken from the CD-ROM *The Animals! 2.0* which contains information on the animals and their habitats from the San Diego Zoo. Replicating the real San Diego Zoo, readers can wander freely among the biome exhibits in any sequence they like. On the *Savanna* screen, the reader can access information pertaining to savannas through a multimedia experience with various combinations of narration, videos, written texts and photographs.

When the screen first appears on the computer, the reader may be directed to the photograph and the pop-up written text and then back to the navigational palette at the top of the screen to check that he is on the right site (the title bar *Savanna* informs the reader whether he/she is reading the *Savanna* screen). From the navigational palette, the reader may return to the written text to read for details and then view the photograph again with an expectation that it provides an illustration for what it is written. The reader may lastly be drawn to the row of media buttons at the bottom of the screen to view more photographs of savannas or find out other information related to the biome.

Figure 1: A possible reading path





Literacy pedagogy should incorporate new reading strategies that teach students how to read texts from electronic multimodal texts. In the case of the example given above, multimodal texts in a factual CD-ROM tend to segment information into visuals with supporting written text as shown in Figure 1 (Callow & Zammit, 2002). Such courseware provides information chunks that can be read in any order by the readers. However, to get the complete picture of what they are trying to find out, they need to interact with the various modes of information provided not only on this screen but also from other sections of the courseware. Teachers cannot assume that their students are able to put these information chunks together and that they know how to read and understand the visual and written information on a multimodal text.

(4) Current perception of language views language as a strategic, meaning-making resource among many other modes of meaning in any culture where the meanings are influenced by the social and cultural context in which they are exchanged (Eggins, 1994; Halliday & Hasan, 1985). The constructed nature of texts therefore implies that they are not ideologically free. Hence, literacy should be aptly approached as socially and culturally constructed practices and the knowledge of the different roles and practices of the reader should be emphasized to critique the power relations inherent in the production and interpretation of texts (Graddol, 1994).

(5) Several studies such as *The Digital Transformation: A Framework for ICT Literacy*¹, *Learning for the 21st Century*² and the *enGauge® 21st Century Skills: Literacy in the Digital Age*³ espouse the view that to succeed in the 21st century, students today should acquire a suite of skills that enable them to exploit the advantages of the diverse modes of representation and communication and participate in global learning communities. These skills are founded on several literacies such as basic literacy, computer literacy, information literacy, visual literacy, media literacy and civic literacy just to name a few. One key characteristic from these studies point to the need to have new and multiple literacies that prepare students for citizenship in a technological society. The digital and information-rich society therefore requires them to be multiliterate. Definition of literacy needs to be broadened to encompass burgeoning new forms of literacy.

The Pedagogy of Multiliteracies

Propositions for a broader definition of literacy have led to the conception of multiliteracies, a plural term defined differently by various sources. Kress (2001) asserts that though the

¹ Educational Testing Service. (2002). *Digital Transformation: A Framework for ICT Literacy: A Report of the International ICT Literacy Panel*. Retrieved July 15, 2005, from http://www.ets.org/Media/Tests/Information_and_Communication_Technology_Literacy/ictreport.pdf

² The Partnership for 21st Century Skills. (2002). *Learning for the 21st Century*. Retrieved July 15, 2005, from http://www.21stcenturyskills.org/downloads/P21_report.pdf.

³ The North Central Regional Educational Laboratory & Cheryl Lemke, Metiri Group. (2003). *enGauge's 21st Century Skills: Literacy in the Digital Age*. Retrieved July 15, 2005, from <http://www.ncrel.org/engauge/skills/skills.htm>.



term offers the possibility for a unification of diverse fields, it simultaneously obscures essential differences in the representational and communicational modes used in different areas. It is essential to be clear about what each mode does as cultures have developed specific ways of learning to represent the world. Moreover, technology and the way it makes meaning in learning are changing so rapidly that there cannot be one set of standards or skills that constitute the ends of literacy learning.

Of the many definitions available in literature, an established pedagogy of multiliteracies is defined by the New London Group (1996). The New London Group's (1996) pedagogy of multiliteracies is intended to augment existing teaching practices rather than displace them. According to the New London Group (1996), the development of a multiliteracy approach incorporates four critical aspects:

(1) **Situated Practice:** Immersion or experience in meaningful and authentic practices within a community of learners. The pedagogical goals are to attain mastery of skills and knowledge in real-life practices through critical engagement of relevant tasks and effect knowledge producing communities.

(2) **Overt Instruction:** Developing a language and understanding on how different modes of meanings work to represent reality in texts. The goal is to enable students to gain conscious awareness of and control over what is being learnt through their engagement with various texts and their interactions with other students and teachers.

(3) **Critical Framing:** Critical interpretation of the social and cultural context of particular

designs of meaning. The goal is to help students “frame their growing mastery in practice (from Situated Practice) and conscious control and understanding (from Overt Instruction) in relation to the historical, social, cultural, political, ideological and value-centred relations of particular systems of knowledge and social practice” (The New London Group, 1996 as cited in Cope & Kalantzis 2000:34).

(4) **Transformed Practice:** Transfer and re-creation of designs of meaning from one context to another. Students apply what they have learnt and put this understanding to work in reaching their own goals and fulfilling their own values.

It is important to note that the four aspects do not necessarily occur in discrete stages in sequence. Table 2 below summarizes how the New London Group's (1996) pedagogy of multiliteracies was implemented at William Ross High School in Townsville, North Queensland. The example was cited by Kalantzis and Cope (2000) for the teaching of English language to Year 9 students. The use of technology resources was rudimentary. The teacher made use of mainly songs from CDs and video clips to explain to the students how multimodality could act on listeners in songs. She then got the students to create their own video clips as representations of their understanding.



Table 2: An example of how the pedagogy of multiliteracies was implemented
(Adapted from Kalantzis and Cope, 2000)

Critical aspects of the pedagogy of multiliteracies	Descriptions of the lesson	Technology resources
Situated Practice	The students played some of their favourite songs, relating the music to their own interests (such as rap and heavy metal) and life experience. The students also filled out a music survey on their personal top five songs, the style of each song, their favourite style of music and what was typical of the lyrics, the music and the video clips of that style. They also went out find reviews of their latest favourite records in music magazines.	CDs of some of their favourite songs.
Overt Instruction	The teacher presented the students with the written lyrics of a Toni Childs song. Her discussion with the class led them to notice and identify the devices and conventions of poetry. She asked them to predict the style of the music. Then she played the song on the CD. She asked what the music added to the lyrics and how it did it, with the students examining beat, timbre of voice and its relation to the lyrics, changing volume and genre or style. She asked the students to predict the kind of imagery that might be in the accompanying video clip. Then she played the video clip. She asked how the imagery of the clip (predominant colours, pace of editing, imagery setting and so on) and the facial expression and gestures of the singer added to the meaning of the song. When the students examined the music reviews they found in magazines regarding their favourite songs, the teacher asked the students to work out how the reviews were organised. This not only included an analysis of the kind of concepts the reviews used to describe how linguistic (lyrics), audio (musical) and visual, spatial and gestural meanings were made (the video clip), but also included an analysis of the linguistic and visual design of the review itself. Students talked about how reviews were laid out on the page and how the various information elements were arranged such as the name of the band, a description of the sound, the reviewer's assessment of this particular record and individual tracks and an overall star-score rating.	CD and video clip of Toni Childs song
Critical Framing	The students brought in their favourite songs. Analysing the music survey, they worked out which students liked which styles of music: What did their preferences say about their identity? What were the main kinds of message in each style? They also compared different types of review in different kinds of magazine such as how the visual design of the page as well as the linguistic design of the text varied between one kind of the magazine and the next.	
Transformed Practice	The students wrote a song, performed it and made a video clip. They also wrote their own music reviews and mocked them up into a class music magazine.	Video clip



ICT and Multiliteracies: Implications for Language Learning

Studies such as those done by Abu-Arab (2005), Connelly & Bodybott (2005), Parks et al (2003) and Jones (2005) and Shetzer & Warschauer (2000) assert that a multiliteracy approach is more than using multimedia to learn language. It is incumbent on the teachers to engage students in critical literacy and proficient use of ICT for language learning.

Critical Pedagogy for Language Learning

Cope & Kalantzis (2000) contend that the inception of multimodal texts necessitate literacy pedagogy that extends beyond the mastery of genres that equip students with the language competence to function in a particular context. A critical literacy approach built within a pedagogy of multiliteracies is needed to teach students critical reading of multimodal texts. Luke and Freebody's (1999) Four Resources Model is one such viable literacy framework that can be incorporated. The four-tiered approach to reading instruction describes the practices that readers engage in, mainly: (1) Coding Practices; (2) Text-Meaning Practices; (3) Pragmatic Practices and (4) Critical Practices.

Annex A shows an example of the kind of critical literacy questions that teachers may want to ask of most multimodal texts which encourage their students to question beliefs that are imbued in texts.

Roles of ICT

Kern and Warschauer (2000) observed that the shift in perspectives on language teaching and learning from a structural perspective (learning about language) to a socio-cognitive one (learning through language) has transformed the role of computer in language education from that of a tutor to that of a tool. The focus is no longer on learners' interaction with computers but interaction with other learners through the computer. ICT is flexible. Other than the often cited reason of accessing a vast range of information or resources, a review of the literature recommends that ICT can be harnessed to support a social view of language learning:

- (1) Build authentic and collaborative learning environment (Kasper, 2000; The New London Group, 1996; Warschauer, 1999)
Creating an online learning community for authentic and collaborative learning provides the context for students to create, apply and critique their own new knowledge, rather than just absorb knowledge created by others. Such collaborative learning communities facilitate literacy development because when students juxtapose their differences, they gain substantively in metacognitive abilities and in their ability to reflect critically on complex concepts and their interactions.



Table 3: The Four Resources Model

(Adapted from Curriculum Standards and Support, School Education Division, Department of Education, Tasmania Literacy, 2004 & the Queensland LOTE Centre, the State of Queensland, Department of Education and the Arts, 2005)

	Roles	Practices
1	Code Breaker	<p><u>Coding Practices (to develop resources that ask the key question of how do readers crack a text)</u></p> <p>The practices required to decode systems of written and spoken languages and visual images. This involves making sense of communication codes such as print on a page, illustrations and moving images or gestures. It includes:</p> <ul style="list-style-type: none"> • recognizing letter-sound relationships. • spelling accurately. • understanding the use of camera angles.
2	Meaning Maker	<p><u>Text-Meaning Practices (to develop resources that ask the key question of what does a text mean to readers)</u></p> <p>The practices required to build and construct cultural meaning from texts. This involves comprehending and composing texts. It includes:</p> <ul style="list-style-type: none"> • drawing on prior knowledge and knowing how to use it. • comparing own experiences with those in the text. • making connections and inferences when comparing texts. • knowing how to predict, sequence, generalise and evaluate. • identifying the main idea and supporting details in an explanation. • predicting meaning by using title, illustrations and text format. • inferring word meanings from context. • matching graphic information such as symbols or diagrams to textual information.
3	Text User	<p><u>Pragmatic Practices (that develop resources that ask the key question of what do readers do with a text)</u></p> <p>The practices required to use texts effectively in everyday, face-to-face situations and for different cultural and social functions. This involves understanding the purposes of texts for different social and cultural functions. It includes:</p> <ul style="list-style-type: none"> • recognizing that purposes and audiences shape the tone and structure of texts. • matching the language to particular social situations. • using appropriate text types for particular purposes both inside and outside school.
4	Text Analyst	<p><u>Critical Practices (that develop resources that ask the key question of what does a text do to readers)</u></p> <p>The practices required to analyze, critique and second-guess texts. This involves ways in which texts are used to position readers, viewers and listeners. It includes:</p> <ul style="list-style-type: none"> • recognizing that texts are not neutral. • understanding that texts represent particular views and interests. • understanding that texts influence people's ideas.



- (2) Provide scaffolds for enhancing learning (The New London Group, 1996; Scardamalia & Bereiter, 1994)

In literacy approaches, scaffolding enables the students to accomplish a language task more complex than they can accomplish on their own. It can be perceived as a type of mediation whereby teacher support is provided through interactional prompts, the use of artefacts such as worksheets and concrete materials and strategies such as joint construction in writing. Technology such as the Knowledge Forum™⁴ can be used to provide cognitive prompts to engage pupils in critical reading and writing task where opportunities are provided for students to use language to achieve their intended language goals.

- (3) Provide the means to create multiple and multimodal representations of understanding (Graddol, 1994; Jones, 2005; Kress, 2003; Kress & van Leeuwen, 1996; Susan Parks et al, 2003)

ICT makes possible fuller multimodal representation than the page or print-based media. Students' acquisition of knowledge is facilitated through the deployment of multimodal processing of visual, verbal, audio resources presented in various combinations on the screen. By drawing on the representational resources of various media, students can harness the affordances

of the various modes to express what they have learnt. Multimodal representations are indications of students' interests as well as their engagement with the world. They provide the evidence of what they have learnt.

Conclusion

The advent of ICT has changed our world and the way information is communicated. These changes have revolutionized the notion of literacy such that literacy practices today take into account the wider social, economic and cultural contexts. The term literacy is pluralized, or otherwise known as multiliteracies, to incorporate new forms of literacies such as visual literacy, media literacy and computer literacy. In the multiliteracy approach, the learning of these literacy skills is interconnected, overlaps and may not happen at disparate stages. Nevertheless, being multiliterate means more than having these skills or using multimedia for learning. Literacy in the 21st century requires students to understand the affordances of the various modes of representation and communication and how meanings are conveyed through the interplay of these modes. It also requires them to interpret these meanings in the wider social, economic and cultural contexts. The new communicational landscape of multimodality calls for a rethinking of our literacy pedagogy to move our students beyond competence in reading and writing towards mastery of multimodal forms of communication.

⁴ Knowledge Forum™ is a kind of Computer-Supported Collaborative Learning (CSCL) software that provides a platform for students to engage in collaborative work and discussion with the support of graphical inputs and customizable scaffolds. To view features of the Knowledge Forum™, more details are provided at http://eduweb.nie.edu.sg/projects/cscl/kffeatures_files/frame.htm.



Annex A

Critical Literacy Questions

(Extracted from Curriculum Standards and Support, School Education Division, Department of Education, Tasmania Literacy, 2004)

Textual purpose(s)

- What is this text about? How do we know?
- Who would be most likely to read and/or view this text and why?
- Why are we reading and/or viewing this text?
- What does the composer of the text want us to know?

Textual structures and features

- What are the structures and features of the text?
- What sort of genre does the text belong to?
- What do the images suggest?
- What do the words suggest?
- What kind of language is used in the text?

Construction of characters

- How are children, teenagers or young adults constructed in this text?
- How are adults constructed in this text?
- Why has the composer of the text represented the characters in a particular way?

Gaps and silences

- Are there 'gaps' and 'silences' in the text?
- Who is missing from the text?
- What has been left out of the text?
- What questions about itself does the text not raise?

Power and interest

- In whose interest is the text?
- Who benefits from the text?
- Is the text fair?
- What knowledge does the reader/viewer need to bring to this text in order to understand it?
- Which positions, voices and interests are at play in the text?
- How is the reader or viewer positioned in relation to the composer of the text?
- How does the text depict age, gender and/or cultural groups?
- Whose views are excluded or privileged in the text?
- Who is allowed to speak? Who is quoted?
- Why is the text written the way it is?

Whose view: whose reality?

- What view of the world is the text presenting?
- What kinds of social realities does the text portray?
- How does the text construct a version of reality?



What is real in the text?

How would the text be different if it were told in another time, place or culture?

Interrogating the composer

What kind of person, and with what interests and values, composed the text?

What view of the world and values does the composer of the text assume that the reader/viewer holds? How do we know?

Multiple meanings

What different interpretations of the text are possible?

How do contextual factors influence how the text is interpreted?

How does the text mean?

How else could the text have been written?

How does the text rely on inter-textuality to create its meaning?



References

- Abu-Arab, A. (2005). Redesigning pedagogy in the ESL classroom: A case study. *Proceedings of the Redesigning Pedagogy: Research, Policy, Practice Conference*. National Institute of Education, Singapore.
- Callow, J. & Zammit, K. (2002). Visual literacy: From picture books to electronic books. In M. Monteith (Ed.), *Teaching primary literacy with ICT* (pp.188-201). Buckingham: Open University Press.
- Christie, F. (1990). *Literacy for a changing world*. Melbourne: ACER.
- Cope, B. & Kalantzis, M. (2000). *Multiliteracies: Literacy learning and the design of social futures*. London: Routledge.
- Connelly, J. & Bodycott, P. (2005). Multiliteracies: Learning how to critically read the visual. *Proceedings of the Redesigning Pedagogy: Research, Policy, Practice Conference*. National Institute of Education, Singapore.
- Crystal, D. (1987). *The Cambridge encyclopedia of language*. Cambridge: Cambridge University Press.
- Curriculum Standards and Support, School Education Division, Department of Education, Tasmania. (2004). *Unlocking literacy: Keys to success*. Retrieved July 21, 2005, from http://www.ltag.education.tas.gov.au/focus/beingliterate/1_Introduction.pdf.
- Educational Testing Service. (2002). *Digital transformation: A framework for ICT literacy: A report of the international ICT literacy panel*. Retrieved July 15, 2005, from http://www.ets.org/Media/Tests/Information_and_Communication_Technology_Literacy/ictreport.pdf.
- Eggins, S. (1994). *An introduction to systemic functional linguistics*. London: Pinter.
- Freebody, P. & Luke, A. (1990). Literacies' programs: Debates and demands in cultural context. *Prospect*, 5 (3), 7 -16.
- Graddol, D. (1994). The visual accompaniment of factuality. In D. Graddol, & O. B. Barrett (Eds.), *Media texts: Authors and readers* (pp. 136-160). Clevedon: Multilingual Matters.
- Halliday, M.A.K. & Ruqaiya, H. (1985). *Language, context and text: Aspects of language in a social semiotic perspective*. Victoria: Deakin University Press.
- Jones, A.J. (2005). ICT, language, media: Essential literacies for today. *Proceedings of the Redesigning Pedagogy: Research, Policy, Practice Conference*. National Institute of Education, Singapore.
- Kasper, L.F. (2000). *New technologies, new literacies: Focus discipline research and ESL learning communities*. Retrieved June 1, 2004, from <http://lit.msu.edu/vol4num2/kasper/default.html>.
- Kern, R. & Warschauer, M. (2000). Theory and practice of network-based language teaching. In M. Warshauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 1- 19). Cambridge, England: Cambridge University Press.
- Kress, G. (1997). Visual and verbal modes of representation in electronically mediated communication: The potentials of new forms of text. In I. Snyder (Ed.), *Page to screen: Taking literacy into the electronic age* (pp. 53 – 79). London: Routledge.
- Kress, G. (2001). You've just got to learn how to see: Curriculum subjects, young people and schooled engagement with the world. *Linguistics and Education*, 11 (4), 401- 415.
- Kress, G. (2003). *Literacy in the new media age*. New York: Routledge.



- Kress, G. (2005). *Thinking about meaning and learning in a world of instability and multiplicity*. Paper presented at the Redesigning Pedagogy: Research, Policy, Practice Conference. National Institute of Education, Singapore.
- Kress, G. & Theo van Leeuwen. (1996). *Reading images*. London: Routledge.
- Queensland LOTE Centre. (2005). *Literacy and the Four Resources Model*. Retrieved 21 July, 2005 from <http://education.qld.gov.au/curriculum/area/lotte/docs/literacy.doc>.
- Luke, A. & Freebody, P. (1999). *Further notes on the Four Resources Model*. Retrieved July 21, 2005, from <http://www.readingonline.org/research/lukefreebody.htm>.
- Parks, S. et al (2003). Crossing boundaries: Multimedia technology and pedagogical innovation in a high school class. *Language Learning and Technology*, 7 (1), 28 – 45.
- Scardamalia, M., & Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences*, 3(3), 265-283.
- Shetzer, H. & Warschauer, M. (2000). An electronic literacy approach to network-based language teaching. In M. Warshauer & R. Kern (Eds.), *Network-based language teaching: Concepts and practice* (pp. 171 – 185). Cambridge, England: Cambridge University Press.
- The New London Group. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review*, 66 (1), 60- 92.
- The North Central Regional Educational Laboratory & Cheryl Lemke, Metiri Group. (2003). *enGauge's 21st century skills: Literacy in the digital age*. Retrieved July 15, 2005, from <http://www.ncrel.org/engauge/skills/skills.htm>.
- The Partnership for 21st Century Skills. (2002). *Learning for the 21st century*. Retrieved July 15, 2005, from http://www.21stcenturyskills.org/downloads/P21_report.pdf.
- Warshauer, M. (1999). *Electronic literacies: Language, culture and power in online education*. Mahwah, NJ: Lawrence Erlbaum Associates.