

12 The Agency and Artistry of Meaning Makers within and across Digital Spaces

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We seem to be approaching a confluence, verging on a zeitgeist,¹ as researchers and theorists and applied scholars encourage our rethinking the nature of literacy practices and meaning making, especially within and across new and changing digital environments. They include: social anthropologists interested in digital literacies as literacy practices and events (e.g., Barton, 1994; Barton & Hamilton, 1998; Street, 1984, 2003); cultural and critical theorists intent on studying the politics of individuals and group identities (Fairclough, 1992, 1995; Knobel & Lankshear, 2005; Lankshear & Knobel, 2003; Lambert, 1993; Lanham, 2002), linguists including socio-semioticians interested in the advent of language systems, especially the shifts in signs via new media (e.g., Baudrillard, 1981; Lemke, 1998, 2001; Kress, 1997, 1998, 2003; Kress & van Leeuwen, 2001), cognitive psychologists interested in learning in the context of the new knowledge economies (e.g., Cognition and Technology Group at Vanderbilt, 2000; Spiro, 2006), literary theorists intrigued by discussions of author-reader-text relationships provoked by new forms of text (e.g., Landow, 1994 a, b; Miall & Kuiken, 1994; Miall 1999), and educators interested in the nature and role in learning (e.g., Cope & Kalantz, 2000; Conzanzo, 1994; Education Queensland, 2000a, b; Leu, 2006; Luke, 2005; New London Group, 1996; Pahl & Roswell, 2005; Reinking, 1997; Stein, 2004).

Some of these developments have their roots in technical breakthroughs and the realization of the impact that digital literacies are having in terms of meaning making, communication and other pursuits. The magnitude of these shifts should not be underestimated. As Gunther Kress (2003) stated:

... the broad move from the now centuries long dominance of writing to the new dominance of the image and ... the move from the dominance of the medium of the book to the dominance of the medium of the screen ... are producing a revolution in the uses and effects of literacy and of associated means for representing and communication at every level and every domain ... This in turn will have profound effects on human, cognitive/affective, cultural and bodily engagement with the world, and on the forms and shapes of knowledge. (p. 1)

As more and more people enlist digital literacies and growing numbers of homes, schools, community sites and offices access cellular technologies and have broadband connections, the use of digital literacies becomes increasingly ubiquitous in our everyday lives and contributes to shifts in what we can do, how, why, when, where, and with whom.²

This chapter attempts to braid together some of the threads or themes which seem to be informing our understanding of meaning making across and within digital spaces. The paper begins with a discussion of how we make meaning, including the influence of

the architecture of digital spaces, the agency of the meaning making and, building upon the notion of agency, the social dimensions. The chapter closes with a brief discussion of the beginnings of a model of meaning making that attempts to braid together these threads.

WEAVING MEANINGS

How do individuals and groups weave meanings across composites of different engagements with the Internet, Web pages, blogs, videos, soundtracks, and other digital spaces? How do they transact meanings including explore, seek information, navigate, create, critique knowledge across multiple sources, Web sites, images, texts, video segments, sounds, etc.? How do they navigate, play, build, or participate within virtual worlds?

My view is that there is an artistry to meaning making that has more to do with the meaning maker than with the technologies, although the architectures supported by the technologies influence the expressions and approaches. As Bolter (2001), Douglas (1992), Gee (2003), Squire (2006), and others have discussed, these webs of images and texts or digital games or simulated environments are akin to scripts waiting to be enacted or scores to be played or dances to creatively pursue.

Our meaning making journeys may appear to follow or parallel or be inscribed by others, but we all have our own imprint, swagger or emerging meanings which ricochet or become compounded with one another as well as those of fellow travelers as we wander through text. It is a mistake to believe that there is some kind of precise “mathematic” or “formulaic” rendering that is possible. Meaning making is never precise; it is not a form of exact mapping of sounds or meanings onto text. Meaning making involves approximation or a form of allowable band of interpretations or elasticity to the meaning making between author or Web-creator or filmmaker and reader and the world. It is befitting that meaning making has been compared with an orchestral rendition or dance or script that is enacted. There is always a certain elasticity to a score or script or choreography which is essential for the realization of the composition.

It has been suggested that the advent of digital spaces, especially with the advent of hypertext, represents a revolution in communication of a magnitude exceeding the printing press. Hypertext represents the basic architecture that undergirds the Internet as well as a host of interfaces that we now assume to be standard. Digital hypertext affords multilayered and multimedia-based spaces to move across and within. As Spiro posits, hypertext makes a kind of nonlinearity and multidimensionality possible that could not be achieved with traditional linear media, refiguring thought from the ground up (Spiro, 2006, a b). Or, as Hull and Nelson (2006) stated:

All about us, there are unmistakable signs that what counts as a text, and what constitutes reading and writing, are changing — indeed, have already changed and radically so—in this our age of digitally-afforded multimodality. To rehearse the obvious, it’s possible now to easily integrate words with images and sound and music and movement in order to create digital artifacts that do not necessarily privilege linguistic forms of signification, but rather that draw upon a variety of modalities — speech, writing, image, gesture, sound — to create different forms of meaning. There are now web-based scholarly journals that illustrate and explore these possibilities ... there are community-based media organizations that promote a variety of forms of multimodal composing ... there are beginning to be empirical studies that examine multimodal practices in context ... theorizing about multimodality has begun.... Some scholars, it is true, recognized the advent and importance of multimodality as an aspect of literacy a long time ago, taking heed, for example,

of the importance of multiple forms of representation (Witte, 1992). Yet, the full import of this sea change in semiotic systems has, for most people, just begun to be felt.

Further, they suggested:

these new multimodal spaces spurs a process of “braiding” or “orchestration” ... a multimodal text can create a different system of signification, one that transcends the collective contribution of its constituent parts. More simply put, multimodality can afford, not just a new way to make meaning, but a different kind of meaning.

The architecture of or engagement with these spaces provides for a juxtaposing of multiple texts that may achieve a crisscrossing of topics that Spiro, Coulson, Feltovich, and Anderson (1988)³ have espoused to be powerful ways of knowing and learning complex knowledge. By using various microcosms, support can be gained for the acquisition of complex knowledge.

The intertextual and multilayered nature of hypertext (with the layering of texts, with image, and sound, etc., and linkages within and across layers) may expedite both the multiplier effects of making meaning and with the addition of multimedia active agents for transmediation, or what Forman (1998) has described as “the type of constructive conflict we deem to be the power of this multisymbolic approach to education” (p. 187). The multimedia nature of these forms of text being juxtaposed may afford a kind of semiotic engagement that provides students access to multiple symbol systems that allow an ongoing learning through analogies or metaphor. As Siegel (1995) suggested, these multimedia explorations have “a generative power that comes from juxtaposing different ways of knowing ... as a way of positioning students as knowledge makers and reflective inquirers” (p. 473). Or, as Witte (1992) suggested, “the influence of alternative intertexts on the constructive processes increases dramatically as the multiple voices of distinct constructive semioses mix on what might be called the battleground of the ‘trace.’ It is for this reason that ... all discourse ... is fundamentally dialogical” (pp. 287–288).

MEANING MAKING IN THE LABYRINTH OF MULTILAYERED TEXT WORLDS

As one shifts from meaning making with single texts to multiple texts or sources, and sifts through ideas toward developing one’s own constructions or remixing those of others, the active role of the meaning makers and the need for a different configuration of strategies and forms of self-direction seems apparent.⁴ Based upon her work and that of her colleagues across a number of studies involving synthesizing from multiple print sources, Spivey (1997) argues that meaning makers pursue understandings across multiple texts using a rather consistent regimen. As she states, they

... shape their meanings with organizational patterns, make selections on the basis of some criteria of relevance, and generate inferences that integrate material that might seem inconsistent or even contradictory. In such acts writers not only read single text but also an intertext, as they perceive intertextual cues and make connections ... they also read the context ... (p. 191)

She also suggests that these same intertextual connections and these same processes parallel what meaning makers do in hypertext where similar constellations of multiple

texts are visible with one possible exception. Whereas meaning makers using multiple print sources may need to pursue their own link, hypertext provides many of its own links.

As she suggests:

People make across-text linkages and topical jumps, and they generate relations from one text to another as they do their transformation. The kind of intertextual connections that are so visible when people work in hypertext environments are the kinds of transformations that we have been considering.... A difference, of course, is that there has not been a programmer who built the interconnecting links into the database, and writers (readers) have to generate such links themselves ... making such inferences as “this supports...,” “This adds to...,” “ This contradicts...” (pp. 209–210)

With hypertext, meaning makers may be constrained by a kind of labyrinth (Snyder, 1996) and proceed from one text to the next and one link to the next gingerly—lest they become lost, at a dead end, or miss what they perceive to be a key item. Indeed, meaning making within the labyrinth of some hypertexts maybe overly text driven. This was apparent in a study by Coiro and Dobler (in press), examining the on-line comprehension strategies (via think alouds, responses to semistructured interview tasks and other responses) of successful sixth-grade comprehenders engaged with a preset Internet site dealing with the topic of tigers as an assignment prompting search engine usage. The architecture of on-line material, especially with hyperlinks and the use of thumbnails and annotations, seemed to prompt the use of such features to assist with the navigation of the texts.⁵ Based upon their findings, the researchers suggested that one of the key distinctions between on-line and off-line comprehension is tied to the more frequent use of forward inferencing (vs. backward inferencing) which is aroused at the point of a hypertext link. They link this to a more multilayered inferential engagement of on-line meaning makers. As Coiro and Dobler stated:

The skilled readers in our study engaged in a multi-layered inferential reading process that occurred across the three-dimensional spaces of Internet text ... combining traditionally conceived inferential reasoning strategies with a new understanding that the relevant information may be “hidden” beneath several layers of links on a website as opposed to one visible layer of information in a printed book. (p. 37)

They suggest that “... internet reading seems to demand more attempts to infer, predict and evaluate reading choices ... to require readers to orient themselves in a new and dynamic three-dimensional space ... to figure out how to get back to where they were.” They suggest that the self-regulation of on-line comprehension seems tied to a similar set of recursive strategies of past models of composing (e.g., Tierney & Pearson, 1983). On-line comprehension involves planning within and across Web sites, predicting and following leads, monitoring how and where to proceed and evaluating relevance and judging merits. They noted that there were physical dimensions associated with these activities (e.g., scrolling, clicking) and speculated that the on-line environment might be more demanding and complex than off-line. In some ways, these results support the characterization of on-line comprehension as more likely to be aligned within the author(s) frame(s) or labyrinth(s) at the same time as it entails agility with being able to navigate, search, select and integrate across sources. As the authors state:

Our findings suggest that the greater complexities in online reading comprehension may result largely from a process of self-directed text construction; that is, the pro-

cess online readers use to comprehend what they read as they search for the Internet text(s) most relevant to their reading needs.

On one level, we observed skilled readers engaged in an ongoing “self-directed” planning process involving a series of inferences about what would best fit with their internal representation of the text’s meaning. Simultaneously, on a second level, these readers constructed their own external texts. Each decision about which link was most relevant involved constructing the next element in the text they built. We observed readers actively anticipating and monitoring the relevancy of each new text unit, while quickly deciding whether to continue to add that text to their own external text by following deeper links within a page or to exclude that text and search elsewhere by clicking the back button as a fix-up strategy, for example. At the end of the reading session, it became clear that each reader had constructed not only his or her internal understanding of a certain text, but had also constructed a unique external representation of the Internet texts most applicable to their needs. (p. 51)

They contrast this with

Readers who do not strategically plan and anticipate where they are headed within open Internet spaces may end up constructing a disjointed collection of random texts as opposed to a systematic compilation of carefully chosen texts from which to sift out a relevant point. Thus, an increased need to make forward inferences about text appeared to compound an already complex process of making bridging inferences about content in a manner that may prompt additional complexities to the process of reading online. (p. 53)

Again, the on-line demands of meaning making appear to prompt more use of what was labeled forward inferencing or a form of making predictions as meaning makers attempted to navigate the layers of text or information that the text template and on-line navigational tools might suggest. Forward inferencing seems to arise in conjunction with an interest in determining where links might lead and in assessing the possible saliency of what may be uncovered, especially by a hyperlink. When using search engines, they often relied on annotations offered with hyperlinks yielded from the search as a means of assessing degree of relevance or the likelihood that an identified site would yield more or less relevant results. Coiro and Dobler (in press) conjectured that on-line comprehension could be differentiated from off-line comprehension in a number of ways. First, as meaning making proceeded on line, meaning making involved knowledge of topic and knowledge of print informational text structures akin to off line comprehension; in contrast, it involved knowledge of informational Web site structures as well as search engines.⁶ Such influenced how they navigated the text including the physical nature of their approach (e.g., returns to the home page). Second, on-line comprehension involved to a degree similar and different inferential strategies. In response to questions that were set, the meaning makers made similar use of context and other text cues to what off-line comprehenders would use to explore the texts as they pursued answers to questions. But, as suggested, there was more forward inferencing as one chose what path to follow.

Teresa Dobson’s research on reading hypertext novels suggests similar findings—especially the nature of the influence of hypertext architecture upon the approach and strategies that are prone to be employed depending upon the disposition of the meaning maker. She has done extensive probing of adolescents response to selected hypertext novels which are literary in nature (Dobson, in press; Dobson & Luce-Kapler, 2005;

Luce-Kapler, Dobson, Sumara, Davis, 2006). Her observations of and comments by her students suggest that hypertext novels provoke more self-consciousness of the reader's role in meaning making and a great deal of emphasis upon reading in a fashion which might be considered text dependent, authorcentric, or positioned differently especially in terms of how imposing the architecture of the spaces and the linkages and layering that was in place.⁷ Her analyses focused upon the comments of these readers to their engagements; her findings tended to support that "... hypertext may encourage a particular level of meta-cognitive awareness among readers with respect to their reading processes, and, as well, as a level of critical awareness with respect to narrative structure and substance" (p. 14). Some of the student's comments were quite telling. In comparing the hypertext novel with a book, one student suggested "you can read it but you can't quite get into it as much" (p. 327). Students were not sure they had chosen the right links in the right order or that they had gotten what they needed to get from the text. Dobson argues that hypertext may lead to more physically localizing reading experience tied to how the developer structures the plot. She suggests, in her subsequent work with wikis, that meaning makers engaged in their own development of these structures seem to shift in their attitude (Dobson, 2004). As she stated:

... in my current work with students reading hypertexts and writing collaboratively and individually) in malleable "wiki" writing spaces, I often find those who are exceedingly critical of hypertext structures as readers become wholly engaged as writers, often delighting in engaging the rhetorical ploys they previously eschewed. (pp. 17–18)

Dobson, together with her colleagues (e.g. Luce-Kapler, Dobson, Sumara, & Davis, 2006), has explored a range of engagements with other literature and other readers. Together this work begins to shift the focus to variations in meaning making by different readers in response to different hypertext novels. The work seems to stress the consciousness of the reader which is raised by the hypermedia and the possibilities such might offer a diverse range of what they term "mindful" reading.

Indeed, intrigued by encountering a similar experience with the appeal of hypertext among students who were earlier users of animation and ways to link material, my colleagues and I explored various responses to hypertext construction in our observations of high schoolers, including a group of high school students set up to work on hypertext projects versus parallel forms of regular print-based projects (in science and literature) (Galindo, Tierney, & Stowell, 1989; Tierney, Kieffer, Whalin, Desai, Moss, Harris, & Hopper, 1997). We found a similar preoccupation and enamourment with form and the possibility of engaging the use of forms of special effects drawn from their exposure to pop culture. Our findings suggested that students appeared to approach hypertext with more questions and more interest and more concern over form (e.g., the layering of material with links and interface with video) than the regular print-based projects. We found that the students viewed the advantages of the hypertext as allowing a way to architecture a space that affords different engagement for others—especially a kind of edginess. However, apart from motivation differences, knowledge differences were not discernible. The responses to the project seemed more tied to the form and structure of the plot or presentation of the ideas than the ideas themselves. That is, hypertext prompted meaning makers to keep aligned with how the ideas might be structured or architected. Variations did occur but they were minimal depending upon a host of factors (digital architecture, the ideas, knowledge of the reader or writer, technical skills, and the nature of the collaboration). A key factor seemed to be the novelty and an interest in impressing their peers with the special effects of the hypermedia.

The importance of how meaning makers position themselves (including goals, focus, perspective, authority) arises as salient from studies of meaning making from reading and writing multiple sources across a range of literacy settings. Indeed, the saliency of similar features come from un-mined (or at least underutilized) sources of research on meaning making across texts and media—namely, research on reading and discourse syntheses studies (the process in which writers use multiple texts to develop their own texts), research on intertextuality, research on disciplinary expertise as well as studies of learning at a very young age where the amalgamation of image, sound and text is overt and commonplace or studies of adult learning in certain fields or occupations.

For example, the importance of the characteristics of the meaning maker is consistent with the findings emanating from the work of McGinley (1988, 1992) who engaged college students using multiple sources to develop essays. He noted that the shifts, search of, selection, and use of different sources was quite focused for the more able students but rather haphazard for those who were not. His findings of successful and less successful composers mirror the aforementioned findings of especially the linking that is required as well as the need for a focus to guide and assess the relevancy of sources and navigate efficiently and flexibly across sources toward an integrated and coherent compositions or understandings. He relates his discussions of the findings of reading and writing from multiple sources to Wittgenstein's notion of crisscrossing the topical landscape as a metaphor for how meaning makers appear to engage with multiple sources or multiple texts (McGinley & Tierney, 1989). At the same time, he stresses that meaning makers are engaged in a negotiation with self in the company of others (especially authors). He found that successful meaning making involved a kind of internal collaboration or dialectic as the meaning maker pursued agency as "a reader of the source articles, an essay writer, an essay reader, a note writer, and a note reader" (p. 241) and a reader of themselves.

The importance of agency and positionality within a community of others seems key for meaning makers at all ages as they explore their worlds and their relationship to these worlds through a mix, remixing, and networking with "snatches" of music, image, text, and so forth. Based upon her extensive ethnographic work in learning through a social-cultural lens, Dyson (1988, 1995) has suggested children's major developmental challenge is not simply to create a unified text world but to move among multiple worlds and coordinate multiple space/time structures toward defining self, including how one is placed in the company of others. As Dyson (1995) stated: "Children are not first and foremost learners; they are first and foremost people living the complexities of their day-to-day lives" (p. 36). Children seek to "imagine" relationships and situate themselves socioculturally and ideologically. With older students, Mathison (1996) reached similar conclusions. In her examination of the sociology students' ability to offer substantive critique, she surmised that their development was based upon their ability to draw from their interactions with interpretative communities or disciplinary groups that can provide feedback on their meaning making in a fashion which might differ from what they might do on their own with other groups. Without such engagements, critiques remained unrefined and lacked the authority that comes with acquiring the agency. She surmised that success as a sociologist (insofar as critiques revealed) comes with exploring identity in a fashion that involves engagements with fellow sociologists. In a similar vein, with the advent of digital resources, Sefton-Green (2006) and Rampton (2006) have observed youth pursuing similar agency. As meaning makers interact with one another around games, music, and other exchanges, they use the "snatches" of music, phrases, etc., to rework, remix, adapt as they position themselves to assert their agency and to possibly explore their own identities.

AGENCY, ENACTMENT, AND EMBODIMENT

In some ways, these multiple engagements befit the view of meaning makers as a kind of multivocal and multiperspectival pursuer of understandings akin to what was suggested by Barthes, or other views of the social construction of multiple meanings. That is, the meaning maker is engaged in constructing selves or multiple persona in the company of others or a form of embodiment—a secondary engagement with or participation in the worlds constructed across or within or by layers of text and other media. The term embodiment is used to denote Csordas' (1999) use of embodiment—"an existential condition" (p. 143). At the same time, a meaning maker adopts one or more personae and they position oneself with others and their worlds in a fashion growing out of their subjectivities, alliances, choices, and so forth.⁸ In many ways, these studies suggest a link between meaning making and identity formation. As readers read they explore the world of the text for themselves relating to the imagined author and characters as well as events in certain ways.⁹ In the aforementioned studies, the agency of the meaning maker (especially how the meaning maker positioned himself or herself or approached or navigated the text(s) or digital space) was seen as key to their engagement with the ideas that were explored, the strategies that were employed as well as how the meaning maker wished to position himself or herself in the company of others.

In various digital spaces, the multiple embodiments of the meaning makers have been observed across a variety of literacy events. Several literacy scholars have noted that access to multimedia tools (e.g., digital video) enhances youths' explorations, expression and expansion of their sense of identity. By affording students access to these multimedia environments spaces, Rogers and Winters (2006), Alvermann, Hagood, and Williams (2001), Hull and Nelson (2006), and Hudak, Hull, and James (in press) have argued that students are afforded the possibility of having their literacy practices travel across spaces, in and out of schools, blurring traditional boundaries and forms of literate practices. These spaces also allow students to "juxtapose and transform genre practices for critical purposes, engage in the playful instability of genres, selves, and messages, and re-narrate their stories and identities in the process" (Rogers & Winters, 2006, p. 29). For example, as Rogers and Schofield (2005) indicate, the students mimic jackassing as well as hip-hop and various culture vignettes befitting their views of their cultures and their multiple identities. Examined sociopolitically, these studies offer evidence of these engagements interfacing with emerging identities with the context of achieving status with the roles and positioning that was occurring and the use of these literacies carrying over from the events within the school spaces to other spaces outside and beyond school.

Observations of students engaged in the use of instant messaging suggest that the digital medium supports a fluid form of identity construction. In particular, Lewis and Fabos (2005) found that when adolescents instant message with one another they can shift identity almost simultaneously as they interact with one another in the context of others and so on. As Lewis and Fabos (2005) stated, "...they enact identities that depend upon a running analysis of the on-line and off-line contexts" (p. 494). They describe adolescents who shift their interactions to fit their relationship and stance with respect to one another as they instant message with each other with one another in the company of groups (e.g., from confidante to advisor to cynic to empathetic supporter with the different participants) and they do so in a fashion consistent with her or his overall sense of identity and understanding of the dynamics of the relationships. Lewis and Fabos described Amanda and other students being supportive with a fellow instant messenger, but terse with another as if she was representing herself as having multiple sides to who she was during on-line exchanges.

Even more overtly, embodiment occurs in gaming. In the research on hypertext and gaming, observations of meaning makers suggest different alignments with authors or within the worlds in which gamers choose to position themselves. With the advent of interactive media, especially in the form of simulations and hands on virtual engagements, especially games, etc., meaning making as performance may be foregrounded and out of the shadows. At the same time, it may vary in how planned or contrived it may be. Certainly, as Squire (2006) and Gee (2003) suggest in the context of these digital spaces, knowing may go beyond moving from print to image to virtual or real environments interfaced with tools which simulate opportunities to perform in situations and try on identities as one experiences and enters such worlds.

Again, such embodiments are not restricted to meaning making spurred by participation in a virtual reality environment; they are consistent with observations of meaning makers engaged in reading and their relationship to the text worlds with which they engage. As Enciso (1992) observed, meaning makers engage in a form of embodiment that may be culturally constructed and experience or direct affiliations with characters and events, adopting points of view, directing their emotional and visual attention—as they navigate their way within these worlds. Slatoff (1970) describes it as follows:

As one reads one has the feeling one is moving into and through something and that there is movement in oneself — a succession of varied, complex, and rich mental and emotional states usually involving expectancy, tensions, and releases, sensations of anxiety, fear, and discovery, sadness, sudden excitements, spurts of hope, warmth, or affection, feelings of distance and closeness, and a multitude of motor and sensory responses to the movement, rhythm, and imagery of the work. (pp. 6–7)

As Rosenau (1992) suggests, a meaning maker “is an actor-receiver, participant observer, and an observing participant all at once” (p. 26). Again, observations of the complexity of such engagements can be found in many of the aforementioned accounts of meaning making within and across texts, text and images including classic cognitive accounts such as Bartlett’s (1932) discussion of remembering or Rosenblatt (1983) and others discussion of how meaning making occurs.

Regardless of the context of the lived through experience (reading, writing, viewing, or gaming), one may be engaged in a world that is more akin to a form of process drama where the meaning making of others as they engage with the virtual world contribute to shifts in the direction and nature of your engagement, or a form of theater where audience members are not fixed to a seat to enjoy the theatre as spectacle but are able to wander and position themselves in the plot, setting, or characters differently as they chose from a menu of possibilities and tools for so doing. And, adding to the complexity of any meaning making in such environments may be others which may vary from time to time—especially in some virtual environments. However, there may be ways that distinguish the participation spurred by a text and that offered by virtual reality. As one contemplates how meaning making occurs within virtual worlds from games to software environments (e.g., the Sim software construction spaces), the discussions of imaging and secondary world engagements may entail a physical response such as a guiding a cursor or clicking on a space.

The embodied engagements within and across these spaces occurs in a range of ways from quite broad and even global to quite narrow and intrapersonal. It can involve engagement across social worlds and involve exchanges of ideas done in a fashion akin to the exchange of goods or capital or forms of encroachment, absorption of adoption akin to colonization or hybridization. It can involve exchanges of thoughts or ideas for oneself or in the context of schooling. It may involve a form of mobility which offers

individuals ways to locate or dislocate themselves as they relate to or interact within and across different spaces in different ways. An early theorist about “hyperreality,” Jean Baudrillard, suggested that we live in a world drained of authenticity as a result of world full of illusions perpetuated by the media that surrounds and the mass-produced environments (e.g., malls, amusement parks, automobiles, etc.). The end result, he argued was an almost complete blurring of reality and unreality.

If meaning making is envisioned as a form of embodiment, then there may need to be a shift in how we view our meaning maker and the strategies that they employ. Cognitive-based models of meaning making tend to suggest major phases such as planning, inferencing, connecting, and monitoring.

Perhaps our models should be reconsidered so that they are more aligned with the embodied engagement of meaning makers such as how people transact meanings with one another—engaging with, accessing, co-planning, co-authoring, searching and exploring, positioning, sharing, guiding, reflecting recycling and sustaining. In accordance with these notions and emanating from pragmatics (especially speech act theory) and its critique by Derrida (1988) and others, Judith Butler (1993) has delved into these issues in conjunction with bringing to the fore the notion of performativity with its antecedents in pragmatics including speech act theory and its critique by Derrida (1988).¹⁰ Butler (1993), as Ruitenberg (in press) noted, suggests that performativity and agency are linked in complicated ways in a fashion more discursive and transactional than subservient than passive. As Butler suggests, meaning makers are not without agency, but their agency is not autonomous. As Ruitenberg (in press) noted, we should:

conceive of students, and students of themselves, not as autonomous agents, nor as passive recipients of tradition, but rather as subjects whose actions and identities both depend on, and can make changes to, discourses that precede and exceed them. (p .8)

Rather than perpetuate a within the head form of individualism, meaning makers are not alone. They move in and out of groups or operate in all manner of fashions—unified or dispersed, in concert or in disarray etc. Even in solitude, meaning makers may view themselves as operating in multiples, especially as they interact with texts of others and their own selves. We should recognize what some have termed the ensemble nature of meaning making—namely, the social nature of the meaning making—akin to a form of group co-authoring and enlist terms which represent a better fit with such engagements. For example, we might view meaning making through lens that recognize social nature of the processes and products of co-authorships involving shifting affiliations, negotiations, mediations, authorizing etc. (see Dyson, 1995; McEneaney, 2006).

WEAVING OUR WORLDS—SELF AND OTHERS

Purcell-Gates (2006) has argued in conjunction with her work in various sites that literacy “begins and ends in, or leads to, the social practices of literacy (actually ... never ends for many people) (Purcell-Gates, 2006, p. 44). Similarly, the work identified as “new literacy studies” with its antecedents in the sociosemiotic traditions (e.g., Halliday, 1973; Heath, 1980), represents, as Street (2006) and Kress (2003) have suggested, an interest in the history and social practices around the various symbol systems that are used. In his book *Literacy: An Introduction to the Ecology of Written Language*, David Barton (1994) suggested some key tenets about literacy based upon some of these notions as well as his and his colleagues’ explorations of everyday literacy in the United Kingdom (Barton & Hamilton, 1998). He proffered that literacy practices are situated in broader

social relations ... It is a symbolic system used for communication and as such exists in relation to other systems of information exchange (Barton, 1994, p. 34–35).¹¹

Certainly literacy has as its antecedents a relationship to historical and cultural roots that inextricably define it as social and cultural practice that is interwoven with societal developments around issues of exchange. Literacies, including digital literacies, may offer ways of knowing and communicating, but they occur within a social fabric which involves the pragmatics of communication (who is doing what to whom and why) and matters of identity (construction of self, community, and others—especially tied to cultural as well as sociopolitical positioning). Whether we are operating with digital literacies or traditional print literacies, matters of identity, emerging status and various forms of participation of a sociopolitical nature occur.

Schmandt-Besserat (1978, 1986), who is credited with identifying the earliest uses of writing, was able to make such a discovery by uncovering the fabric associated with various tokens that she was able to link together across archeological digs as a result of understanding the cultural practices. For example, in her accounts of the earliest use of print, she discusses the use of print as a means of exchange—a means of engaging with trade including contractual arrangements between parties across time and space. As Schmandt-Besserat (1986) commented, the tokens carried with them forms of agency for groups and individuals: permitting estimation and computation of goods, means of exchange as well as reflection and as instruments of control and imagined possibilities.

In a similar fashion, Michael Taylor's (1987) account of the use of art of one of the oldest Australian aboriginal groups brings to the fore some of the parallels that exist between modern-day literacy practices (including digitally-based) and the deep-rooted traditions of a culture that has used art to explore world in the company of others for thousands of years. As Kunwinjka, for example, learn their art, they do so as apprentices in the company of mentors. As they progress, the art emerges amidst shared observations, conversations and advice across a range of situations. Their art serves to identify them—their place within community as well as across communities. At the same time, their art involves an exchange—it serves as both individual and community capital. The art helps you understand the community and artist's position and understanding community and artist helps you understand the art and its worth.

Literacy as the exchange of ideas or goods has historical roots, but the metaphor of literacy as capital has been heightened with the reference (and somewhat synonymous) use of the term knowledge economy,¹¹ or more recently knowledge society, to reference the advent of the information age, smart economies and the global Internet as the basis for the exchange of ideas. In terms of theory and research, notions of the new literacies have been linked to discussions of “culture capital” (Bourdieu, 1986) and the value given these literacies through a school reform lens as well as historical discussions of the impact of learning these literacies. Based upon her analysis of these new literacies in the lives of Americans who were born between 1895 and 1985 (Brandt, 2001), Brandt (2001) stated:

Workers these days produce wealth not only by processing raw materials but by supplying those raw materials themselves in the form of knowledge and skills, including communication skills. (p. 6)

The argument undergirds the claims proffered by the New London group and others, and more recently the claim made by Cynthia Lewis and Bettina Fabos (2005) in *Instant messaging, literacies, and social identities*:

If we mourn the loss of print literacy as we think we once knew it, then we may find ourselves schooling young people in literacy practices that dis-regard the vitality of

their literate lives and the needs they will have for their literate and social futures at home, at work, and in their communities. (498)

Or, as Selfe and Hawisher (2004) argued:

If literacy educators continue to define literacy in terms of alphabetic practices only, in ways that ignore, exclude, or devalue new-media texts, they not only abdicate a professional responsibility to describe the ways in which humans are now communicating and making meaning, but they also run the risk of their curriculum no longer holding relevance for students who are communicating in increasingly expansive networked environments. (p. 233)

As our digital literacies expand and growing numbers of communities become wired or Internet wireless, it becomes well-nigh essential that individuals and groups neither be sidelined from participating nor constrained in ways that limit their ability to do so creatively and critically. In other words, it would seem limiting if they were not given (1) access which may carry with such certain technical requirements as well as (2) opportunities or the license to contribute creatively and critically as one pursues personal and group goals. Further, if students are to be participants and not spectators, they need opportunities to collaborate, communicate, acquire, sift through, create, and critique ideas as well as to solve problems.¹²

These notions of participation and the capital nature of these new literacies are consistent with the UN Geneva principles on building the information society that was the focus of the world summit on the informational society in 2003 (United Nations, 2003).¹³ The summit began with:

Principle 1: We, the representatives of the peoples of the world, assembled in Geneva from 10–12 December 2003 for the first phase of the World Summit on the Information Society, declare our common desire and commitment to build a people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life, premised on the purposes and principles of the Charter of the United Nations and respecting fully and upholding the Universal Declaration of Human Rights.

The principles argued for participation “where human dignity is respected” and where we access these informational technologies to further development

... to reduce many traditional obstacles, especially those of time and distance, for the first time in history makes it possible to use the potential of these technologies for the benefit of millions of people in all corners of the world ... as tools and not as an end in themselves. Under favourable conditions, these technologies can be a powerful instrument, increasing productivity, generating economic growth, job creation and employability and improving the quality of life of all. They can also promote dialogue among people, nations and civilizations.

Taking your place as a participant may not be as straightforward as the invitation might suggest. Economic circumstances and/or social constructions of engagement with these technologies might preclude the possibility of access. Studies of intra-national differences within both developed and developing countries highlights that issues of access are limited for economically challenged groups and individuals. The United Nation’s

Information Economy Report 2006: The Development Perspective (United Nations, 2006)¹⁴ analysis of trends in core ICT indicators such as the use of Internet and mobile phones, as well as the role of broadband, suggests an expanded uptake of mobile phones but developing countries lagging in Internet access and broadband expansion. Indeed, the uptake of mobile phones in developing countries exceeds that of developed countries, but the use of the Internet and the creation of Web-based resources in developing countries lags significantly behind developed countries.

Even within developed countries, such as the United States, participation seems tied to economic circumstances. As Cynthia Selfe and Gail Hawisher (2004) report, a U.S. study carried out over 5 to 6 years following various interviews of over 300 individuals and then the selection of subset of case studies (20) with a broad range of history of engagements with personal computers in ways that influenced their lives. From these case studies, they deduced a number of themes which brought to the fore the advantages afforded by these digital literacies, but how opportunities to participate were closely intermeshed with certain factors (race, gender, economic circumstances).

Certainly, critiques of these technologies have occurred in terms of the interests that they serve. On the one hand, critiques based upon postcolonial tenets decry the economic and cultural interests served by global spread of these new literacies. On the other hand, participation in these new literacies is heralded as democratizing and empowering with the view that these new literacies are also about you and me and how we position ourselves as meaning makers with respect to one another. A great deal has been written in the media and popular press about how digital literacies can contribute to cultural continuity or disruption, cultural expansion or erosion, cultural self determination or imperialism. But such discussions of technology range from expressions of concerns that engagement in digital literacies represents acquiescence to globalization and some form of technopoly that would undermine thinking and society (e.g., Neil Postman, 1993). However, research of engagement with these digital literacies suggests that we can achieve a heightening of cultural identities and/or the dilution or subordination to someone's image. Certainly, it has been shown that certain literacy practices may have certain leanings—e.g., Western, gendered, racist, and fantasy-like—that may prove alienating or perpetuate certain biases or distortions of reality.

It has been argued that these new literacy spaces may be predisposed to certain ways to explore or define self during such exchanges—that is, certain literacy spaces may be predisposed to certain ideologies rather than others or forms of subordination to certain ideologies (Bruce & Hogan, 1998). For example, Omrod (1995) has examined the ways in which biology and culture come together in individual lives using the concept of performativity to emphasize gender, race, class and age as performance. As the sociological papers of Damarin (1995) and Grint and Gill (1995) indicate, certain ways of interacting with technologies define particular types of gender identity. For example, Michael Tierney (1995) (working with systems) and Hapnes and Sorenson (1995) (in studies of hacking) suggest that the behavior associated with computer usage and naming may be aligned with ways of defining masculinities. Further, as Squire (2006) and Gee (2003) suggest certain virtual environments (e.g., Sim worlds, civilization and games) may perpetuate certain political ideologies and ways of interacting with and constructing the world which may contribute to identity formations.¹⁵ Squire (2006) for example suggests that "... games focus our attention and mold our experience of what is important in a world and what is to be ignored. The game designers' choices, particularly of what to strip away from a world, can be read as ideological when considered in relation to other systems" (pp. 21–22).

Wade and Fauske (2004), in their discussion of on-line discussions, suggest that individuals are "not passive reproducers in creating their identities their use of language and other social choices ... language choices can be thought of as strategies designed

to achieve particular goals in a particular context” (p. 140). The research of Wade and Fauske (2004) as well as studies of listservers, text messaging and other forms of exchanges suggest the spurring of a larger set of networks including groups that customize communications to spur distinctiveness rather than sameness. Interestingly, the discussions of these developments in the media appear to have shifted from general discussions of these developments to a recognition of the sometimes more nuanced cultural dynamics at play.¹⁶

The complex nature of these spaces and how individuals and groups are located and displaced by them is apparent in studies of how historically marginalized groups form or find community or not via blogs, chatrooms, listserves or a combination of on-line or off-line spaces. For example, studies of a sense of community achieved for lesbians via e-mail listserves, blogs and other spaces, also may dislodge or serve to marginalize individuals depending upon their performances as members of these groups and the norms that are applied or develop across time (e.g., Wincapaw, 2000; Bryson, MacIntosh, Jordan & Un, 2006). Bryson et al. (2006) challenge the simple-minded, almost utopian, view that these digital environments serve as the foundation for a range of diverse spaces for all. As they suggest, one might find a haven or prison or have a sense of belonging or dislodgement in such spaces. Some scholars have argued that on-line forms of interaction allow for a more fertile exchange across diverse student bodies. They have demonstrated that on-line interactions (e.g. threaded discussions) contribute to exchanges of ideas and community engagements which can enhance understanding of difference rather than dilute them. Further, that they might achieve greater understanding of diverse ideas than might occur in face to face interactions. For example, Merryfield (2003) found that students, especially students from different cultures with varying language skills, would more openly and respectfully discuss cultural and political issues — such as those involving terrorism and the war with Iraq — than they might be reluctant to do in a classroom. What is left unanswered is the extent to which sustained changes to community occur, whether or not such literacy practices contribute to changes in understanding that result in shifts in both attitude and behavior in cross-cultural situations, and how these literacy practices develop and become intertwined with other literacy developments. As Beach and Myer (2001) have argued and as various studies by Myer and his colleagues (Myer & Beach, 2001; Myer, Hammond, & McKillop, 1998; 2000) have demonstrated, these literacies give meaning makers the tools for representing themselves and community as well as engaging with others and their communities. And, in so doing, they enhance understandings of self, one’s own communities as well as others and their communities. Such findings should be couched in the context of their situation. The dynamic of such dialogues will be influenced by the frame undergirding the participations. As Levin (1996) and Turkle (1995) have noted, some on-line discussions perpetuate existing hierarchy, and may hide identifications in ways that contribute to silencing, alienating or marginalizing individuals and groups.

Traces of this debate can be seen in some of the exchanges that arose when *Time* magazine published a mirror on the cover of its magazine to herald the Person of the Year. As the desk editor suggested:

... individuals are changing the nature of the informational age, that the creators and consumers of user-generated content are transforming art and politics an commerce, that they are the engaged citizens of a new digital democracy ... this new global nervous system is changing the way we perceive the world. And the consequences of it are both hard to know and impossible to overestimate. (Stengel, Richard (2006) Now it’s your turn. *Time*, December 25, 2006-January 1, 2007, p. 9.)

But, as Frank Rich noted in his *New York Times* editorial on December 24, 2006 (Week in Review, p. 8) entitled “Yes, you are the person of the year!” *Time* may have it right for perhaps for the wrong reasons. Frank Rich laments that Internet users seem to be more inclined to escapism than meaningful information exchange or learning. What neither Rich nor others seem to be contesting is that we are engaging with one another around ideas and shared experiences in ways that represent a shift in our literacy practices. In particular, the Internet with the advent of blogs, podcasting, text messaging, wikis, and other user-based initiatives represent sites which are transforming how, when, where, and why we interact with one another about what. The question arises from the claims: What is exchanged or from an educational perspective, what is learned?

But, admittedly, it is difficult to answer the question, or perhaps it is the wrong question. Learning depends upon who is teaching what to whom and how. Studies of learning (digital or non-digital) may not lend themselves to overgeneralization across fields of study, the different possible architectures structures of any content, and the social dynamics involved. A number of studies have examined the use of digital sources as scaffolds to learning in a fashion consistent with the tradition of providing adjuncts (e.g., related text, various forms of representation, video, etc.) or engagements with ideas (e.g., problems, tasks etc.) or to provide feedback or motivation (e.g., Cognition and Technology Group at Vanderbilt, 1990; Kinzer & Leu, 1997). Some have studied and demonstrated the advantages of the use of selected digital tools as scaffolding for learning, as simulations or as ways to orchestrate case-based approaches via real world situations for complex knowledge acquisition such as teaching and medicine or developing reading strategies.¹⁷ In studies of the use of digitally-based multiple cases by Spiro and others (e.g., Hughes, Packard, & Pearson, 2000a, b; Baker, 2006) suggest how important it may be to carefully plan cases and what may be revealed as well as the importance of the type of supports for delving into and across cases. The students’ opportunity to control access to the cases may have some advantages as well as opportunities for teachers to provide well positioned support. For example, access to well-crafted cases focusing upon students across a range of sites, have been shown to support preservice teachers’ knowledge and practices, but the transferability of these understandings to new knowledge domains and sites may be restricted without supply teacher support. In a similar vein, studies of the advent of animation, as a means of supporting complex learning in areas such as medicine, suggest variations in learning may be dependent upon how the animation is presented, probed and layered with text, audio etc..(e.g., Mayer & Moreno, 2002; Ruiz, Mintzer, & Leipzig, 2006)

As Bransford et al. (2000) summarized in his review of learning with technology for the National Research Council:

In general, technology-based tools can enhance student performance when they are integrated into the curriculum and used in accordance with knowledge about learning. But the existence of these tools in the classroom provides no guarantee that student learning will improve, they have to be part of a coherent education approach (p. 216) ... Much remains to be learned about these technologies. (p. 230)

Furthermore, implicit in all of the above is a theory of meaning making which guides why, when, how and why selected tools are enlisted. As mentioned, Mayer and Moreno (2002) have developed principles which might undergird the enlistment and juxtapositioning of animation and other modes of delivery in learning pursuits in some fields. In recent years, the work of Spiro and his colleagues (Spiro et al., 1987, 1990, 2003) has been notable as it has extended the study of knowledge acquisition with technology based upon what he suggests is the post-Gutenberg affordances of digital technologies and his theory of meaning making/ knowledge acquisition in what he suggests are

ill-structured domains. In particular, Spiro and his colleagues have studied the use of hypermedia and video as the vehicle for achieving transferable problem-solving by mixing text and image across carefully constructed case-based learning in medicine and teaching. Spiro has had success in the pursuit of developing what he has termed “open and flexible knowledge structures to think with in context, not closed structures that tell you what to think across contexts” (Spiro, 2006b, p. 5). By using cases or video examples that “have been conceptually categorized is to show many variants from the same category. Learners with our systems quickly see variability in conceptual application across different clips as basic to understanding those ill-structured concepts” (p. 6). As Spiro argues, the medium affords the opportunity to craft cases toward achieving flexible knowledge:

When one criss-crosses landscapes of knowledge in many directions (the main instructional metaphor of CFT, drawn from Wittgenstein; Spiro et al., 1988), a revisiting is not a repeating. The result is knowledge representations whose strength is determined not by a single conceptual thread running through all or most parts of the domain’s representation, but rather from the overlapping of many shorter conceptual “fibers” (Wittgenstein, 1953), as befits an ill-structured domain. (p. 7)

Long-term and broader benefits have been recorded from such engagements. For example, longitudinal studies of students and adults (engaged in project-based work using multimedia platforms to explore and compose meaning) have been shown to have clear advantages related to achievement, identity, strategies and tools for learning, problem-solving, discovering and communicating. For example, in a 10-year study of the Apple Classroom of Tomorrow students, Tierney, Bond, and Bresler (2006)¹⁸ claimed that the venue afforded access and participation along with the resources and tools to engage in rich explorations with these new literacies and such afforded the realization of personal, cognitive and social possibilities akin to “genres of power”—new texts, new ways of negotiating meaning, and ways of knowing. The literacies were transformative in terms of lives—especially compared with peers without such opportunities. Indeed, students developed cutting edge uses of technology in meaningful situations and they were given the authority and agency within the classroom or among peers, these literacies developed in ways that interfaced with the social fabric of their lives within and outside school and into the future. It also involved recognition of the long term advantages that they had been afforded and the relevance of the skills that they had acquired for their career aspirations and achievement of personal goals. Confirmation of such impacts is apparent from other longitudinal examinations of the impact of digital literacies upon the lives of students and others over time. Cynthia Selfe and Gail Hawisher (2004) report a study carried out over 5 to 6 years following various interviews of over 300 individuals and then the selection of subset of case studies (20) with a broad range of history of engagements with personal computers in ways that influenced their lives. From these case studies, they deduced a number of themes. Their themes bring to the fore the extent to which the social fabric of life and the advent of these new literacies are closely intermeshed and how certain factors (race, gender, economic circumstances) can contribute to the circumstances that may be empowering to some and not others. As their first four themes suggest, literacy is interwoven into the social fabric in a manner which may stretch the life span. These studies support that sustained engagement in the productive use of digital technologies contributes in positive ways to various aspects of peoples lives including appearing to enhance their view of the possibilities and realities for a fuller participation in society in creative and a critical fashion which appears to personally, socially, educationally and economically advantageous. Certainly, these studies bring to the fore the premium placed upon economic advantage afforded by

their skill at engaging in these spaces. Both studies support the finding that power and literacy are inextricably linked and that the development of flexible and robust digital literacy practices may need to recognize and be built upon their multiple connections to social and cultural practices.

Unfortunately, such communities and learning envelopes may be more the exception than the rule. It seems paradoxical but many schools may not support the transition of these new literacies to school settings in ways consistent with their potential, including the possible shifts in power dynamics that might occur (Sheehy, 2007). What may be accessible outside of school appears to have surpassed what most students in schools may have the opportunity to access. And, what may cross over to school may involve a mutation which may not have the same saliency or worth. As Street (2006) argued, outside of schools there is often an interest in global issues, networking, Webs, multimodality, flexibility, and so on, whereas inside schools there is often a tendency to stress stability and unity. Indeed, in some situations, these new literacies are framed as discrete skills such as programming, Internet access, or presentation skills rather than as learning tools with complex palates of possibilities for students to access in a myriad of ways. It is as if learning with technology is being perceived as “learning the technology” rather than using a range of multimodal literacy tools (supported by these technologies) in the pursuit of learning. Similarly, Squire (2006) has argued that the approach to learning within most schools falls short of what digital-based games are already achieving—most notably, situated learning with an array of imageful resources plus an accessible network of others and tied to developing expertise and understanding through performance.

As digital engagements with various media has been considered as literacies, there seems to be a crossing over of envelopes and potentially the beginnings of curricularizing these media as they are considered in terms of their learning benefits, the crossover to discussing the learning benefits of gaming, video making and other literacies which were predominately outside of school’s purview (except perhaps in terms of possible negative effects—e.g., violence, wasted time) for learning about something and to individual and group empowerment through identity construction. Digital spaces are encased in a social context equivalent to what some have referred to as an envelope (Sefton-Green, 2006, Giaquinta, Bauer, & Levin, 1993).

Historically, we have tended to curricularizing of digital media as educators’ attention has been drawn to these technologies as literacies. The curricularizing involves an advocacy for the crossing over of the use of different media use from informal settings (home, arcade etc.) to school settings. And, whereas the use of the media (e.g., games, video, digital cameras, mobile technologies, Internet, iPods, blogs, etc.) has been left to individuals and society to define and use, schools tend to redefine their use as they adopt a somewhat interventionist orientation. As one shifts from the real world to school, the orientation or theoretical perspective seems to shift from cultural anthropological and sociological accounts to studies of the media as educational approaches with learning outcomes as the goal. Lost in crossover to schools may be the social and culture possibilities—e.g., construction of identity, democratization, social interchanges, and so forth, and the use of the media from a semiotic perspective. These latter developments have arisen especially with the advent of new and increased usage of these digital tools—e.g., digital video and devices that allow for more interchanges or complex gaming or narratives. Not surprisingly, the role of the teacher has emerged as key in most discussions of school improvement efforts around learning technology. Not surprisingly, the role of the teacher has emerged as key in most discussions of school improvement efforts around learning technology and also in the discussions of multimedia use for the advancement of new perspectives and understandings (see Baker, 2006). For instance, based upon his research in Los Angeles high schools with

digital videos and his observations across various technology rich classrooms, Reilly (1996) suggested:

The most important piece of hardware in the classroom isn't the multimedia computer, the video camera, or the network. It's the teacher's desk, where any innovation must pass in one form or another before it gets to students. The teacher isn't merely a gatekeeper, he or she is an orchestrator of activity and will greatly influence how technology fits into the classroom. (p. 207)

But, also not surprising, the potential and use in one setting may not be transferable to the other. In terms of schools, the transfer of students' engagements with these literacies outside of school may not fit well with in-school demands or norms.

Dwyer (1996), in his reflections of the Apple Classroom of Tomorrow (ACOT), suggested the importance of an approach to teaching which was authentic, interactive, collaborative, resource rich, inquiry driven and viewed knowledge transformation and its assessment in a fashion which was performance-based and afforded access to and support for multiple representations of ideas. It also demands a community which recognizes and supports the possibility of re-imaging selves across digital spaces and other literacy fields or spaces.

DISCUSSION

Within the advent of digital literacies, the embrace of the new and multiple literacies might be viewed as stating the obvious. However, it may not be—especially as one considers our history of research and theorizing about literacy. Several scholars have argued and shown that the literacy field has tended to maintain a tradition of theorizing literacy and studying texts in a fashion which is singular and separated from the growing fabric of digital literacies with which most of us most of the time engage as our primary sources. Further, the field has tended to focus upon the individual(s) versus group(s) as the meaning makers. While studies of digital literacy are beginning to embrace community dynamics and the ensemble style of engagements as well as multiple-text situations and their multilayeredness and linkages, our theories and models of meaning making tend to stick to the individual and one or a few threads rather than approach the study of literacy as requiring a consideration of the fabric and the composing processes of the ensembles.

To focus on the thread rather the fabric has the potential to inflate the trace while limiting (and perhaps distorting) its relationship to meaning making and to misrepresent reading as a monological experience. As Lemke (1998) posits, "Literacies are legion. Each one consists of interdependent social practices that link people, media objects, and strategies for meaning making." We are constantly navigating and building ever expanding and intermeshed webs of meaning as we engage with others and ourselves across face to face and other forms of communication, virtual and real, synchronized or not.

We are faced with a flood of web-like encounters involving arrays of different transactions (and co-constructions) daily as we engage with our colleagues, coworkers and others in various time zones. At times, one retreats and hopes for reprieve from the deluge and a quiet day in solitude without the onslaught, or perhaps wanting to keep it to a trickle.

The Webs and networks are rarely separate from one another although we do a form of selective engagement, sorting, etc. as we begin our day, perhaps checking and responding to e-mails, pursuing projects, relaxing as we peruse listserves, newspapers,

etc. The multitasking with which you are engaging may involve a mix of direct and indirect or synchronized or non-synchronized developments—it may be that you are placing some matters on pause, but with an interest on moving ahead or connecting with others in various fashions with a form of joint advancement.

As we move across or within networks and web-like engagements, we are sifting, linking, sampling, following leads and paths at the same time as we are doing forms of layering and affiliating as we pursue for ourselves and others confirmations, understandings, plans, commitments, answers, directions or acknowledgements. Those researchers examining the cognitive strategies involved in meaning making on-line bring to the fore the importance of several strategies which may be somewhat nuanced in the networked environment—the importance of refining searches, forward inferencing (akin to predicting), making linkages and other integration in a fashion that coheres and is relevant, flexible and recursive. It suggests that the meaning maker(s) is/are engaged in simultaneous linking ideas together (texts, images, sounds) as the meaning maker(s) refine(s) or expand(s) understandings at the same time as they evaluate them and assess coherence.¹⁹

Spiro (1987, 2006) proposes an approach to meaning making which extends to the meaning makers' ability to navigate across multiple inputs with a great deal of speed and efficiency.²⁰ As he suggests, meaning making across digital material depends upon a fluidity and ability to discern relevance and glean meanings almost at a glance. For example, Spiro describes digital meaning makers as:

... being conductors (or jazz improvisers), rapidly bouncing excerpts from rich video clips off of each other. *He emphasizes that if the material is somewhat familiar and rich in content, meaning makers ... capitalize on their affinity for this mode of "quick-cutting" across dense images (cf. Stephens, 1998) — and their accustomedness to nonlinear processing ... to criss-cross between many video excerpts to speed up and deepen the process of building interconnected knowledge from experience.* (Spiro et al., 2006, p. 11)

To some extent, the agility and flexibility needed to do so involves meaning makers with some pre-existing knowledge of the topics, familiarity with the genres, and skill at efficiently discerning relevance across texts.²¹ They are engaged as performative inquirers and with others in good haste, but in a fashion which is discerning of the relevance and discursive.

Perhaps our experience is informed by the same meaning making abilities that we have when we view art—especially impressionist art. We can savor the detail in relation to the composite. As we move from engagement to engagement or from one text to another or one Web site to another, we engage with the elements, but our view of their pertinence occurs via discerning composite(s) rather than a careful weighing of the separate elements. This is akin to a kind of gestalting, but in fashion that involves more of a leap in meaning making in a fashion akin to appreciating art as a whole rather than as a pile of threads or strokes or making one accountable for the pieces that might contribute to but do not define the meaning or coherence. The impressionistic discernment might be tied to seeing other composites of the same work. But the discernment of these composites may or may not be clearly interrelated. They may or may not be part of a search for the best fit. They may or may not be tied to crisscrossing a domain as Spiro has described meaning making in complex knowledge circumstances. They may be tied to a composite specific to a moment or a person or how or where the person is interested in proceeding or with which there is satisfaction—at least for now.²²

As communication theorists indicate and research confirms, the engagement involves a relationship with the ideas which is personal and social rather than detached or

individualistic. At one level (or perhaps across all levels), engagements involve conversations with one's self in the company of others. It involves, as Butler and others suggest, constructions which are performative and discursive. At another level, it is akin to conversation that may entail a form of reflective meaning making tied to negotiations across a set of e-mails or text messages or texts authored by others. At yet another level, it involves others—imagined or real. For example, it might entail trying to understand what the author wanted you to think or act. At yet another level, it might entail explore possible worlds and imagining or re-imagining possibilities for self. And, at a more macro-level, it is tied to how we are networked and positioned with others in the context of exchanges locally and globally. It is consistent with a multivocal and multiple persona engagements both internal and external to the text or digital spaces including a set of virtual relationships with both imagined and real worlds and people. Plus these engagements occur in the context of navigating and journeying worlds—cultivating ideas and spurring meanings using range of texts where ideas are explored and mixed, created and critiqued, savored and digested, and used as fuel for expression of further considerations.

As one contemplates the nature of on-line meaning making within and across these spaces, one should be careful not to dichotomize the world as pre and post digital or processes as existing unique to meaning making within digital spaces or not. At the same time, one should not discount the affordances of technological developments. As many have noted, digital spaces bring to the fore affordances that should not be understated. However, as Owston (1997) emphasizes, “no medium, in and of itself, is likely to improve learning ... The key to the Web appears to lie in how effectively the medium is exploited” (p. 29). But certainly, these new spaces might heighten certain different dispositions over others as well as alternative ways to interact with ideas and others, including self. And, in terms of meanings, we seem to be on the frontier of a new form of public knowledge with the advent of citizen journalism and world less filtered and with shifts in notions of authorship, authority and copyright as well as ways of making texts, news, archives and access (see Willinsky, 2006).

Nor should one shy away from a theory or model of meaning making that captures how meanings are transacted within and among groups and individuals within these groups. As Lunsford and Ede (1990) noted, negotiations may proceed hierarchically or dialogically or both. In terms of the former, meaning making proceeds in a fashion which may be rigid and prescriptive. As Lunsford and Ede stated:

...rigidly, structured, driven by highly specific goals, and carried out by people playing clearly defined and delimited roles....the realities of multiple voices and shifting authority are seen as difficulties to be resolves. Knowledge ...is most often viewed as information to be found or a problem to be resolved. The activity of finding such information or solving such problems is closely tied to the efficient realization of a particular product end. (p. 133)

In terms of the latter, or dialogical, they suggest:

The dialogical mode is loosely structured and the roles enacted within it are fluid; one person may occupy multiple and shifting roles as a project progresses. In this mode, the process of articulating goals is often as important as important as the goals themselves and sometimes even more important. Furthermore, those participating in dialogical collaboration generally value the creative tension inherent in multivoiced and multivalent ventures.... (p 133)

But, as you may have noted, there may be two forces in effect: the use of past models of meaning making and more in the way of old lens for examining what is emerging. Or,

as Jonathan Sterne (2000) notes “.. millennial narratives of universality, revolutionary character, radical otherness from social life, and the frontier mythos.”

IN CLOSING

I hope my review spurs a mix of all of the above, but especially further ongoing enquiry across a wide range of literacy events and more deliberation about the nature of these occurrences from a variety of perspectives.²³ For myself, the review involved a great deal of search and reflection as well as a great deal of rethinking as I tried to anchor or connect disparate, but related research. This review has shifted direction several times as I encountered niche-like research that was important to mention or enlist. Gathering the resources for the chapter involved exploring a quite varied and wide range of studies from a diverse library of sources. For example, I gathered a massive set of materials that never seemed to stop growing. My search and navigational skills served were important antecedents, but did not suffice for the integration that a single piece demands. The mixing, at times, involved several different renderings, and I suspect that I will make shifts again and again as my thinking is adjusted or settles or is impacted by others. I wondered, at times, if a collaborative review would have been preferable as there are areas for which I yearned for input from knowledgeable others. But doing this for myself afforded me the opportunity to re-engage with a body of research that had grown enormously since my earlier experience with this field of study. It positioned me, I hope, to engage with others in fresh ways around this topic at a time when it might be important to do so given the changing insights that are being generated by the application of different lenses to these changing times for literacy.

NOTES

1. Zeitgeist is used here to suggest a growing cultural ethos that prompts, in a Hegelian sense, the dialectical progression in thinking.
2. As Will Richardson (2006) details in his book for teachers, *Blogs, wikis and podcasts*, the Internet has contributed to a significant shift in the literacy demands and possibilities. With the number of blogs and other Web sites for exchanges of information growing by the millions with hits on Web sites in the millions every hour and over a million Web-log postings per day, he suggests:

Creating content of all shapes and sizes is getting easier and easier. High –bandwidth Internet access and expanding computer memory and storage continue to grow, and developers are creating tools to publish text or photos or video or whatever else easily to the Web. We’re in the midst of an explosion of technologies that will continue to remake the Web into the community space...

For most, however, the significance of these changes is still just starting to be realized. We are no longer limited to being independent readers or consumers of information...we can collaborate in the creation of large storehouses of information. In the process, we can learn much about ourselves and our world. (p. 2)

3. <http://www.readingonline.org/research/impact/index.html#Spiro,R.J.,Coulson,R.L.>
4. These notions might be extended (further as applications and cross-curriculum extensions in school or in out of school settings) to a form of what Kinder (1999) refers to as trans-media textuality which arises with the developing of a mix of various products (e.g., board games, trading cards, Web sites; see also Ito, in press).
5. While hyperlinks are different, they operate not unlike text cues that may or may not be available in printed versions of text which provide heads, sidebars, etc.
6. In a similar vein, Dwyer and Harrison (2006), building upon the work of Eagleton (2001, 2005) and Hargitai (2002) (especially in the area of search engine use), engaged students in workshops to improve their strategic engagement with Web-based resources and had some success in improving their skills and comprehension. Eagleton (2001) found middle school

students without experience with Internet inquiry often making “hasty, random choices with little thought and evaluation” (p. 3). She coined the approach as a form of “snatch and grab.” Hargitai (2002) found wide variability in search engine useage and success.

7. This contrasts with her discussion that hypertext reflects a shift from structuralist views of discrete, bounded, coherent, and linear meaning making to experiences which are more overtly fragmented, non-linear and intertextual consistent with poststructuralist view of meaning making. She has contended the instability, plurality of meaning tied to a somewhat endless network of connections afforded by hypertext.
8. There are several reviews of this research including studies of audience awareness of writers and sense of author by readers as well as studies of how meaning making occurs and develops (see Nelson & Calfee, 1998, Tierney & Shanahan, 1991). For discussions of persona, I would recommend Gibson (1969) as well as more recent discussion by Cherry (1998).
9. In biographic accounts, readers can recount their relationship with certain books and the authors in ways that was intimate and somewhat defining.
10. Rather than performativity being viewed as acting out one’s identity, Butler (1993) suggested discourse(s) construct or are constructed by the nature of the identity forming participation of meaning makers. As Ruitenberg (in press) noted:

Discursive performativity means not that I, as autonomous subject, “perform” my identity the way an actor performs a role, but rather that I, as subject, *am performatively produced* by the discourse in which I participate. This perspective changes the ways in which the development of students’ agency is regarded. (p. 6)

11. Peter Drucker, (1969). *The Age of Discontinuity; Guidelines to Our changing Society*. Harper and Row, New York, ch. 12.
12. I am drawing upon the notion of participation from the Nicaraguan literacy campaign discussions (Hirschon & Butler, 1983). Specifically, in discussing the campaign, Father Fernando Cardenal, S.J. (February, 1980) was questioned about the purpose of the campaign. He stated:

Literacy is fundamental in achieving progress and it is essential to the building of a democratic society where people can participate consciously and critically in national decision-making. You learn to read and write so you can identify the reality in which you live, so that you can become a protagonist of history rather than a spectator.

In a similar vein, Alvin Toffler (1981) refers to the need for all of us to become productive consumers.

13. <http://www.itu.int/wsis/docs/geneva/official/dop.html>
14. http://www.unctad.org/en/docs/sdteecb20061_en.pdf
15. Some court rulings have addressed these issues.
16. In the *New York Times*, for example, a recent editorial discussed the phenomenon of text messaging from a cultural perspective. As Ken Nelson (2006) stated in his article “A parent’s guide to teenspeak by text message. (*New York Times*, November 26, 2006, Week in Review, p. 4).

Testing ... is second nature to many teenagers and college students...children use the text-messaging function on their cellphones as a way to whisper to their friends out of earshot, so to speak, of parents and teachers, who are left to wonder what arcane language the children are speaking ... what their children are doing today is not much different from what they did years ago; using new technology to create new ways of communicating.

17. The Voyage of the *Mimi* by the Bank Street Group was one of the earliest and engaged students in problem solving about whales and Mayan culture as they voyaged (Char & Hawkins, 1987). There are a large number of such examples—especially for science and mathematics (see Bransford et al., 2000).
18. The findings from this work highlight how digital literacies became woven in the social fabric of these students’ lives—in and out of school—in ways that afforded them the opportunity to re-imagine themselves and explore educational and work related possibilities that enriched and enhanced their lives and many of those around them.
19. However, it is noteworthy that coherence may not be tied to completeness or stability, but may be tied to a sense of or desire for edginess, incompleteness and/or uncertainty. Indeed, different metaphors for understandings are tied to notions of situation-based, multiperspectival, layering, ill-structuredness, braiding or ongoing rather than fixed and definitive, comprehensive, singular or complete
20. In their work with video case studies, Spiro et al. (1987) draws heavily upon the work of Wittgenstein (1953) especially around crisscrossing the topical landscaping. As he stated:

By criss-crossing the complex topical landscape, the twin goals of highlighting multifacetedness and establishing multiple connections are attained. Also, awareness of the variability and irregularity is heightened, alternative routes of traversal of the topic's complexity are illustrated, multiple routes for later information retrieval are established, and the general skill of working around that particular landscape is developed (p. 8).

Essentially his research informs a framework for thinking about the role of the architecture in a fashion similar to notions offered by semioticians. He provides evidence of the power of using these digital spaces for complex learning of transferable understandings and the importance of meaning makers engaging in a flexible fashion.

21. Again, one should not discount that the text may not match the learners' interests, backgrounds and prowesses. As Burbeles and Callister (1996) have speculated:

...the desire to structure a hypertext in an open, dialogical fashion encounters a difficulty when we look at the concrete problems of the learner, and of the different types of readers who might encounter a hypertext. A form of organization that only allows a novice to search through direct and explicit connections may not facilitate the development of that novice into an independent and autonomous reader who can alter and add to what he or she finds in a hypertext. Conversely, a dialogical and flexible hypertext system, of much use to those who are prepared to be contributing co-authors of a text, might be too open-ended to be of much use to a novice or to a user who is simply interested in extracting specific and already-organized information from the textual source. ..many readers of hypertext end up browsing or performing the textual equivalent of "channel surfing": quickly scanning or surveying randomly accessed information, in very short snippets, with no overall sense of coherence or meaning for what they are exposed to.. A novice encountering a complex hypertext system for the first time cannot possibly know what information the system contains, without happening to come across it through searching or guesswork. (pp. 24–25)

22. It often extends beyond a single topic or engagement to a complex set of activities and an under-appreciated form of multitasking. For example, Steven Johnson (2006) for *Time* recently focused upon the multitasking and multiple use of these technologies by today's youth.

Today's kids see the screen as an environment to be explored, inhabited, shared and shaped. They're blogging. They're building their MySpace pages. They're constructing elaborate fan sites for their favorite artists or TV shows. They're playing immensely complicated games, like Civilization IV—one of the most popular computer games in the world last autumn—in which players re-create the entire course of human economic and technological history.... The skills that they are developing are not trivial. They're learning to analyze complex systems with many interacting variables, to master new interfaces, to find and validate information in vast databases, to build and maintain extensive social networks cross both virtual and real-world environments, to adapt existing technologies to new uses... ("Don't fear the digital." *Time Magazine*, March 27, p. 42)

23. While representing the possibility for an agent-based model of literacy to begin to account for the demands of meaning making on-line, McEneaney (2006) called for a great deal more conceptualization if we have a model with adequate explanatory or predictive value. Similarly, Kress (2003) in *Literacy in the New Media Age* closed with the following admonition.

The major task is to imagine the characteristics of a theory which can account for the processes of making meaning in the environments of multimedia representation in multimediated communication, of cultural plurality and economic instability. Such a theory will represent a decisive move away from the assumptions of mainstream theories of the last century about language and learning. (p. 168)

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