# Media, Environment, and Education

Whether in the form of a lecture, participatory workshop, or online course, teaching is not only a kind of communication practice, but is also a kind of media that involves choices about how to frame and communicate knowledge. A university based on lecture halls structures a particular communication approach, whereas outdoor classrooms or community gardens provide alternate pedagogical environments that allow for differing forms of mediation. In a formal educational setting that has strict standards and testing requirements, the curriculum's parameters have to conform to the constraints of a particular classroom environment, including the subject matter of the course and the imposed requirements of the state. An informal setting, such as an after-school program or community arts center, affords different frameworks without the constraint of official standards.

Not surprisingly, there are similarities between education and media in how knowledge is conveyed, in particular how both have traditionally been seen as *transmissive*. The transmissive model is essentially linear: information moves from source to receiver, like a TV network broadcasting to a mass audience or an expert teacher lecturing to students. Transmissive education and mass media mirror industrial production and distribution. As linear systems, they reflect a 19th-century concept of knowledge in which information moves through Cartesian space. By contrast, media are now increasingly more networked and nonlinear, which in turn is leading to new educational practices.

Whether based on 19th-century or 21st-century practices, teaching and media are examples of *meaning design*: media and pedagogy are both efforts to create contexts that generate certain kinds of value. In 1996, an influential group of education experts, the New London Group, formulated the *design of meaning* as a way to redefine literacy practice (Cazden, Cope, Fairclough, Gee et al., 1996). They were responding to how multimedia, knowledge work, multiculturalism, and globalization have disrupted traditional literacy education, arguing that "educational research should become a design science,

studying how different curricular, pedagogical, and classroom designs motivate and achieve different sorts of learning" (p. 73).

The concept of meaning design can serve as a heuristic for thinking about greening media education, because the design of systems is often what sustainability advocates focus on. It is at the level of systems design that social and cultural practices are encouraged (Ehrenfeld, 2008; Meadows, 2009; Senge, 2008). As O'Sullivan and Taylor (2004, p. 3) assert, sustainability educators "are not purveyors of knowledge. We are designers and participants in environments and processes through which people are able to learn toward an ecological perspective."

By conceptualizing literacy as meaning design, the New London Group (Cazden et al., 1996, p. 82) makes an obvious, but important, point.

> Any successful pedagogy must be based on views about how the human mind works in society and classrooms, as well as about the nature of teaching and learning. While we certainly believe that no current theory in psychology, education, or the social sciences has "the answers," and that theories stemming from these domains must always be integrated with the "practical knowledge" of master practitioners, we also believe that those proposing curricular and pedagogical reforms must clearly state their views of mind, society, and learning in virtue of which they believe such reforms would be efficacious.

In this regard, it is essential to clarify whether or not media literacy practices and sustainability education belong to different systems of meaning design, and to compare and contrast assumptions about citizenship, learning, cognition, communication, and ecology.


## Media Literacy and Sustainability

A widely used definition for media literacy was developed by the Aspen Institute in 1993, which defines it "as the ability to strategically access, analyze, evaluate, and produce communication in a variety of forms" (Aufderheide, 1993). This is the foundation for a variety of orientations that fall under two approaches: functionalist and critical (Gutiérrez-Martín & Tyner, 2012). Functionalist media literacy teaches practical skills for how to read media messages, and is often linked to information literacy. It is generally apolitical and does not promote any particular kind of activism. Critical media literacy, on the other hand, acknowledges that media play a significant role in defining power relationships within society. This approach is usually associated with activism and is not neutral when analyzing media messages. Though I

sympathize with critical literacy, it can often be abused for the purpose of promoting a *protectionist* agenda, which views media audiences as powerless or as victims. Protectionists try to *inoculate* students from potential harm caused by media corporations or advertisers. The primary method of most media literacy approaches is deconstruction, which involves teaching students how to analyze media messages, such as advertisements. A variety of practitioners have used media literacy to tackle social issues such as racism, gender identity, obesity, and smoking prevention.

Many media literacy practitioners have been influenced by media studies, which historically have defined the parameter of issues related to the impact of media on society. With the exception of the field of environmental communication, the ecological crisis generally has not been linked to the other social justice issues taken on by media studies, cultural studies and by extension media education. For example, in my survey of dozens of undergraduate media textbooks, media education texts, and media studies guides,[2] none of the texts had the words *ecology* or *environment* in their indices. This is not surprising given the epistemological framework of those disciplines traditionally charged with studying media; the historical divide between the biological sciences and the social sciences and humanities is well reflected in the history of media studies. As Jagtenberg and McKie (1997, p. 20) contend:

> Communication and cultural studies in their egalitarian modes parallel science's utopian and visionary aspirations.... Both participate in a common Western 20th-century intellectual journey and are still rounding similar corners: the linguistic turn where everything seemed to hang on language; the feminist sweep that transformed contents, methods, and paradigms; the self-reflexive curve where everyone had to demonstrate awareness of their own practices; and the postmodern bend where everything had to be relativized and decentered. In traveling such paths, communication and cultural studies have done more work than science, yet both need, to stay true to their respective projects' emancipatory roots, to come to terms with the environment and its ecological imperatives as the fourth dimension of social space.

This is not to pit one cause against the other, but rather to recognize, as ecofeminists have done, that issues such as social justice, racism, sexism, and environmentalism are interconnected. Nonetheless, there is a positive shift in the priorities of media scholars towards environmentally oriented media

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[2] A sample of the key works in this survey included standard undergraduate media textbooks (Baran, 2004; Campbell, 2009; DeFleur & Dennis, 2002; Dominick, 2009); and standard media studies textbooks (Devereux, 2007; Hartley, Montgomery, Rennie, & Brennan, 2002; Rayner, Wall, & Kruger, 2004).

research and advocacy, as exemplified by the formation of the International Environmental Communication Association, Ecology Environment Culture Network, Institute for Sustainable Communication, and subgroups within the National Communication Association, International Communication Association, and Western States Communication Association. Additionally, I have observed that events such as Hurricane Sandy in 2012 along the northern United States' Atlantic seaboard, and mounting climate disruption data, are starting to shift perception regarding environmental issues among my colleagues. The question remains: Will this trend extend to the practice of media literacy education?

Though media literacy lacks a general connection with ecology, in spirit many of the goals and aspirations of media education are in alignment with the cause of sustainability. As Blewitt (2009) proposes, media literacy and environmental education have in common the goals of participation, action, and critical engagement. So why are these disciplines separated? An important barrier has to do with the perception of the purpose of media and environmental education. For example, some assume that environmental education is primarily "nature"-based and takes place outside the context of technology (Traina, 1995). But Kahn (2010, p. 6) argues traditional environmental education approaches end up lacking "rigorous training in theoretical critique and political analysis, choosing to focus instead on the promotion of outdoor educational experiences that all too often advance outdated, essentialized, and dichotomous views of nature and wilderness." As a result, environmental education has been viewed as something done away and far from civilization, such as outdoors or gardening programs. Sustainability is often pitted as the opposite of technology, so disciplines that are viewed as technologically oriented, such as those dealing with media or computers, can be regarded as inherently anti-environmental (Bowers, 2000; Glendinning, 1994; Mander, 1991; Sale, 1996). True enough, it is difficult (but not impossible) to study media without engaging technology. However, an ecological critique of technology should be a central job of media educators, and not just the territory of so-called Neo-Luddites. While experiential nature initiatives certainly remain an important aspect of sustainability education, it is also important to be ecologically literate about the primary environment that we engage with on a daily basis: media. As such, Kahn claims alternative environmental education approaches are attempting to "more robustly link forms of environmental literacy to the need for varieties of social and cultural literacy" (2010, p. 11).

Media literacy could highlight how on a daily basis we encounter the interrelationship between media and living systems. When we use any kind of media gadget, such as a "smart" phone, tablet PC, or desktop computer, the lifecycle of that machine is deeply connected to the global economy's impact on the environment. Our devices leave an ecological footprint through their manufacture and disposal, while all the data our gadgets access and store in the "cloud" also physically impacts the environment. Major environmental problems with media include e-waste, contamination, loss of biodiverse habitats, damaged health, and excessive $CO_2$ emissions(Alakeson, 2003; Greenpeace International, 2010; Leonard, 2007; Lewis & Boyce, 2009; Maxwell & Miller, 2012; Tomlinson, 2010).

Then there is media's *mindprint*, which is the way that communication influences how we define and act upon living systems (Corbett, 2006). Aspects of how media shape and define our experience of the world include (a) propagating an ideology of unlimited growth, (b) reinforcing the view that nature is separate from humans, (c) marginalizing alternative ecological perspectives, and (d) favoring industry discourses surrounding environmental issues (Beder, 1998). For example, when it comes to specific beliefs about the environment, data suggests that there is an important relationship between environmental perception and media exposure. In a study of the correlation between consumption in the United States and advertising, Brulle and Young (2007) highlight that $971 per capita in ad dollars were spent in the United States in 2005, and that from the period between 1900 and 2000, there was a direct correlation between advertising dollars and increased consumption. As of 2001, according to the National Environmental Education and Training Foundation's study of environmental literacy in America, 63% of people were informed about the environment from television (Coyle, 2005). Subsequently, Hansen (2009, p. 3) attests,

While the roles of formal education in acquainting us with the public word and image vocabulary of the environment should not be overlooked, much, maybe most, of what we learn and know about "the environment," we know from the media, broadly defined. Indeed, this applies not only to our beliefs and knowledge about those aspects of the environment, which are regarded as problems or issues of public and political concern, but extends much deeper to the ways in which we, as individuals, citizens, cultures and societies view, perceive and value nature and the natural world environment. Not only has our mainstream media model co-evolved with the system of advertising, consumption, and the ideology of unlimited growth, but the rise

of global mass media clearly parallels the increasing destruction of our biosphere.

Another dimension of media's mindprint is the phenomenological experience of how media impact our sense of place, space, and time. This area of inquiry has traditionally been the focus of the field of media ecology, which views media as primarily technological environments (Lum, 2006). Its practitioners often use the term *ecology* according to a technical definition in which it represents a *system of systems* as opposed to the conventional understanding of ecology as shorthand for the interconnected system of biological communities and their relationship with the environment. Though media ecology is not explicitly correlated to living systems, many of the celebrated scholars at the core of the media ecology tradition (Ellul, 1964; McLuhan, 2002b; Mumford, 1967,1970; Ong, 1982; Postman, 1993) were critical of modern media technology and longed for a return to less technologically complex times. They argued that technology and media alter our cognitive environments: they shape not *what* we think, but *how* we think. One example is Mumford's (1967) discussion of how the advent of mechanical clocks changed our perception of time. Another example is the idea that the alphabet and print media have reconfigured our mental patterns to favor abstractions over embodied experience (McLuhan, 2002a). Abram (1996) combined the insights of media ecology with phenomenology to assert that alphabetic literacy has impacted how Western culture experiences the natural world. More recently scholars have attempted to understand the impact of mobile gadget technology on our awareness and experience (Moores, 2012), which further complicates how we define the relationship between media and space, place and time.

As Naughton (2012, pp. 1–2) illustrates, it is useful to recall the root of the metaphor from the sciences to understand that media are more than their content, but are an environment.

> The conventional, everyday interpretation holds that a medium is a carrier of something. But in science, the word has another, more interesting, connotation. To a biologist, for example, a medium is a mixture of nutrients needed for cell growth. And that's a very interesting interpretation for our purposes. In biology, media are used to grow tissue cultures—living organisms. The most famous example, I guess, is the mould growing in Alexander Fleming's Petri dishes which eventually led to the discovery of penicillin. What I want to do is apply that perspective to human society: to treat it as an organism which depends on a media environment for the nutrients it needs to survive and develop. Any change in the environment—in the media which support social and cultural life—will have corresponding effects on the organism. Some things will wither; others may grow; new, mutant, organisms may appear. The key point of the analogy is simple: change the medium, and you change the organism.

This environmental perspective—that is, which sees media as a technological or ideological environment—is increasingly crucial for understanding the complexity of media's role in society. Moreover, as I have argued in the past (López, 2012), the everyday consumption and use of media gadgets takes place within a planetary *media ecosystem*: the ecologically embedded sum of all our technologically mediated interactions on planet Earth. This media ecosystem includes physical, sociocultural, and cognitive ecosystems, such as the lifecycle of gadgets and energy used to power the system (physical ecosystems), civic and symbolic realms (sociocultural ecosystems), and the phenomenological experience of time, space, and place (cognitive ecosystems). The essential observation here is that *media are an environment that grows culture*.

## From Media Literacy to Ecomedia Literacy

A classroom activity found on numerous media literacy websites, "American Alphabet," involves juxtaposing two graphics in a PowerPoint presentation (see Figure 1).[3] The first slide is a group of pictures taken of plants from a local ecosystem. The second is a "ransom note" collage of cutout letters from common product logos that spell out the English alphabet. Students are asked to identify the names of plants in the first slide, and then they are asked to name the brands associated with the cutout letters in the second one. When I have done this exercise, students typically do not know the names of common plants in their local ecosystem, yet they have no problem identifying the brands in the collage. I am assuming that most teachers who do this exercise have similar results.

Depending on the context of the presentation and the facilitator's goals, the follow-up discussion will be guided by how *environment* and *media* are framed. For example, in a traditional media literacy setting, juxtaposing images from a local ecosystem with those from the socio-technologically constructed realm of media could communicate that both are a kind of environment, but that they are disconnected from each other. This disconnection could be reinforced if the point of the exercise is to not discuss ecological awareness, but simply to demonstrate the lack of it and to use the "natural world" as a kind of "negative space" to highlight what we know about media. The activity

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[3] Carrie McLaren authored the original curriculum that features this exercise (www.stayfreemagazine.org/ml/index.html).

could also lead to the presumption that media are primarily a symbolic environment comprised of corporate brands.



Figure 1. Images from the "American Alphabet" activity. Students are first shown a slide of the images on the left and are asked to identify plants in their local bioregion (such as those pictured here). They are then shown a slide of the image on the right and are asked to name the brands found in the cutout letters. The goal of the activity is to discover which "environment" they are more familiar with. Plant photos by Antonio López; brand alphabet collage by Heidi Cody (www.heidicody.com). Used with permission.

This discussion would be different from the perspective of ecomedia literacy, which has green cultural citizenship as its primary framework. According to *The Merriam-Webster Dictionary*, citizenship is defined as "the quality of an individual's response to membership in a community." In regards to media, cultural citizenship expands this notion to encourage active engagement with the public sphere. In contrast, economic citizenship is primarily characterized by passive consumerism and market fundamentalism. In the context of sustainability, cultural citizenship can be greened by an *eco-ethical* orientation. As Maxwell and Miller (2009, pp. 19–20) highlight:

> Economic citizenship predicated on limitless media growth diminishes potentially egalitarian and sustainable production, consumption, and participation, because it omits the impact on climate change of media technology and uptake.... Green citizenship looks centuries ahead, refusing to discount the health and value of future

generations as it opposes elemental risks created by capitalist growth in the present. This necessitates an eco-ethical orientation towards the media.

By implication, green cultural citizenship calls for improving public discourse. This can be encouraged by traditional media literacy approaches that focus on analyzing media texts as a way of promoting critical literacy and a better-informed citizenry. But textual analysis also needs to be supplemented by technological literacy that accounts for the physiological impact of media gadgets on living systems, and also examines how media affect our sense of place, space, and time. Furthermore, an eco-ethical orientation entails *ecocentricism*, recognizing that "human beings live in a *more-than-human-world*, of which they are only one part" (Curry, 2006, p. 46, emphasis original). By contrast, economic citizenship is anthropocentric, or *human-centered*. A green cultural citizen is ecocentric by embodying sustainable behaviors and cultural practices that shape and promote ecological values. This corresponds and is enhanced by Thomashow's (1995, p. 139) holistic notion of *ecological citizenship*:

> The ecologically aware citizen takes responsibility for the place where he or she lives, understands the importance of making collective decisions regarding the commons, seeks to contribute to the common good, identifies with bioregions and ecosystems rather than obsolete nation-states or transnational corporations, considers the wider impact of his or her actions, is committed to mutual and collaborative community building, observes the flow of power in controversial issues, attends to the quality of interpersonal relationships in political discourse, and acts according to his or her convictions. The ecologically responsible citizen recognizes that he or she lives a life in nature, in conjunction with other people, in the common interest. Where does one practice this approach to life if not in the common domain?

Green cultural citizenship promotes sustainable cultural practices. Cloud (2010) asserts, "A practice (or set of practices) is unsustainable when it undermines the health of the very system upon which it depends and therefore cannot be continued over time" (p. 168). By contrast, "a sustainable practice enhances the health of the systems upon which it depends by creating favorable conditions for it to thrive indefinitely" (p. 168). It is my core belief that doing this means shifting our primary mental models from 19th-century mechanism to 21st-century ecology. According to Capra (2008, p. 366), the key characteristics of 19th-century perception include:

> the view of the universe as a mechanical system composed of elementary building blocks, the view of the human body as a machine, the view of life in a society as a competitive struggle for existence, the belief in unlimited material progress to be achieved through economic and technological growth and—last but not least—the

> belief that a society, in which the female is everywhere subsumed under the male, is
> one that follows from some basic law of nature.

By contrast, Capra believes we are in the midst of a *paradigm shift* based on ecological awareness, which "recognizes the fundamental interdependence of all phenomena and the embeddedness of individuals and societies in the cyclical processes of nature" (2008, p. 366).

Unlike the traditional media literacy approach that focuses on the study of texts, symbols, and messages as separate from living systems, in my view, in order to encourage green cultural citizenship, ecomedia literacy should support learners to:

- reconnect an awareness of media with their physiological impact on living systems;
- recognize media's phenomenological influence on the perception of time, space, place, and cognition;
- understand media's interdependence with the global economy, and how the current model of globalization impacts living systems;
- analyze how media form symbolic associations and discourses that promote environmental ideologies; and
- become conscious of how media impact our ability to engage in sustainable cultural practices by encouraging new uses of media that promote sustainability.

Ultimately, the goal of ecomedia literacy is to encourage mindfulness for how everyday media practice impacts our ability to live sustainably within earth's ecological parameters for the present and future. In doing so, it promotes the understanding that media as a whole are a socio-technological ecosystem embedded within living systems.

Environmentally harmful technology and an ideology of exploitation combine as an anthropocentric system of production and consumption. From this perspective, media are pedagogical: they teach us how to act upon and live within the world. Such a view corresponds with Orr's (1994) proposition that all education is environmental education—regardless if it is anthropocentric or ecocentric. The anthropocentric worldview permeates the taken-for-granted world where education policy in North America is formulated, as well as the background in which media literacy education is conceived. Media and education entail an implicit environmental worldview that is often not acknowledged or reconciled. Thus, green media literacy must start with the understanding that our global media ecosystem is embedded within earth's living systems. By embedding a view of media ecosystems within the life-support system of planet Earth, such a perspective calls for an implicit ethic of

care, acknowledging how all media directly impact living systems on earth, human and nonhuman alike. It is from this perspective that I approach media literacy education.

## Conceptual Framework

Given that there is a "natural" connection between media and living systems, why has media literacy education generally failed to address this relationship? In the following sections I establish a theoretical framework to explain how I answer this query. I assert that media are generally conceived of as *disembedded* from ecology and that this perspective is part of an unsustainable, anthropocentric perspective based on mechanism. I start with ecocriticism, which enables us to identify and challenge how mechanism is perpetuated through discourse—the way we talk about things. Next, I claim that mechanism is maintained by language, in particular, through the use of conceptual metaphors. These metaphors form the imagined world of media literacy educators, and therefore play a significant role in defining how media are conceived and taught. By identifying and studying the social context in which these metaphors are used within an information ecology, I propose that it is possible to understand why media literacy education generally eschews an ecological perspective.

## Discourses

McLuhan proposed that in an electronically mediated world, we are like the fish that do not know the sea (2002b), an indication that media encompass us as an environment. Building on McLuhan's insight, environmental metaphors have been utilized by media critics, educators, and activists to describe the all-encompassing experience of inhabiting an electronically mediated world, including *media ecology* (Logan, 2007), *cultural environmental movement* (Gerbner, 1998), and *ecology of images* (Sontag, 2002). Silverstone (2007) calls this media environment a *mediapolis*, which is a *frameworld* with an implicit moral order based on globalization as a social, political, cultural, and technological phenomena. As such, Silverstone endorses "the idea of the media as an environment, an environment which provides at the most fundamental level the resources we all need for the conduct of everyday life. It follows that such an environment may be or may become, or may not be or become, polluted" (p.13). According to Silverstone, screens delineate the

boundary of the mediapolis, and just as a terminal is a place of entry and departure: "The screen is an interface, a frame, a window, a mask and a barrier" (p. 20). Given the state of our planetary ecosystems, I accept without reservation that the perception and presence of living systems in the mediapolis is of grave importance.

More recently there has been an evolving use of the environment metaphor to describe various aspects of emerging media systems. In the *blogosphere* it is increasingly common to use the term *ecosystem* to describe specific media environments, such as the *Facebook ecosystem* or *iPhone ecosystem*.[4] These technological *ecosystems* have data *clouds*, server *farms*, media *streams*, signal *fields*, information *flows* and network *feeds*, most of which can be found on the *web*. A part of it is even called *Amazon*. And in these ecosystems one can even find *bugs*, *viruses*, and *memes*. Yet when used in this technological context, the notion of ecosystem lacks any connection to living systems impacted by media, and hence represents an incomplete use of the ecosystem concept. For instance, Naughton (2006, 2012) draws heavily on the ecosystem metaphor to describe internet-based media without making any reference to living systems. The lack of awareness of the connection between media and living systems is not uncommon, in particular in the field of media studies. Stated starkly:

> The prevailing myth is that the printing press, telegraph, phonograph, photograph, cinema, telephone, wireless radio, television, and internet changed the world *without* changing the Earth. In reality, each technology has emerged by despoiling ecosystems and exposing workers to harmful environments, a truth obscured by both the symbolic power and the power of moguls to set the terms by which such technologies are designed and deployed. Those who benefit from the ideas of growth, progress, and convergence, who profit from high-tech innovation, monopoly, and state collusion—the military-industrial-entertainment-academic complex and multinational commanders of labor—have for too long ripped off the Earth and workers. (Maxwell & Miller, 2012, p. 9)

Given that the coinage of the term *ecosystem* in the 1930s is rooted in a view of living systems as interdependent communities (Golley, 1998), I believe any use of the term ecosystem without reference to living systems is deficient and problematic. As such, I prefer Lappé's (2011, p. 15) grounded definition of ecology, which is "relationships among organisms and their environment." Lest we forget, humans are animals that inhabit an environment that also

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[4] For example, on March 8, 2013, a Google search for the phrase *Facebook ecosystem* generated 36,000 results. *iPhone ecosystem* generated 11,900 results.

includes technological systems and their modes of production, both cultural and material.

Indeed, it is important to recognize that *ecology* is not neutral, nor does it have universal meaning. Among those who call themselves ecologists there is a broad philosophical spectrum that varies from a phenomenological connection with nature as sacred (Berkes, 1999; Harding, 2006) to a scientific view that ecology is a system of systems (Allen, Tainter, & Hoekstra, 2003; Odum & Barrett, 2005). Hornborg (2001) asserts that these approaches represent the difference between *embedded* and *disembedded* worldviews, embedded being ritualistic/spiritual and disembedded representing scientific/technological approaches. According to Berkes (1999), embeddedness is the defining characteristic of a sacred relationship with nature and characterizes the worldview of many traditional and land-based peoples.

The difference in perception of ecosystems as technological or as embedded is tied to discourses about the environment. A discourse is "a shared way of apprehending the world" (Dryzek, 2005, p. 9) that expresses taken-for-granted assumptions about how the world works. Our view of the environment is closely related to how we talk about it. As Corbett (2006, p. 6, emphasis original) notes:

> "nature," and in a different way "environment," are complicated cultural concepts, not just words. Nevertheless, they *communicate*. The words and how we use them interpret and define what exists beyond humans. This is nature, that is not. This is an environmental issue, but this is not. The definitions and meanings to a certain extent influence our behaviors and practices and our communication about it…. That is not to say, however, that nature or environment or whatever we want to call it is one big social construction and doesn't really exist out there independent of us and our definition of it. The physical, nonhuman world does exist; ecosystems and their inhabitants would unfold and continue just fine without humans. *Social construction—* the definitions and meanings we come to accept through our social interaction—is just one component. Other components are the historical and cultural contexts in which we live and the unique sets of individual experience we carry with us.

Corbett's assertions are related to social constructionism and symbolic interactionism, which are tied to three assumptions about how language is socially constructed through negotiated and situated contexts. First, "social life consists of a process of communication and interpretation regarding the definition of a situation"; our way of knowing about the world and ourselves is grounded within the *symbolic order* we are born into (Altheide, 1996, p. 8). Next, we are situated within a social world that is experienced reflexively. Finally,

the notion of process is key because everything is, so to speak, under construction, even our most firmly held beliefs, values, and personal commitments. What we consciously believe and do is tied to many aspects of "reality maintenance," of which we are less aware, that we have made part of our routine "stock of knowledge." (Altheide, 1996, p. 8)

## Environmental Ideologies and Mechanism

Even in the absence of an explicit environmental stance, a discourse can communicate an environmental ideology, which is "a way of thinking about the natural world that a person uses to justify actions towards it" (Corbett, 2006, p. 26). Environmental ideologies span a spectrum ranging from anthropocentric to ecocentric. According to Corbett (2006), the most extreme anthropocentric ideology is unrestrained instrumentalism, which views the natural world as a resource that should be exploited for human use. Within the domain of anthropocentric ideologies she also includes conservationism and preservationism since they ultimately favor environmental policies meant to benefit humans. On the other end of the spectrum is ecocentricism, which Corbett aligns with *ethics and value-driven ideologies* and *transformative ideologies*. Ethics and value-driven ideologies "grant nonhuman entities 'value' that goes beyond utilitarian, scientific, aesthetic or religious worth to possessing intrinsic value or inherent worth" (2006, p. 37). Transformative ideologies are associated with deep ecology, social ecology, ecofeminism, indigenous ideologies, and "Eastern traditions."

I personally align with transformative environmental ideologies that are grounded in Shiva's (2005) concept of an Earth Democracy, which is "based on the intrinsic worth of all species, all peoples, all cultures; a just and equal sharing of the earth's vital resources; and sharing the decisions about the use of the earth's resources" (p. 6). Shiva's perspective is a key element of *ecojustice*, a set of principles that include:

- The need to eliminate the toxic contamination of individuals, plants, and animals, which is also the basis of the eco-racism that occurs when the toxic wastes of industries contaminate the air, water, and soil of nearby economically poor and culturally marginalized neighborhoods, and when shipping toxic wastes across national boundaries.
- The need to eliminate the colonization of the South by the North that results, in part, from the exploitation of the South's natural resources, and from the efforts to replace their traditions of intergenerational and community self-sufficiency with the West's emphasis on an individual/consumerdependent [sic] lifestyle.

- The need to revitalize the cultural commons that represent the intergenerational knowledge and skills that are less dependent upon monetized activities and relationships—and that have a smaller carbon and toxic footprint. Also the need to conserve what remains of the environmental commons.
- The need to pursue lifestyles that ensure that future generations will inhabit viable environments that allow them to live morally coherent and symbolically rich lives. (Bowers, 2012, p. 224)

When media ecosystems are discussed solely within an economic or technological framework, I consider it to be an example of an anthropocentric discourse because it implicitly endorses the view that technology, progress, and economics are outside the domain of living systems. This includes most references to *media ecosystem* on the web. I believe an ecocentric discourse is when media ecosystems are contextualized by their impact on living systems and ecojustice. Though they are not using the term *media ecosystem* or *ecojustice* in their work, examples of ecocentric discourses can be found in media like the *Story of Stuff* (Story of Stuff Project, 2009), *Food, Inc.* (Kenner & Pearlstein, 2008), and *Avatar* (Cameron & Landau, 2009).

Media conceived of as disconnected from living systems is rooted in mechanism and tied to the dominant discourse of *industrialism*, which is "characterized in terms of its overarching commitment to growth in the quantity of goods and services produced and to the material wellbeing that growth brings" (Dryzek, 2005, p. 13). In an industrial discourse, "natural resources, ecosystems, and indeed nature itself, do not exist" (Dryzek, 2005, p. 57). Garrard (2004, pp. 16–17) relates this framework to the *cornucopia* discourse: "The key positive claim put forward by cornucopians is that human welfare, as measured by statistics such as life expectancy or local pollution, has demonstrably increased along with the population, economic growth and technological progress." Industrialism is ultimately an expression of a *paradigm*. According to Meadows (1991, p. 3),

A paradigm is not only an assumption about how things are; it is also a commitment to their being that way. There is an emotional investment in a paradigm because it defines one's world and oneself. A paradigm shapes language, thought, and perceptions—and systems. In social interactions, slogans, common sayings, the reigning paradigm of the society is repeated and reinforced over and over, many times a day. Whenever a speaker of an Indo-European language says a sentence, nouns and verbs reinforce the paradigmatic distinction between things and processes (in some other languages there are only processes). Every time you buy or sell something, you affirm a shared paradigm about the value of money. Every time the president

rejoices when the gross national product (GNP) goes up, he strengthens the paradigm of economic growth as an unquestioned good. In general, media and education are situated within the dominant paradigm of mechanism.

## Ecocriticism

It is my contention that to examine and critically engage language is to go to the root of how we perceive the world. In this respect, a tool for challenging mechanism is to engage in a kind of ecocriticism, which "is the ability to critique existing discourses, cultural artifacts, forms and genres, and explore alternatives" (Garrard, 2009, p. 19).

> [Ecocritics] who analyze literary and other texts from an environmentalist standpoint, observe our environmental crisis poses not only technical, scientific and political questions, but also *cultural* ones. Our habits of representation affect and reciprocally reflect our actions, but the enormous temporal and spatial scale of phenomena such as climate change and mass extinction, and the complex moral questions inherent in them, pose challenges for our existing artistic forms. (Garrard, 2009, p. 19, emphasis original)

The key concern of the ecocritical approach is to recognize how the values promoted by mechanism and the cornucopian discourses are undermined by their lack of recognition of ecological limits.

## Metaphors

According to Machin and Mayr (2012, p. 221) metaphor "is the means by which we understand one concept in terms of another, through a process of which involves a transference of 'mapping' between two concepts." Bowers (2012, p. 164) describes *root* metaphors as "deep, generally taken for granted interpretative frameworks that influence thinking, values, and practices over a wide range of cultural activities—and over generations and even thousands of years." For example, the metaphor *framework* embodies a host of cultural assumptions. A frame implies a window that opens up to a kind of Renaissance-inspired linear perspective space in which we look out into the world from the vantage of a screen. Romanyshyn's (1989, p. 42) phenomenological study of linear perspective yields this important observation: "The condition of the window implies a boundary between the perceiver and the perceived....   Ensconced behind the window the self

becomes an observing *subject*, a *spectator*, as against a world which becomes a *spectacle*, an *object* of vision." From an ecological perspective, this kind of orientation is problematic. As Milstein and Dickinsen (2012, 513–514) note,

> Humans use the body to relate within/to nature, a practice that is culturally constructed and mediated in gendered ways. Gaze and ocularcentrism (favoring of vision) play a central role in frontally orienting humans to nature, and a number of scholars critically explore and critique frontal orientations. Foucault's Panopticon illustrates how a human one-way subjective gaze in ocularcentric cultures enables prototypically androcentric orientations of hierarchy and domination. In humanature relations, the favoring of the gaze can privilege a frontal orientation to nature that distances and objectifies.

The frame metaphor, if not properly contextualized, retains this sensibility of separation, reinforcing a Cartesian sense of space.

Root metaphors reinforce paradigms of thought, such as mechanism at the root of industrialism. Emerging during the Industrial and Scientific Revolutions and influenced by scientific pioneers like Copernicus and Newton, mechanism signifies that humans are disconnected from living systems because nature can be isolated and analyzed by examining its disconnected parts (Capra, 1983). Mechanism correlates with the root metaphor of *individualism* because the concept of an *autonomous self* means that people have internal worlds that are isolated from their environments. According to Bowers (2012), analogs that reinforce the root metaphors of mechanism and individualism include *progress*, *development*, *technology*, and *freedom*.

Both *media* and *environment* are examples of metaphors that will take on different meanings according to their associated analogs. In the case of my interaction with Mander, when I used the word *media* he connected it with an assortment of taken-for-granted assumptions about the nature and purpose of media. It is likely that he linked my use of the term with his own analogs of *technology*, *progress*, *consumer culture*, *loss of the sacred*, and other metaphors used in his work (1991, 2002). Likewise, when I discussed ecology and media literacy with the president of the media literacy organization in Brussels, she associated it with a set of assumptions based on different analogs for *environment*, which categorized it as not related to *media*. In both encounters we had different analogs for the metaphors of media and environment, and therefore we were communicating with different conceptual frameworks.

Bateson (2000) argued that metaphors serve as reality maps, but we often mistake the map for the territory. According to Bowers (2008, 2009, 2012), this means that we use metaphors (maps) based on previous ways of thinking

that are disassociated from the current context of everyday life (territory). This results in preceding worldviews colonizing the present through language. For example, the metaphor "progress" is rooted in the 19th century when it was believed that the natural world was a resource that could be technologically exploited without limit. Sustainability advocates and ecocritics challenge the meaning of progress when it is associated with economic development and environmentally destructive technology, arguing that progress is responsible for "overshooting" the carrying capacity of living systems (Meadows, Randers, & Meadows, 2004). Reconciling progress with current environmental conditions can lead to what Bateson (2000) referred to as a double bind. A double bind results when one tries to solve a problem with the same kind of thinking that created the problem. It is likely that Mander's response to my media literacy proposal was his perception that I was advocating a double bind: engaging media to solve a problem that is partially the result of media. Subsequently, it is essential for media literacy educators to consciously engage metaphors that dominate educational practices, not just metaphors tied to the notion of progress, but those that are fundamentally tied to media and environment. As Garrard states:

> The study of rhetoric supplies us with a model of a cultural reading practice tied to moral and political concerns, and one which is alert to both the real and literal and the figural or constructed interpretations of 'nature' and 'the environment.' Breaking these monolithic concepts down into key structuring metaphors, or tropes, enable attention to be paid to the thematic, historical, geographical particularities of environmental discourse, and reveals that any environmental trope is susceptible to appropriation and deployment in the service of a variety of potentially conflicting interests. (Garrard, 2004, p. 14)

This is not to criticize the use of these metaphors or to make judgments about the kinds of metaphors we use to explain the world, but to raise awareness. Indeed, throughout this book I use many of the same metaphors deployed by media literacy educators. According to Lakoff and Johnson (1980), the reason metaphors are used in language is because they are grounded in experience. We use many *container* metaphors (such as knowledge *construction*) because we have the embodied experience of entering and leaving spaces. Subsequently, in Western culture we divide the world between interior and exterior experiences. So when we describe an abstraction (such as media), metaphors help us concretize and make sense of what we are talking about. Ultimately, the reason to study metaphors is because inevitably they include some experiences of the world while excluding others. Metaphors can illuminate and hide simultaneously.

# Figured Worlds

Media literacy education's discursive environment comprises root metaphors that shape a *figured world*. Figured worlds "are 'theories' or models or pictures that people hold about how things work in the world when they are 'typical' or 'normal'" (Gee, 2011a, p. 173). A figured world, which is similar to *folk theories*, *frames*, *scenarios*, *scripts*, *mental models*, and *discourse models*, is something with which all of us operate. We have many figured worlds depending on the context and situation with which we are involved: We have mental models for personal relationships, political affiliations, workplace practices, and so forth. An example of a root metaphor that shapes the figured world of media literacy educators is *media*, which conjures a host of assumptions and beliefs about communication, democracy, and public sphere that include and exclude certain actors within its system. These taken-for-granted assumptions work together with other root metaphors to shape a paradigm of media literacy practice. Indeed, "the institutional practices of teaching about popular culture must be understood as a technology for the naturalization of specific reading and writing practices, particular ways of making meaning and understanding the world which are far from neutral" (Bennett, Kendall, & McDougall, 2011, p. 4). As such, metaphor usage does not exist in isolation of social practice; metaphors have situated meanings in social contexts where certain values and perceptions are shared. A deeper understanding of the dominant metaphors within a social context helps clarify the kind of world that is envisioned by media literacy educators and whether or not it is compatible with green cultural citizenship.

In addition, an important characteristic of media literacy education's figured world is how *implicated actors* are discursively represented. Implicated actors are "actors silenced or only discursively present—constructed by others for their own purposes" (Clarke, 2005, p. 46). Clarke describes two kinds of implicated actors:

> First, are those implicated actors who are physically present but are generally silenced/ignored/invisible by those in power in the social world or arena. Second are those implicated actors not physically present in a given social world but solely discursively constructed; they are conceived, represented, and perhaps targeted by the work of those others; hence they are discursively present. (2005, p. 46)

In the media literacy ecosystem, a number of actors are discursively present, such as educators and students, while others are mostly implied, such as mediamakers or policymakers.

## Information Ecologies

It is my belief that integrating media literacy and green cultural citizenship requires critiquing the existing metaphor usage of media literacy educators from an ecological perspective, but also repurposing ecological metaphors to shift how we think about the field. This is because, "Taken for granted patterns of thinking and communicating are difficult to recognize and...are especially difficult to change.... The use of new analogies, in turn, leads more people to become aware of what they previously took for granted" (Bowers, 2012, p. 10). To this end, my strategy is to define the activities and practices of contemporary media literacy educators as taking place within a *media literacy ecosystem.* The concept of a media literacy ecosystem is based on Nardi and O'Day's (2000, p. 49) model of an information ecology, which is "a system of people, practices, values, and technologies in a particular local environment." In addition, my use of information ecology incorporates theories of communication ecologies (Altheide, 1995; Bateson, 2000; Luhmann, 1989), sociocultural ecosystems (Clarke, 2005; Liska & Cronkhite, 1995), and systems thinking (Capra, 1996, 2008; Meadows, 2009; Morris & Martin, 2009; O'Connor & McDermott, 1997; Pittman, 2004).

Nardi and O'Day's (2000) use of the ecology metaphor is an effort to reframe how we normally think about technology, because "our concepts of technology are often embodied in highly packed metaphors" and "metaphors channel and limit our thinking" (p. 25). As such,

> There is an urgency in the notion of ecology, because we are all aware of the possibility of ecological failure due to environmental destruction.... We feel a sense of urgency about the need to take control of our information ecologies, to inject our own values and needs into them so that we are not overwhelmed by some of our technological tools. (Nardi & O'Day, 2000, p. 56)

Depending on the technology metaphor used—*tool*, *text*, *system*, or *ecology*—each will raise different questions about who really is in control of technological development. Nardi & O'Day state:

Metaphors matter. People who see technology as a tool see themselves controlling it. People who see technology as a system see themselves caught up inside it. We see technology as part of an ecology, surrounded by a dense network of relations in local environments. Each of these metaphors is "right," in some sense; each captures some important characteristics of technology in society. Each suggests different possibilities for action and change. (2000, p. 27)

According to Nardi and O'Day's model, examples of information ecologies include libraries, hospitals, self-service copy centers, computerized classrooms, and virtual networks. Media literacy practitioners comprise a kind of information ecology in several ways, but not exactly in the model offered by Nardi and O'Day. In their framework,

> An information ecology is a complex *system* of parts and relationships. It exhibits *diversity* and experiences continual evolution. Different parts of an ecology *coevolve*, changing together according to the relationships in the system. Several *keystone species* necessary to the survival of the ecology are present. Information ecologies have a sense of *locality*. (2000, p. 51, emphasis original)

Media literacy education is indeed a system of complex parts and relationships; the field is fairly diverse with many complementary and competing practices that evolve over time, while coevolving with particular aspects of the world (such as emerging technologies, education policy, and social concerns); media literacy education does have a keystone species that develops important documents (such as curricula and teacher resources), runs media literacy organizations, trains other practitioners, and advocates particular visions of media literacy education through books and academic articles; and media literacy education can have a sense of locality (but not always).

Nardi and O'Day's model of the keystone species of an information ecology (like librarians) has an analog in media literacy in the form of leading developers and trainers of media literacy. For example, Tessa Jolls is the president and CEO of an influential media literacy organization, Center for Media Literacy, which evolved from the publication *Media & Values*. She is a working member of the National Association for Media Literacy Education, which sponsors *The Journal of Media Literacy Education*. She has authored numerous articles, develops curricula, and trains and consults a variety of national and international organizations. Another example is Sut Jhally, the founder and executive director of the Media Education Foundation. As an author and scholar who actively participates in media literacy debates (Lewis & Jhally, 1998), he produces popular media education documentaries and was an early supporter of the Action Coalition for Media Education (ACME).[5]

My model of the media literacy ecosystem differs from Nardi and O'Day's framework on two points. First, the notion of locality in media literacy is altered by the influence of the national movement. Second, media as a technological system replaces local technology as an organizing element. On

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[5] Jolls and Jhally did not participate in this study.

the one hand, media literacy can be very local as it is practiced within particular settings. This was very true of my personal experience and how working and teaching in different environments (such as New Mexico, New York, and Italy) impacted the way I taught and related to the media literacy movement. In addition, there are many regional media literacy organizations that focus on the needs of their communities. However, there are also discourses about media literacy education happening on national and international scales that are "placeless" in the same way that national education standards lack local contexts. While I believe regional- or community-based media literacy organizations are kinds of information ecologies, they are also embedded in larger information ecologies of national and international media literacy movements.

Information ecologies have technology as their binding element (such as machines at the disposal of librarians, doctors, or classroom teachers). Though technology is certainly a big part of media literacy practice, I assert that for media literacy educators, the metaphor of media serves as a kind of *boundary object* that ties practitioners together. Boundary objects have been theorized as objects with commonly agreed-upon symbolic properties that border professional discourses (Gieryn, 1983; Star & Griesemer, 1989). These symbolic artifacts facilitate communication between different groups, but their meanings and interpretation vary according to context. Wenger (1998) uses the example of an insurance claim form, which on the surface is pretty straightforward in terms of the kind of information it contains. He notes that the claimant and processor will view it differently, as will the floor managers who oversee claims adjusters, the corporate executives who set policy, and the mail delivery person. Yet, to all of them, the object exists as a particular form that is indisputable. *Media* are not an *object* per se, but the media metaphor is a discursive object that binds media literacy educators together.

As a boundary object, the media metaphor is *of* and *for* something, which correlates with Carey's (2009) discussion of media artifacts. He gives the example of an architectural blueprint, which is a drawing *of* a house—a literal map of the house. But it is also *for* building the house. It has an intention to do something. Likewise, media metaphors are maps *of* and *for* culture. Carey contextualizes this within communication theory:

> Models of communication are, then, not merely representations of communication but representations for communication: templates that guide, unavailing or not, concrete processes of human interaction, mass and interpersonal. Therefore, to study communication involves examining the construction, apprehension, and use of models of communication themselves—their construction in common sense, art, and science, their historically specific creation and use: in encounters between parent and

child, advertisers and consumer, welfare worker and supplicant, teacher and student. Behind and within these encounters lie models of human contact and interaction. (2009, p. 25)

The media-metaphor-as-boundary-object offers us a map of the implicit figured world that media literacy practitioners share. How media are perceived is also a recipe for action about how to teach media. As we will see in the following chapters, for the media literacy education field, the media metaphor serves as an edge and a connection between disparate practitioners.