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MATERIALIST CIRCUITRY: DIGITAL WRITING TECHNOLOGY, PLANNED OBSOLESCENCE, AND ECOLOGICAL IMPACT

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF ENGLISH

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This work is dedicated to my students and to my teachers.

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Abstract

This dissertation claims that planned obsolescence of digital writing equipment is a problem for composition—one that we should take up and challenge. Obsolescence causes practical difficulties for digital writing teachers and researchers because keeping up with the interfaces that are available and in use in public contexts can be troublesome and time consuming when those devices are so quickly changed, updated, and obsolesced. The project develops obsolescence as a heuristic and then uses obsolescence as a lens for analyzing the design of digital tools, ecological writing theory, and university digital initiatives. Through this analysis, I show that by studying obsolescence, we can see more clearly the forces shaping and reshaping writing practices. Bringing obsolescence into focus also helps us to consider the broader contexts in which writing tools circulate when they are not in our hands, and thus makes evident how our work is complicit with broader and sometimes geographically distant social issues.

Chapter 1: Planned Obsolescence as a Rhetorical Problem

Chapter abstract: Planned obsolescence is a problem for writing studies, one that we should take up in our research and challenge in our pedagogies. Studying obsolescence can help us see more clearly how writing practices change over time, and also makes evident how digital writing in the U.S. is enabled by and entangled in sweatshop labor, resource consumption, environmental contamination, and suffering across the globe.

Introduction

In the spring of 2010, when suicide nets were installed at Foxconn's industrial complex in Shenzhen, China, journalists and human rights activists worldwide took note. Investigations into Foxconn, a manufacturing plant that supplies digital products for Apple, Dell, Hewlett-Packard, and Samsung, among others, revealed an inhumane working environment; reporters cited excessive overtime and poor on-site living conditions among the human rights concerns facing Foxconn workers, many of whom were underage (Greene, 2012). Following a rash of suicides that have been characterized as a protest against working conditions (Chan & Pun, 2010, 2012; Chan, 2011, 2012, 2013), the conspicuous installation of suicide netting was, for many, a glaring indication that digital technologies are produced in sweatshop conditions. Subsequent events showed that exploitative labor is not the only danger that attends technology manufacture; in May 2011, an explosion at Foxconn killed three people and injured fifteen, and

released a cloud of toxic smoke ("Foxconn factory," 2011). Because electronics are made with toxic materials such as lead, mercury, cadmium, beryllium, brominated flame retardants, and PVC plastic, the incineration of electronics and their components releases highly damaging substances into the atmosphere (Greenpeace, 2005). After the period of use—at the other end of product "life cycle"—these toxic materials contribute to environmental contamination in places where computing machinery accumulates, is landfilled, or gets dismantled. The seemingly endless flood of digital products being introduced to the market engenders an equally interminable stream of electronic waste (e-waste) that gathers at dump sites throughout Asia, Africa, and South America. Laptops, keyboards, cell phones, and communication equipment that could have come from any computer lab, composition classroom, or household in the U.S. rematerialize in economically troubled regions as mountains of poisonous garbage that are scavenged for precious materials by impoverished men, women, and children.

For tech consumers in the United States, the laptops on our desks and the smartphones in our pockets may not show the contexts of their production or disposal. More to the point, as writing scholars, we may not consider these tools to be our research territory when they are not turned on, not yet assembled, no longer functional, not being implemented for *writing*. As it is, compositionists have put significant critical pressure on digital composing tools since the rise of personal computing in the 1980s to bring attention to the material, ethical, and social justice considerations that attend digital communication (see especially Selfe & Selfe, 1994; Haas, 1996; Brandt, 1998, 2001; C. Selfe, 1999; Grabill, 2003;

Wysocki, 2004; Banks, 2006, 2011; Powell, 2007; Oswal, 2013). Much of this important work is still unfinished; the rapid changes to digital writing technologies require that researchers keep working to critique new communicative trends and to become multiliterate with new devices and as they emerge onto the consumer market (Madden, 2014). Within composition, however, very few studies exist which address issues such as e-waste, materials sourcing, and manufacturing labor (exceptions include Apostel & Apostel, 2009; Selfe & Ulman, 2013; Madden, 2014). The human and environmental costs in toxic electronic landfills and at Foxconn present us with an exigent moment for considering more broadly the materiality of our writing devices.

Most often, the materiality of our devices—their status as cultural, historical artifacts and the ways in which they engender a whole range of tangible effects—occurs to us only at the moment of their failure. When the hard drive crashes and disappears several years' worth of files and labor, when the laptop is slow to boot up, when the smartphone drops and its screen shatters—it is in these moments that we are reminded that the functional qualities of our machines are entangled in and enabled by their physicality. Much of the time, digital devices seem to want to persuade us of their intense immateriality—we store our files in "the cloud," we communicate across great distances, and the hardware interfaces we use and that are sold to us are becoming thinner and lighter (Gabrys, 2011, p. 4). The rapid pace at which planned obsolescence proceeds also elides materiality. New generations of writing devices are released every year or so; we are encouraged to purchase replacements for still-functioning equipment and we are

not invited to worry about where the old machinery goes when we are finished with it or about what resources were expended in the manufacture of the new devices.

In this dissertation, I link the global problems surrounding digital writing material such as e-waste and manufacturing labor to the broader problem of planned obsolescence. Obsolescence causes practical difficulties for teachers and scholars of writing because keeping up with the interfaces that are available and that are in use in public contexts can be difficult and time consuming when those devices are so quickly changed, updated, and obsolesced. This project develops obsolescence as a heuristic, by which I mean I use it as an analytical lens, and deploys the obsolescence heuristic to study digital device design, ecocomposition theory, and new media pedagogy in the university. Through this analysis, the project shows that we have much to learn from studying obsolescence about how writing practices change over time. Focusing on obsolescence helps us more clearly understand how writing practices shift and how users, designers, and the ways that devices get taken up in activity systems mutually construct those shifts. Additionally, obsolescence directs our attention to where our writing tools circulate when they are not in our hands and thus makes evident how our work is complicit with broader ethical and social issues.

The global problems related to our writing tools highlight that researchers and teachers in writing studies[1] should place more emphasis on the tools we use

[1] In this project, I use "writing studies" as a blanket category to describe the field(s) of study typically named composition, rhetoric, and literacy. While I recognize that it is problematic to conflate these disciplines (or methodologies), I hope that the research

for writing and should take a more capacious approach to their materiality. To date, much research within composition-rhetoric has worked to show that the tools we use are inextricable from writing practices and from written products. The materiality of the tool, it is argued, is ineluctably intertwined with the position of the body that engages it, the audiences reached by its delivery systems, and the shape and meaning of the texts it enables. Such scholarship has gone a long way toward disturbing the view of writing technologies—both analog and digital—as neutral tools that merely act as conduits for meaningful content by showing that tools significantly impact writing and the writing process. Despite these gains, the longer "life spans" of our writing tools, the contexts they survive beyond our desks at the moment of composing, and where they come from and where they are going, are largely left out of composition studies. Thus writing research which asserts that tools are inescapably entangled with the processes and products of writing, in another way, leaves these tools behind.

In what follows, I demonstrate that a robust materialist perspective on writing requires diachronic analysis of the tool[2] as material, as thing, as object. Starting with the global environmental contexts in which writing tools are situated before and after the period of product use, I explore the problems surrounding

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methods and teaching strategies that I propose can help articulate an intersectional writing studies identity that accounts for all three of these emphases. I also use "writing studies" more or less interchangeably with "composition studies," "composition-rhetoric," and "literacy education."

[2] While I recognize that the term "tool" implies, for some, technological instrumentalism in that it suggests that the tool is simply a neutral or transparent mechanism for "doing" writing (for more on this, see Porter, 2002). However, I use "tool," "equipment," "devices," and "writing technologies" more or less interchangeably to index the materials we use for writing: the laptops, tablets, phones, and computers that mediate, enable, and shape communication.

writing tools in the context of ecological theories of digital writing. Through this analysis, I also show that the framework of ecology as it has been deployed in writing studies needs modification. Recently, many writers have taken up the concept of ecology as an appropriate explanatory mechanism for describing how networked writing operates. Because communication systems are generative, unpredictable, self-perpetuating, and responsive to perturbations of environment, these scholars argue, ecology provides a useful lens for considering systems of writing (see for instance Cooper, 1986, 2010, 2011; Spinuzzi, 2001; Dobrin, 2001, 2011). I maintain that ecology is a useful framework for studying writing and this project takes an ecological perspective on the circulation of digital writing material. However, I take issue with certain post-process versions of ecological writing theory that subtly and implicitly represent writing as extractable from the means of production which enable it and the material contexts in which it is situated. I use these theories as examples of what I call *dematerialization rhetorics*, or larger rhetorical patterns through which the digital is aligned with placelessness, virtuality, and immateriality. My analysis demonstrates that an ecological perspective on writing requires that we take a longer view of the movement and circulation of these tools over time. Such a view constitutes a crucial but underexplored aspect of a materialist approach to writing.

Methodology

In this project, I use rhetorical analysis of writing studies research, digital product marketing, and the material rhetorics of writing tools to challenge the

ways that digital writing is figured as other than or transcendent of the material realm. I draw from scholarship in ecocomposition, or the intersection of ecology and writing studies, to provide a framework for investigating what Laura Micciche (2014) calls writing's *robust materiality*. Ecocomposition is a useful heuristic for this project because ecocomposition's emphasis on the entangled and interconnected status of writing encourages us to consider texts, writing, and discourse in relation to other systems, including extradiscursive systems. Because ecocomposition is interested in the relational qualities of language and the changes to writing material and writing practices over time, ecocomposition scholarship provides a useful grounding paradigm for my work. In particular, I demonstrate that a more precise definition of ecocomposition encourages us to be attentive to the materiality of writing and to recognize that communication is inextricable from the physical means and materials through (or in) which it is conveyed. Ecocomposition is also invested in writing's diachronic status—its various circulations and reconfigurations over its longer "life cycle."

In emphasizing interconnections and entanglement, my use of "ecocomposition" is informed by feminist scholarship in the emerging area commonly referred to as new materialism. As defined by Diana Coole & Samantha Frost (2010), new materialism is a philosophical project that addresses questions at the intersection of three areas of concern. The first of these is how matter is vital, lively, or exhibits agency (p. 7). New materialism, in ways that are similar to posthumanism and object-oriented ontology—two related areas in which scholars seek to put nonhuman entities on equal ontological footing with human actors—

pursues relational, interactional connections between human agents and other forms of matter. Scholars in new materialism also take up bioethical questions regarding the status of life in the context of scientific or technological innovations (p. 7). For instance, scientific advancements which make it possible to alter the genetic makeup of agricultural organisms and unborn fetuses raise questions about the moral efficacy of such engineering. Scholarship in new materialism involves "nondogmatic reengagement with political economy," or the relationship between the material conditions of everyday life and broader socioeconomic and geopolitical structures (Coole & Frost, 2010, p. 7). Questions about how governing bodies and legislation impact individuals' quotidian realities and the nuances among their different experiences come to the forefront of a new materialist mode of inquiry.

In this vein, Karen Barad's (2007, 2012) work on quantum physics emphasizes how research tools participate in the outcomes or what is discovered through that research. She notes that Niels Bohr showed that subatomic particles do not have any position in space independently of measuring something called position (2007, p. 142). Likewise, Jane Bennett (2010) uses Bruno Latour's (1996) notion of the actant to articulate matter as vital, lively, and exhibiting agency. For Bennett, the actant model is useful for leveling the hierarchy between human/vital/agent on one hand, and inert/passive/matter on the other. An ontological framework such as this one has material consequences. For instance, Bennett asks how individual habits and environmental law would change if we understood the material forms we interact with to be vital and agentive. She

writes, “How . . . would patterns of consumption change if we faced not litter, rubbish, trash, or ‘the recycling,’ but an accumulating pile of lively and potentially dangerous matter?” (p. viii). Her point makes clear that common understandings of the material world—which are constructed in part through discourse—affect behavior. The notion that our writing tools are ephemeral, lossless, and immaterial impacts how we interact with them, how frequently we purchase them, and what we do with them when they are no longer functional. And yet, as this project shows, understanding the broader consequences our devices can have beyond the moment of our use is only part of the issue. Awareness of these problems is not sufficient for addressing them.

Given this emphasis on pluralism, entanglement, and inseparability, my approach likewise entangles rhetorical inquiry with new materialist philosophical methods. In this pursuit, I am especially indebted to new materialist rhetorical scholars such as Amy Propen (2012) and Laurie Gries (2012, 2015). Although both of these writers are more interested in visual rhetorics than I am in this project, I draw heavily from their uses of diachronic analysis that moves beyond the initial moments of production and delivery. Propen (2012) examines a commemorative memorial for a 19th century mill, GPS navigation devices, and two competing maps of the North Pacific Ocean to show that visual texts have material dimensions that impact the bodies of the users who engage them as well as the bodies of nonhuman animals who are represented by them. Her analysis of GPS devices, in particular, offers useful methods for considering how rhetorical artifacts engage the body and how digital, multimodal technologies impact corporeal practice. By demonstrating

that visual-material texts influence behavior and have consequences which unfold over time, often long past the initial rhetorical situation for which they are produced, Propen undertakes diachronic rhetorical analysis that honors the complexity of textual effects and moves beyond traditional understandings of reception as synchronic at the moment of delivery.

Gries (2015) extends Propen's work and takes up her call for rhetorical analysis that moves beyond a text's delivery in the initial rhetorical situation. Gries examines how Shepard Fairey's Obama Hope poster has become iconic through its circulation in different contexts and through being parodied and remixed for different purposes over time. In doing so, Gries looks beyond the poster's importance to Barack Obama's campaign for president and considers how the poster's external relations with other texts and with users produce a variety of meanings, consequences, and modes of engagement. For instance, even beyond Obama's campaign, individuals used the Obama Hope poster for a variety of communicative purposes, to make claims about a range of political and social issues and even to critique the president and events that occurred under his administration. Gries notes that many rhetorical histories focus on the life of an individual writer or rhetor and that individual's biography (p. 294). In addition to these pursuits, she argues, we should also undertake rhetorical biographies of texts by considering the various sites where a textual artifact circulates, how it accrues multiple meanings through its circulation in plural contexts, and how the texts and their meanings change over time (p. 28).

In this project, I undertake study of writing tools in this tradition of new materialist rhetorical analysis. The tool, I argue, is also a text and a rhetorical object that requires our attention as well as a lively, agentive artifact in a literal sense. That is, an iPhone is both a material object and a symbolic, rhetorical thing as well as an actor in its own right that takes action and has consequences which are sometimes independent of its human users. The iPhone, as I will discuss at more length in chapter 2, is the ultimate example of an actant or of vital matter. It can predict or create our next word when we are texting each other, it can have a conversation with us (via the language program Siri), and it has toxic effects once it has becomes waste in the landfill, right at the moment when we consider it to be the least lively. Drawing from Propen's study of GPS devices and Gries's analysis of Obama Hope, I examine the tool's external relations to consider how its circulation in different activity systems changes its meanings over time and gives it power to shape individual and collective action. Digital tools produce different forms of consequentiality as they circulate in these different contexts, and studying their circulation can help us consider—in a new materialist sense—their status as agents, their bioethical dimensions, and the relationships between our everyday engagements with them and broader geopolitical and socioeconomic concerns.

Global Circulation of Digital Writing Material

For decades, writing scholars have called for critical awareness of the ways that digital technologies interrelate with and support certain cultural values. Cynthia Selfe & Richard Selfe (1994) noted early on that computer interfaces

present "interested versions of reality" (p. 486) and are underwritten with racist, sexist, logocentric, and colonialist assumptions. The authors thus argue that writing instructors should teach students to be critics of technology in addition to teaching them digital literacy (p. 484, p. 496). Stuart Selber (2004) likewise encourages us to teach students to become functionally, rhetorically, and critically literate with digital devices. These multiliteracies, he argues, will help students to "[think] critically, contextually, and historically about the ways computer technologies are developed and used within our culture and how such use, in turn, intersects with writing and communication practices" (p. 9). These interventions have shaped much research in the field of computers and writing; the subsequent outpouring of digital writing scholarship has worked to challenge the values that are instantiated in the design of digital tools as well as how devices get taken up in social contexts. For example, the 2008 collection *Small Tech* provides several examples of this approach to writing tools; included authors address topics as various as how cell phones dissolve the distinction between public and private (Rice, 2008), how blogs and wikis can enable egalitarian participation even in non-democratic spaces (Kahn & Kellner, 2008), and how wearable computing devices dehumanize users (Pedersen, 2008). These essays explore current and possible uses of small tech, the contexts for use and the social behavior they generate, and how technologies reflect and construct cultural values. Even so, digital writing tools and attendant values are studied almost exclusively in their use contexts and during the phase of usable life. As this project works to show, that phase is only a small part of the tool's lifespan. The time has come to ask what values underwrite

and are underwritten by product markets flooded with tools designed to break quickly. What values are espoused by the consistent obsolescing of our tools and their rapid replacement?

As suggested at the opening of this chapter, the material contexts surrounding digital writing tools are rife with negative and potentially deadly consequences for the humans who interact with these tools at other moments in their life cycles. After the period of product use, digital writing tools can end up on any of a number of different paths. Many owners recognize that digital devices are made of complex plastics and other synthetic materials that will not decompose in landfills, and stash their junked electronic devices in their garages, in storage units, or elsewhere in the home. Many get donated to nonprofit second-hand stores like Goodwill and Salvation Army. Many are landfilled, where millions of tons of electronic waste accumulate every year. Some get recycled, and some of the devices that users try to recycle end up getting shipped overseas by false recycling firms that claim to be recycling the equipment and actually are just exporting it abroad as waste. As Shawn Apostel & Kristi Apostel (2009) show, these practices are regulated more stringently in Europe than in the U.S., and some legislation in recent years has worked to correct the exportation of e-waste (p. 4). Still, legislators in the U.S. "[prefer] that companies and consumers take action" to prevent e-waste (Apostel & Apostel, 2009, p. 8), and the result is that too little is being done to intervene in the problem.

False recyclers ship e-waste overseas to poverty-stricken regions where peasants in the Third World scavenge the waste for precious materials. True

recycling of electronic equipment is a highly toxic process that must be undertaken in a controlled environment. False recycling is even more toxic because of how it is handled; without appropriate equipment, e-waste workers (many of whom are children) break the devices apart with rocks or light them on fire to extract the precious minerals and materials buried inside. Burning electronics releases complex chemical compounds and powerful neurotoxins into the atmosphere which can be extremely harmful to inhale, and which have likely contributed to the drastic increase in neurotoxicity in developing fetuses among pregnant women living near dump sites (Chen, Dietrich, Huo, & Ho, 2011). Additionally, men, women, and children without protective equipment undertake these processes. The toxic runoff from e-waste has also been linked to water contamination in areas surrounding e-waste dumping grounds. In Guiyu, China—reportedly one of the world's largest e-waste dump sites—fish started disappearing from the local rivers starting in the early 1990s when e-waste importing began, and the water in Guiyu has been undrinkable since 1997 (Basel Action Network, 2002).

Where the waste streams flow has much to do with international policy, and regulatory differences between the United States and other regions, such as Europe, impact not only e-waste streams but also manufacturer responsibility and product design (Apostel & Apostel, 2009). The U.S. Environmental Protection Agency (EPA) estimates that 20–50 million tons of e-waste are produced worldwide each year. Unfortunately, policies which address e-waste and regulate its movement across international borders are insufficient (Ogunseitan, Schoenung, Saphores, & Shapiro, 2009) and have done little to intervene in the

growing flow of exported electronic devices. Regulating policies have changed significantly over the last decade but are still inadequate for impacting producer responsibility and product design, especially in the U.S.

Furthermore, the contamination that results from electronic waste downstream runs parallel to contamination upstream in the production process. In 1980, Congress introduced the Superfund program in response to the dangers surrounding hazardous contamination sites such as Love Canal in New York, which Hooker Chemical Company was using as a burial ground for its toxic chemicals in the 1970s. The EPA identifies Superfund sites in order to protect surrounding communities from the health hazards associated with toxic waste and to begin what is typically a long-term process of cleaning up toxified sites. At the time of writing, the EPA reports 124 Superfund sites in California (EPA, "Cleanup sites"). Of these, 97 are on the National Priorities List of the worst hazardous sites in the United States. Silicon Valley, well known for its technology corporations and manufacturing facilities, houses many of these Superfunds and even contains the highest concentration of Superfund sites in the U.S. The Silicon Valley Superfunds result from the highly toxic materials used to manufacture microchips. The health hazards and toxic contamination around e-waste dump sites at the end of product life are mirrored by similar toxicity and contamination that results from manufacture at the beginning of product life. Since the 1970s, many of the highly toxic solvents used in semiconductor manufacture have been phased out of production in favor of mildly toxic ones (Grossman, 2006, p. 58). Still, the effects of these older solvents remain and will continue to contaminate the area even if

changes to solvent toxicity will have less impact going forward. Although the environmental contamination problems resulting from microchip manufacture are relatively new, the effects of their toxic pollution will endure into the distant future.

These toxic contexts stand as counterpoint to the apparent weightlessness of our digital technologies. Elizabeth Grossman (2006) points out the inconsistency between sites of technology manufacture and the environments surrounding these sites. She notes that the deserts of Albuquerque, New Mexico, have experienced droughts regularly for the past several decades. These deserts also house a small number of semiconductor manufacturers, which together consume approximately four million gallons of water per day (Grossman, 2006, p. 3). According to current EPA reports on annual water usage by New Mexico residents, this rate of daily water usage represents 75 times what the average New Mexico resident uses per year (EPA, "Water sense"). Water usage is just one of the many ways that electronic device manufacture and disposal seems disproportionate to the resources expended. As I explore in chapter 2, minerals and rare earth elements that form on a scale of billions of years are manufactured into devices which have a shelf life of only a few years before those devices lose functionality and enter the waste stream.

The environmental and ethical issues surrounding digital writing tools both upstream and downstream of their use by consumers urgently require our attention, especially given that the number of products being introduced to the market seems interminable and seems only to be increasing. Upstream, the

manufacture of digital tools typically takes place under inhumane working conditions at offshore industrial plants such as Foxconn. Unfortunately, international attention to human rights violations in manufacturing plants such as Foxconn has done little to impact either Apple Inc.'s market dominance or its profits. In February 2015, Apple Inc. was reported to be worth over 700 billion dollars (Fitzpatrick & Linshi, 2015). Meanwhile, more recent reports from Foxconn indicate that not much has changed since Apple invited the Fair Labor Association to audit its factories in 2011 (Guglielmo, 2013). Foxconn failed to comply with restrictions on employee overtime (Guglielmo, 2013 par. 4) and factory employees rioted in response to working conditions in September 2012 and again in September 2013 (Smith, 2013). Apple's own reports indicate that only 38% of its suppliers comply with the company-mandated 60 hour work week (Apple, "Supplier responsibility").

If we look even further upstream, the materials used in digital writing device manufacture are also embroiled in human rights issues. Columbite-tantalite ore, or coltan, is abundant in the mines of central Africa and is used in most electronic devices for its conductive properties. The popularity of coltan for manufacturing computing devices has made the electronics industry as the largest purchaser of minerals from these regions (Delevingne, 2009; Epstein & Yuthas, 2011). One chief source of these elements—dubbed "conflict minerals"—is the Democratic Republic of the Congo (DRC). Profits from coltan are funding a deadly civil war in the DRC that involves such atrocities as cannibalism, mutilation, the use of child soldiers, and epidemic gang rape (Mantz, 2013, p. 178). A 2001 press

release from the United Nations Security Council draws a direct link from coltan to military activity in the Second Congo War in the DRC (UN, 2001), which has been called the bloodiest conflict since World War II (Woody, 2012; Mantz, 2013). Because of this violent conflict, the UN called for a moratorium on purchases from the DRC, but many have speculated that coltan is now being smuggled out of the country and resold from other countries such as Belgium (Sutherland, 2011).

Although many individual electronics consumers are unaware of these geographically distant contexts for their devices, the international community has not been so uninformed. The U.S. and Europe failed to intervene in earlier Congolese conflicts which held their own atrocities and which helped to cause the Second Congo War. Approximately 20% of the population in the Congo was lost to violence in the First Congo War, which lasted from 1996 to 1997. The U.S. and European news broadcasters displayed footage of civilian massacre at the hands of the African paramilitary organization responsible for the Rwandan Genocide during the First Congo War (Mantz, 2013, p. 180). President Bill Clinton called his lack of intervention in the conflict one of the great failures of his presidency (quoted in Bryer, 2013). The continued inattention to the violent contexts for our digital writing tools constitutes a failure not only on the part of international legislators, but also on the part of electronics manufacturers. The U.S. Federal government is globally the largest purchaser of electronics and information technology (Electronics recyclers, n.d.). Because they regularly invest in new equipment, digital scholarship labs, networked hardware, and "wireless"

campuses, we can speculate that colleges and universities in the U.S. are not far behind.

As rhetoric teachers who implement digital writing tools in our classrooms and who help students to consider the values espoused by our writing tools, writing researchers are uniquely positioned to encourage universities to "pay attention" (C. Selfe, 1999). When we take an ecological perspective to trace the paths along which conflict minerals travel, we see the metals that are mined using enslaved child labor in politically unstable war zones manufactured into electronic communication devices with a shelf life of two to five years. After that brief period, the equipment is discarded and gets landfilled or shipped overseas. When junked electronics are shipped overseas and re-emerge at e-waste dump sites, peasants break them apart with rocks or light them on fire to melt the gadgets and extract the minerals. As a functional device during the span of product use—a time frame which occupies so much of our research focus in writing studies—a laptop or smartphone may connect writers and audiences and allow individuals to create community, critique social structures, purchase commodities, or perform alternate identities. Relative to the "life span" of the device and the many years and places it will survive, these activities occupy a pinpoint in time. Before and after this period, the same devices connect people who are enslaved, exploited, and denied access to basic resources for living in places rendered toxic by garbage and ravaged by war.

Researchers within writing studies recognize that the tool is inextricable from writing, and yet the tool and its lives beyond our desks are understudied within composition. This project shows that the circuit of writing from production

to ruination is an understudied but crucial aspect of a materialist approach to composition studies. The global problems which are consequences of and which are ethically intertwined with writing tools demand that we devote more scholarly attention to the intense materiality of our tools.

Chapter Outline

The rest of the chapters in this project pursue a new materialist theory of digital writing by using obsolescence as a heuristic for analyzing digital writing tools, digital writing theory, and new media educational initiatives. Chapter 2 shows that the planned obsolescence of digital writing tools impacts the teaching of writing as well as the durability of research about digital writing practices. Even though it consistently seeps into the discourse about digital writing practices, obsolescence has not been taken up in composition scholarship in a sustained way. Obsolescence is not exactly an oversight, however; when it is addressed, planned obsolescence is figured as an inevitability to which academic professionals and writing teachers must adapt. In order to explain this tendency, I show that obsolescence is a design issue. In chapter 2, I use obsolescence to analyze the design of digital tools. I show that planned obsolescence is a rhetoric—by which I mean that it is a set of persuasive patterns that induce cooperation (Burke, 1969, p. 41) and a form of "communication that attempts to coordinate social action" (Hauser, 1986, p. 2). Obsolesence is a set of symbolic patterns that gets built into the design of our digital tools. We are persuaded to think of our devices only in terms of their use; only in terms of functionality and what they can help us do.

Apps, for example, persuade us to look beyond the materiality of the tool itself and to focus only on the device's functionality. The devices are becoming sleeker and lighter—panels of buttons have been replaced by a smooth, black screen. As I explore in chapter 2, we are encouraged through design details like these to consider our tools to be ephemeral and immaterial. Design persuades us that what matters is what we can do with the tools, not the materiality of the tool itself. Within writing studies, obsolescence is alluded to indirectly and treated as an inevitability because it seems ostensibly like there is little that compositionists can do to resist the obsolescence of our devices. I explore briefly the history of product obsolescence in the United States to show that obsolescence is a set of criteria rather than a property or quality. For example, my VCR might be functional in the sense that it works and it can play VHS tapes, but it is obsolete in the sense that I cannot rent new movies on VHS nor can I purchase new tapes except on the secondhand market. Recognizing obsolescence as a set of criteria shows that obsolescence is shifting and rhetorical, and demonstrates the ways in which obsolescence is deployed for different ends by different stakeholders. Through this analysis, I show that obsolescence is a question of educational justice in addition to its status as a problem of global social and environmental justice.

Chapter 3 undertakes rhetorical analysis of ecocomposition discourse, in which scholars take up questions of sustainability as well as the entangled, interrelated qualities of writing and language. I trace the development of ecocomposition from its emergence in the context of composition's social turn through the intensification of environmentalism and its subsequent retreat from

environmentalism. By linking ecocomposition discourse to feminist scholarship and new materialist rhetorical studies, I claim that an ecological perspective on writing should be informed by attention to social justice. Because an ecological view emphasizes interconnectedness and relationality, such a view also implies responsibility to the human and nonhuman others with which we are interconnected. This social justice orientation for ecocomposition counters the dematerialized view of writing as detachable from the material contexts which make it possible and in which it circulates.

Chapter 4 uses obsolescence as an analytical lens for studying university new media initiatives. Using historical examples of new media pedagogy from the middle of the 20th century, I show that the rapid, planned obsolescence of digital writing technologies poses challenges for the critical literacy approach to new media. Critical literacy, I argue, is an insufficient approach to new media because the literacies required for engaging digital devices are complex, multiple, and variegated. By looking back toward what seem today to be obsolete pedagogies such as AM radio for distance learning in the 1930s and 1940s and classroom film for social education in the 1950s and 1960s, I suggest that rhetorics surrounding early "new media" pedagogies can be brought into conversation with the rhetoric surrounding more recent digital initiatives to illuminate a changed relationship to critical literacy enacted by the wide range of digital tools in use in public contexts. In the context of educational institutions, studying obsolescence can help us see more clearly how changes in the methods of education also change how the purposes of education are framed, understood, and contested.

In the final chapter, I explore the implications of this project and orientation for the future of the digital/digitized university. By studying how university digital educational projects initiate changes in how students and teachers interact with one another, which students have access to quality education, and how labor is distributed, we can more clearly understand the benefits and drawbacks of particular new media educational initiatives. Educators, I argue, should be vigilant about how the purposes of education are reframed and rearticulated in the context of shifts in educational methods. Through careful study of campus digital initiatives, we can adopt a critical stance and advocate for students, teachers, and labor from a well-researched and thus persuasive position.

This project grounds the question of writing's materiality in digital writing practices because I find that digital writing and the metaphor of the network have infused and reshaped how we think about writing practices in general and writing's materiality in particular. In other words, digital writing's emergence and rapid rise to prominence has impacted significantly how writing studies discusses and considers writing practices on the whole. Considering writing as a circuit rather than a network helps us to see writing as a material enterprise intertwined with complex environments and systems rather than an infinite, dematerialized complex of free-floating thoughts and circulating ideas. Such a framework, I claim, is crucial to the future of digital writing research and pedagogy as well as to the discipline of composition studies.

Chapter 2: Rhetorics of Obsolescence in Digital Tech Design

Chapter abstract: The rapid, planned obsolescence of digital writing technologies is a rhetorical problem and a design issue. Digital technologies are designed to become obsolete quickly, thus we cannot hope to enact durable writing pedagogies without attending to obsolescence-as-design.

Introduction

During the Spring 2014 semester, three graduate students at the Ohio State University (OSU) were collaborating with their professor on an empirical research project and were storing their data in the cloud using Dedoose, a web application launched by a small tech startup in 2006. The researchers were gathering qualitative data throughout the spring semester and were beginning to dump data into the Dedoose program early in the summer so that they could begin to analyze and make use of the data for the next stages of their project. In May, less than a month after they began to upload their data into the platform, Dedoose crashed. Some of the data that Dedoose lost was salvageable but everything that the OSU researchers added within two weeks prior to the crash was lost. Reporting on the incident for *Inside Higher Ed*, Carl Straumsheim (2014) noted that Dedoose regularly backs up the data it stores in the cloud but that the crash occurred in the middle of its process of backing up and encrypting the data (par. 3). The result was that much of the data was corrupted and could not be recovered. Because the OSU researchers had just begun to use Dedoose and because nearly all of their data was

backed up to spreadsheets on their home computers, the loss for them was minor and only affected about two weeks' worth of work (J. Burgess, personal communication, 18 May 2015). Still, two weeks of labor is hardly insignificant, and for others who had not taken the same precautions in backing up their data, the losses were no doubt far greater.

The data lost as a result of the Dedoose crash was unfortunate but should perhaps have come as no surprise in an academic department that has been pioneering the use of digital tech for research and pedagogy since the mid-1980s. In 1986, a grant from Apple Inc. allowed the OSU English department to found the Digital Media Project (DMP).[3] The DMP's stated mission is to "support[] teaching and research in digital media studies by centrally locating state of the art technology and expertise for teachers, students, and scholars" (DMP, 2015). Researchers involved in the DMP such as Cynthia Selfe have helped to shape the field of computers and writing and orient the work of writing pedagogy more generally toward the teaching of digital literacies. Facilitators in the DMP regularly train OSU faculty across the disciplines to integrate technology into their courses more effectively. In addition to integrating digital literacies into their own program and university courses, the DMP runs a two-week institute every summer that is open to faculty and graduate students nationwide who are interested in developing practical skills in teaching rhetorical construction of videos, sound compositions, and web-based writing. Those who work at the bleeding edge of

[3] The early title of the DMP was Computers in Composition and Literature but Scott DeWitt rebranded the enterprise as the Digital Media Project in 2002 (S. DeWitt, personal communication, 12 May 2014).

technology development run more risk of mishaps like the Dedoose crash than do those who wait longer to adopt new interfaces, programs, and products. Yet in general, even those who do not teach multimodal composition explicitly as the DMP pedagogues do nonetheless assume that their students will be composing their essays and class projects digitally. Today, we assume functional digital literacy of all of our students, and advanced literacy is inextricable from competency in digital writing technology. However, as I show in this chapter, the problem with this framework is that the design of digital tech constitutes a rhetoric of disposability. This means that learning digital tech does not accumulate, but the learning is repeatedly swept away in another technological revolution.

Losing research data as a result of the discontinuation of a corporate program or product may seem to have little to do with the conflict minerals, manufacturing contexts, and toxic e-waste landfills addressed in the previous chapter. Yet these issues are indeed related as they are all symptoms of the larger problem of planned obsolescence. In this chapter, I show that the planned obsolescence of digital writing tools is a design issue that impacts the teaching of writing as well as the durability of research about digital writing practices. Even though it consistently seeps into the discourse about digital writing practices, obsolescence has not been taken up in composition scholarship in a sustained way. Obsolescence is not exactly an oversight, however; when it is addressed, obsolescence is figured as an inevitability to which writing teachers must adapt. In order to explain this tendency, I show that obsolescence is a rhetoric, or a set of persuasive patterns that gets built into the design of digital technology. Composing

tools are designed to become obsolete; digital writing tech are designed to break down and their material rhetorics persuade users to throw them away. Thus it is alluded to indirectly and treated as an inevitability because it seems on the surface like there is little that consumers or composition teachers can do to resist the obsolescence of our devices.

In what follows, I historicize the development of product obsolescence in the United States. Through this analysis, I show that planned obsolescence is a rhetoric. In other words, obsolescence is a set of symbolic patterns that gets built into the design of our digital tools. We are persuaded to think of our devices only in terms of their use, only in terms of functionality and what they can help us do. The devices are becoming sleeker and lighter; the buttons have been replaced by a smooth, black screen. We are encouraged through design details like these to consider our tools to be ephemeral and immaterial. Design persuades us that what matters is what we can do with the tools, not the materiality of the tools themselves. In this analysis, I explore the Eternally Yours project, which is a collective of designers committed to identifying the factors that contribute to product disposal and durability, and enacting product endurance through sustainable design. Ultimately, I argue that focusing on obsolescence helps us see more clearly how writing practices shift and how users, designers, and the ways that devices get taken up in activity systems mutually construct those shifts. Additionally, as I showed in the previous chapter, obsolescence directs our attention to where our writing tools circulate when they are not in our hands and

thus makes evident how our work is complicit with broader ethical and social issues.

Obsolescence in/of Digital Writing Studies

Much work in the field of writing studies addresses obsolescence but does so only implicitly. In this way, researchers and teachers of digital writing demonstrate that obsolescence is an issue that impacts the work of writing studies, and yet they also position it as one that is inevitable or at least beyond the borders of what our scholarship can work to change. Although some writing scholarship does address obsolescence, this work tends to position the rapid updating and change to digital writing tools as a natural fact of technological progress. For example, in his discussion of computer-enriched writing programs, Richard Selfe (2005) identifies the necessity of training and re-training teachers to implement technology-rich pedagogies as one of the primary obstacles to maintaining the availability of composing technologies in writing programs (pp. 24–25). Selfe recommends an institutionally-sustainable program through which teachers can become technology advocates and can shape administrative initiatives toward technology-rich pedagogy, but the specter of obsolescence haunts his subtext. He writes, "computer-supported communication facilities . . . provide landscapes in which computer-supported English and language arts teachers, administrators, and staff members can assume some level of control over technology—*even as these spaces and systems change on a continual basis*" (p. xix, emphasis added). As Selfe highlights, the problem of teacher training is inextricable from obsolescence;

supporting faculty development in technology-rich pedagogy will always be recursive as long as interfaces are continuously changed, updated, and obsolesced. Obsolescence requires teachers to be re-trained to work with new tools and also requires that teachers have enough time to learn to navigate new interfaces and to adapt their pedagogies when devices or interfaces change and are replaced. Sustaining computer environments on campus is a challenge, in part, because the machines themselves are not built to last.

Related to the problem that planned obsolescence requires that teachers be continually re-trained, planned obsolescence of writing equipment can obsolesce teaching strategies and teachers' functional literacies that can take considerable time to develop. Course management software (CMS) systems such as Blackboard, Desire2Learn, and WebCT get updated every other year or so and sometimes change so completely that teachers have to re-learn their university's CMS interface from scratch. Strategies for digital pedagogy that can take weeks, semesters, or years to develop can be vanished by an interface upgrade or by discontinuation of the program. In their discussion of how students can enact critical technology use in the classroom, Brown, Engel, Hardin, Hillard, Kahler, McGinnis, Risse, & Shaw-Draves (2012) describe how they used Google Wave software to compose collaboratively as part of a graduate seminar on new media objects. The participant-authors took a "tinkering" approach to the Google Wave interface through which they experimented with different aspects of the platform at the same time that they treated it as an object of critical study (p. 526). Wave was discontinued 15 months after it was released and 3 months after the end of

the seminar, and the authors claim that for this reason, the timing of the course was fortunate. As they put it, because the software was new and Google was in the process of making decisions about its future, their use and "study of [Wave] as an artifact happened amid a vibrant and far-reaching conversation about this new software" (p. 522). And yet despite the insights that the authors might have gleaned from their pedagogical engagement with Wave, discontinuation of the platform rendered their expertise with that particular interface obsolete.

Of course, the fact that an interface is obsolete does not mean that critical insights derived from it are necessarily outdated; scholars, teachers, and students of digital writing can use and critique interfaces in ways that will be transportable even when the technology is obsolete or unavailable. Indeed, the coauthors of the Wave study are careful to specify that their purpose is to recommend an approach to new media scholarship rather than to lay out a specific course or set of assignments (pp. 523–524). At the very least, however, learning new interfaces can be difficult and time-consuming, and can preclude easy assimilation into the classroom environment or composing situation. Obsolescence impacts the durability of writing theory and practice, and yet the rapid obsolescence of writing tools is often assumed by consumers and scholars alike to be natural and inevitable.

Researchers who engage specific digital platforms, interfaces, or devices risk that the technology under study will go out of production or popular use before the research appears in print, and scholarly monographs about digital technology that are only a few years old already seem hopelessly dated. Likewise,

teachers have to contend with constant changes to courseware, software interfaces, and hardware devices in the classroom as well as changes in communicative fashion. Keeping up with the range of digital literacies and devices students with which students compose can be difficult, even impossible, in a marketplace with endless devices and interfaces available. Further, the problem of teaching to a wide variety of devices and interfaces is compounded by the planned, continual upgrading and obsolescing of those devices.

Within writing studies, one of few book-length studies of obsolescence is Kathleen Fitzpatrick's (2011) study of the academic publishing industry, *Planned Obsolescence: Publishing, Technology, and the Future of the Academy*. Noting that university presses are being defunded and that because of budget cuts, university libraries are purchasing fewer books each year, Fitzpatrick describes the current state of the academic publishing industry as one of crisis. In recent years, economic hardships have led university presses to print fewer books and to require that their authors write for wider marketability, even though the specialized, scholarly monograph is still the coin of the academic realm and the primary requirement for gaining tenure in many university departments. Thus she finds a mismatch between academic policy and what is possible in practice. As she puts it, "we in the humanities, and in the academy more broadly, face what is less a material obsolescence than an institutional one; we are entrenched in systems that no longer serve our needs" (p. 13). Fitzpatrick places authorship and peer review practices in historical context to demonstrate that our intellectual and professional values are already—and have always been—better suited to collective, open, peer-

to-peer publishing. Digital media make open publishing more accessible, so that writers can publish their work faster and can reach broader audiences. Thus Fitzpatrick calls academics to re-envision their professionalization practices in order to acknowledge and respond to the ways that digital communication has initiated changes in the status of authorship/authority, intellectual property, and texts.

The "planned obsolescence" of Fitzpatrick's title refers to explicit and implicit cultural anxieties that the print book and the medium of print more generally will soon become obsolete. Her point that academics should seek alternatives to professional practices and institutional structures that disenfranchise them and that do not align with their intellectual values is well made. Her recommendations are great ones. She claims that we should rethink the concept of sole authorship as it is instantiated in tenure practices (p. 52). Additionally, we should reimagine the scholarly press as a service unit within the university rather than a revenue center (p. 186). We should also publish versions of our work online and seek more feedback during the composing process to emphasize the dynamic and collaborative nature of our scholarship (p. 70). However, Fitzpatrick frames the logic of planned obsolescence and the forces that drive it as something inevitable that we need to adapt ourselves to, rather than an issue of corporate design that disrupts the sustainability of academic work. In this way, Fitzpatrick is symptomatic of the very problem she addresses.

Similarly, Karl Stolley (2008) notes that obsolescence of digital writing practices is a problem for writing pedagogies when teachers focus on teaching

students to compose using software interfaces. He writes: "the time has come to reject expensive consumer and prosumer software that hinders the extensibility of digital discourse and limits digital production literacy to programs and file formats that are destined for disruptive upgrades or obsolescence" (par. 1). When we teach students software—rather than more comprehensive digital literacies that enable production across a variety of platforms—we risk teaching them skills that have the potential to become quickly obsolete. Instead, teacher-scholars should produce digital artifacts that are device- and software-agnostic and teach students to do the same (par. 2). In doing so, Stolley suggests, we can both help our students become more capable digital rhetors and can also prevent our own pedagogical obsolescence.

In response to the problem of obsolescence, Stolley says that we should teach "lo-fi" production, and uses lo-fi in two senses. The first refers to low-fidelity technologies that are producible and consumable across platforms and hardware, such as plain text editors and single-media files (par. 5). He also uses lo-fi as an acronym for LOFI technologies that are *lossless* and won't degrade over time, *open* to inspection and revision, *flexible* across different devices even without special plugins or adaptations, and *in(ter)dependent* and available for repurposing and remixing. If we go lo-fi and LOFI, Stolley suggests, we can avoid the inevitable problem of obsolescence because our texts and pedagogies will be free from the constraints of software and devices that quickly go obsolete. Like Fitzpatrick, Stolley offers productive solutions to the problems created by digital obsolescence as it relates to academic practice. Also like Fitzpatrick, however, Stolley's

recommendation that we use "lo-fi" production amounts to adapting ourselves to the logic of obsolescence rather than challenging the forces of the corporate marketplace that make the rapid, planned obsolescence of digital writing tools an ostensibly "natural" fact. The use of lo-fi texts and technologies is not a challenge to obsolescence, however; lo-fi production merely invites composition teachers to accommodate the forces that drive continual obsolescence of writing technologies.

When we look more carefully at the problem of planned obsolescence rather than assuming that it is a natural fact of technological progress, it becomes clear that obsolescence is a rhetoric that gets built into the design of our tools. The devices we use to write and communicate are designed to be discarded. As I show in the rest of this chapter, Stolley's lo-fi pedagogies will only resist obsolescence until new products and interfaces are manufactured which no longer support lo-fi technology. Writing teachers cannot teach digital literacies which will be durable over the long term and should not ignore the ethical implications of teaching digital production without addressing obsolescence and how it shapes and is shaped by the longer product cycles and material contexts surrounding digital devices. In the following section, I argue that obsolescence is a rhetoric that gets articulated as a design feature, and outline how design decisions shape product life cycle. The rapid, planned obsolescence of digital device design demonstrates how writing and literacy are harnessed to corporate values, and also shows how consumers are alienated from concerns of production and disposal.

Rhetorics of Obsolescence in Digital Product Design



Figure 2.1: Apple iPhone cords photograph by the author 2015

When I say that obsolescence is a rhetoric, I mean that obsolescence is a symbolic quality that gets instantiated and becomes material in the tangible properties of our digital products. The material properties of our devices persuade us to consider them as immaterial and ephemeral even while they are composed of minerals and synthetics that will not break down easily or decompose. Additionally, many of these devices are designed to stop functioning and become waste more quickly than consumers expected of their electronic products in the past. For instance, when Apple released the iPhone 5 in September 2012, the marketing for the new smartphone emphasized its thinness and lightness relative to the previous version, the iPhone 4S. Thinness and lightness, as part of the trend toward technological miniaturization, signify the ease of portability that has come to be associated with more advanced technology. Marketing for the slimmer,

lighter iPhone 5 capitalized on that association and the new design also generated additional waste product by obsolescing previous Apple accessories. Apple products have always had the benefit of compatibility; the same ear buds and USB cords that work for early-generation iPods can be used with early-generation iPhones, and those USB cords can be also plugged into wall adapters to charge iPhone batteries. The iTunes software program, used to load music onto iPod players, is compatible with iPhones and with all mobile Apple products. Unlike other mobile technologies, which in general are sold individually with their own idiosyncratic charging cords, adapters, and cases, Apple accessories previously had been universal. However, the thin design of the iPhone 5 included a thinner plug, which requires a different cord that is incompatible with the older, universal version (see Figure 2.1). While the chargers are no longer universal and compatible across Apple devices, unlike older models, the iPhone 5 plug design supports video output. So it seems in one way like the technological improvements are what necessitated the changed design and the resulting waste product. On the other hand, it's not immediately clear whether that design detail is just another way to persuade you to buy more products. With Apple positioned as the most dominant company in the smartphone and tablet markets (Surowiecki, 2013) and given their pattern of releasing new generations of iPhones at a steady pace (see Figure 2.2), the potential for waste associated with such controlled obsolescence looms large.

In his comprehensive discussion of product obsolescence, cultural historian Giles Slade (2006) identifies obsolescence as a distinctly American invention (p. 3).

Like Ellen Lupton & J. Abbott Miller (1992), Slade traces the origins of obsolescence to the food production and health industries, which sought to create and sustain consumer demand even in saturated markets. One answer to the problem of sustaining demand was through branding and packaging. Mass market food production increased the use of disposable packaging for food items around the turn of the 20th century, and corporations such as Nabisco started branding their products using recognizable characters and designs, and packaging them in throwaway paper cartons. The trend toward disposability grew as the century moved on; manufacturers in many industries began to take advantage of the development of plastics for packaging goods of all kinds. Later, as health scientists began to learn more about the relationship between sanitation and the spread of diseases, companies started producing disposable hygiene items such as tissues, condoms, and women's sanitary pads, and using health-based justifications to market these items (Lupton & Miller, 1992, p. 11; Slade, 2006, pp. 20–21). The confluence of these forces in product design, marketing, and materials manufacture led to the paradigm of disposability that now dominates nearly every sector of the consumer marketplace.

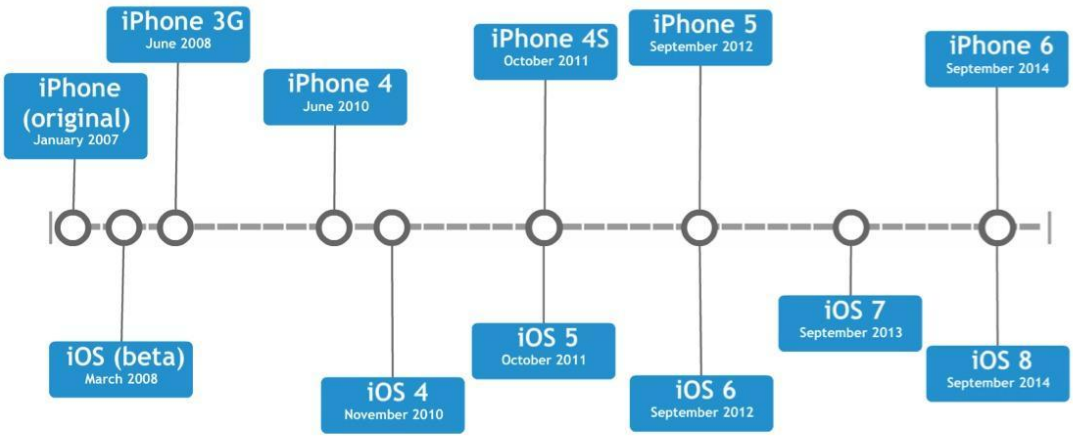


Figure 2.2: Apple Inc. Product Releases graphic created by the author 2015

Many point to King Camp Gillette's development of the disposable razor as a watershed moment in products designed for obsolescence (Dowling, 2001; Slade, 2006), and Gillette's model of limited-use devices that are affordable and disposable defined product development in many industries throughout the 20th century. Gillette's strategy of using cheap materials to manufacture throwaway products has led to wider varieties of one-use items in everything from disposable syringes to disposable coffee cups to disposable pens, cameras, and printers (HP). Slade also points to the instance of marketplace competitions between General Motors (GM) and Ford in the 1920s as an illustrative example of how design and styling were used to encourage consumers to purchase newer or additional versions of items they already owned. Ford's durable and affordable Model T eventually lost market share to GM's line, which incorporated different colors of paint and annual styling changes in an effort to target a female consumer demographic. Chevrolet also began in the 1920s to incorporate design details that

mimicked high-end luxury cars (Slade, 2006, p. 36); in using styling to compete it the marketplace, GM and Chevrolet outsold Ford's more durable vehicles, and the strategy of using design to sell more products eventually became commonplace in the automotive industry and many industries across the private sector.

Through his analysis of the different factors that contribute to obsolescence and disposal, Slade defines three types of obsolescence:

- "technological obsolescence" is any innovation which replaces earlier machinery, such as the electric car starter, which obsolesced all earlier hand-cranked automobiles (p. 4);
- "psychological obsolescence" describes branding and marketing tactics that encourage repetitive purchasing on the basis of differentiated style or fashion (p. 5); and
- "planned obsolescence" is a blanket category for how products are designed not to be functional in the long term and have mechanical parts which are "made to break" or to be functional for only a limited time (p. 5).

The iPhone 5 example illustrates how these different varieties of obsolescence as well as their intersections materialize in digital product design. While the iPhone 5 does substantiate the well-documented correlation between design and disposal, it also blurs the distinctions between Slade's categories. The thinner, lighter plug is an example of psychological obsolescence in that the slim design is a way of changing the style to give the impression of overhauled functionality; however, by rendering the older plugs obsolete, the release of the new model enacts a kind of

technological obsolescence, albeit an artificial one. Further, as he addresses in his later work (2007), consumers who want to continue to use old devices run into trouble when batteries for older model iPods and cell phones are discontinued (par. 4). Likewise, a consumer who runs out of printer ink can find herself in the counterintuitive position of choosing between purchasing a new cartridge of ink or purchasing a brand new printer—with ink included—at a lower price. Prices are persuasive and when it is cheaper to dispose of equipment and replace it with new machinery than it is to trade out a worn part, the cost of disposal is offloaded and product cost does not reflect the cost of production or consumption as it is paid by the environment or the individuals who eventually dismantle such devices. Slade (2007) explores a related example in his later work when he notes that product manufacturers often stop producing batteries long before the device's usable life ends. This form of devaluation, what I call market-based obsolescence, is not perfectly aligned with any of Slade's definitions of obsolescence.[4] Likewise, Apple Inc. drew consumer scorn in September 2014 when the updated version of its operating system, iOS version 8, crashed its early-generation iPhones. The operating system (OS) crash came on the heels of Apple's release of the iPhone 6, and iOS 8 was designed to work well with the new devices. Those still using older iPhones ran into problems with the new OS—and were thus presented with one more reason to purchase the newly launched iPhone 6.

[4] Planned obsolescence is also relevant in this instance because products made with cheaper materials and marketed at lower prices are typically the first to break, but planned obsolescence alone does not explain the consumer's predicament in replacing the printer ink cartridge.

In this way, market-based obsolescence creates a new category of products that are neither fully functional devices nor waste. When I turn on the Dell Dimension 4500S—the first personal computer I ever purchased, in 2001—I can still use it to access the internet and word process manuscripts. However, it won't interface with new software; it runs Windows XP, which is incompatible with most current programs and which Microsoft stopped supporting in April 2014; it runs slowly and takes nearly 15 minutes to boot up. Thus it sits, unplugged, under my desk at home. A great many digital devices occupy such space—in thrift stores, in outdated computer labs in inner city schools, collected in our garages, in grad students' on-campus offices—and devices come to inhabit this category more quickly now than ever.



Figure 2.3: Market-based Obsolescence
photograph by the author 2013

As the examples show, the problem of product durability is not one that is created by physical properties of devices alone. A host of features that I'm including in the category of design—including corporate producers' practices as well as product materialities—together contribute to durability or lack thereof. As Laurie Anderson (1997) points out, many factors together contribute to the shift away from durability that is exemplified in digital devices. Anderson notes that device owners discard their products for many reasons, including boredom, annoyance, and the fact that such devices are difficult to repair (p. 19). Thus many products end up wasted even though they are still functional; 25% of discarded vacuums, 60% of discarded stereos, and 90% of discarded computers still work (p. 19). In her contribution to the Eternally Yours project, which is a collective of scholars and designers working on designing and creating durable products, Anderson uses the term "psychological life span" to describe "the [length of] time products are able to be perceived and used as worthy objects" (p. 19). The psychological life span of a product, as she points out, is interdependent with design features such as color, shape, and texture, as well as "organization of services, advertising, and establishing guarantee conditions" on the part of manufacturers (p. 20). These factors together construct digital devices as obsolete and compose rhetorics of disposability in the design of digital tools. Just as eventually it becomes impossible to replace the dead iPod battery because Apple is no longer manufacturing batteries for older model iPods, the usable life of a product is enabled or constrained by circumstances that are at least partially and often entirely beyond the consumer's control.

We should give rhetorics of obsolescence in the design of digital tools more critical attention because they impact not only the functional potentials and aesthetic properties of a product, but also the trajectory of product life cycle and how product material circulates after the end of use. As Elizabeth Grossman (2006) points out, computer parts are extremely complex and idiosyncratic with respect to device and function, and leave little possibility for reuse at the end of product life (p. 43). For instance, microchips are designed for extremely specific tasks and they cannot be removed at the end of the product's usability cycle and reused in different devices (Grossman, 2006, p. 3). The iPod is black boxed literally as well as symbolically; as Slade (2007) notes, iPod batteries are completely enclosed within the seamless outer shell and consumers who want to replace their iPod battery have to ship the iPod back to the manufacturer so that Apple Inc. can switch out the battery components (par. 4). As I noted in chapter 1, the rare earth materials within complex computing devices are "consumed" by their use in computer chips; precious metals such as gold are distributed so thinly across microchips that extraction becomes impossible except by dangerous and highly toxic means (Grossman 2006, p. 43). Design and Apple's battery replacement policy disguise the fact that these precious metals are typically mined in regions of armed conflict such as the Democratic Republic of the Congo, and thus are embroiled in—and even enable—the Second Congo War and its aftermath, including conditions of sexual violence and child labor and what has been called the bloodiest conflict since World War II (Woody, 2012; Mantz, 2013). Over-reliance on non-renewable resources has made the electronics industry the largest

purchaser of minerals from these regions (Delevingne, 2009; Epstein & Yuthas, 2011) and the stakes for reconsidering electronic design and the broader ecological implications of material rhetorics of rapid obsolescence could not be higher.

The fact that these rapidly obsolete devices are composed of rare earth minerals points to another way in which e-waste differs from historical trends in product disposability. As Slade (2006) shows, changes to industry which make specific materials, parts, or manufacturing processes cheaper and thus more widely available have historically created the conditions in which rapidly obsolete, disposable technologies become more common. For instance, shifts in method of paper production in late 19th century made paper cheaper to produce, which led inventors to create disposable paper components for more durable items such as clothing—for instance, shirts with paper fronts, collars, and cuffs. Likewise, the development of steel manufacture and its rise to dominance in the late 19th century led watchmakers to use steel to make watches that they could produce and sell at lower cost. In the 1880s, the Ingersoll Yankee pocket watch cost $1 and was guaranteed to last at least a year. The Ingersoll watch was extremely affordable compared to other watches, which sold for around $10, and Ingersoll enjoyed market dominance as a result (Slade, 2006, p. 14). Because the Yankee watch was so cheap, owners could simply throw the device away when it stopped keeping accurate time.

These historical examples are striking for their difference of degree from the recent phenomenon of rapidly obsolete, disposable writing technologies.

Although the availability of cheaper paper made paper shirt fronts easily disposable for many consumers, the conflict minerals and other components in mobile phones and laptops are valuable, scarce, and nonrenewable. Whereas a paper coffee cup can be thrown away or incinerated at the wasting point with minimum environmental impact (or at least with impact equivalent to much of our other garbage), the disposal paths that e-waste items travel are long, global, and toxic. Even when their component materials are reclaimed and salvaged, the parts never fully break down. Unusable electronics thus differ significantly from paper coffee cups at the sites of both manufacture and disposal, and yet they are sold, consumed, and wasted in ways that are not so different from other devices designed for disposal. As Slade (2006) and Jennifer Gabrys (2011) point out, the processes through which disposability became naturalized over the course of the 20th century were long and complex, and the naturalizing process was also uneven. That many individuals purchase and dispose of cell phones full of precious metals after a span of 2 years or so brings key differences between e-waste and other disposable products to the foreground, and also shows how far U.S. consumers have come in accepting disposability, even to the point that we expect the products we purchase and own to wear out quickly. Moreover, even if the devices do not wear out, many consumers are likely to purchase a newer or different version after only a few years and dispose of the old ones.

Design shapes how, when, and for how long a tool is used and usable, as well as its circumstances at the end of use. The toxic substances within electronics make disposal—and even recycling—dangerous to the environment and to the

individuals who handle discarded electronics. Activist organizations such as Greenpeace and the Basel Action Network have done much to draw attention to the environmental pollution and toxic contamination that result from e-waste, as well as the individuals who scavenge and repurpose e-waste and suffer the health consequences associated with handling and incinerating toxic materials. Poisoned water supply and toxic fumes impact global living conditions, and problems of toxicity affect the world's poorest people more immediately and more profoundly than those with access to global and personal wealth. Because of American disposal regulations, e-waste is often exported, frequently illegally, and ends up in China, India, Africa, or other Third World regions (Greenpeace, 2009). Further, many recycling agencies are actually "false recyclers" who export e-waste instead of disposing of the materials properly. The Electronics TakeBack Coalition, an activist group that promotes sustainable electronic design and recycling methods, estimates that 50-80% of e-waste that is "recycled" is actually shipped to poorer countries (Kyle, 2011), where it is scavenged for precious materials. This problem is compounded by the volume of discarded electronic material, which is accumulating more quickly than even responsible recyclers can manage (Urbina, 2013). Further, many of the materials that are recycled, such cathode ray tubes (CRTs) from computer and television monitors, are no longer used in new screen design, which renders the recycled glass from CRTs obsolete and unusable (Urbina, 2013). Although, in general, digital tools are not designed to last, waste is also not considered and disposal is not provided for in technology design; meanwhile, the

usable phase of product life is nevertheless growing ever shorter and product development is shifting away from durability (Urbina, 2013).

Eternally Yours: The Challenges of Durable Product Design

Tracing the development of patterns of obsolescence through product history makes evident how rhetorics of obsolescence developed over the course of the 20th century. Digital devices become obsolete at a quicker pace and enact disposal to a different degree than older technologies designed for obsolescence. Additionally, the design of digital products encourages users to focus on the tools' applications and to look beyond their physical properties and material consequences. For example, as I discuss later in this section, software features such as applications (apps) and the Apple iPhone program Siri encourage users to have little regard for the materiality of their devices and to focus on functionality or what the devices can do.

Such features, as I have argued, are issues of design. Thus one way to begin to consider and challenge the obsolescence of digital writing practices is through the lens of design studies. The Eternally Yours project is one effort to use design strategies to lengthen product life span. A group of Dutch industrial designers came together to begin the project in 1995 and held an international congress and lecture series in April of 1997. Starting from the assumption that environmental sustainability hinges on increasing product durability and thus the length of usable product life, the Eternally Yours collective works to conceive and create products which are intended to discourage disposal and even to age gracefully. In their

contribution to the Eternally Yours project, Peter-Paul Verbeek & Petran Kockelkoren (1998) note that Eternally Yours takes typical approaches to eco-sustainability to be insufficient (p. 28). The most common tactic through which designers address problems of waste and pollution, they claim, is Life Cycle Analysis (p. 28). Through Life Cycle Analysis, designers use manufacturing materials which will be less pollutant or less harmful to the environment once the product is discarded. Rather, Eternally Yours recognizes that the larger problem is not pollutant materials but product endurance—that "[products] are replaced at high speed because people throw them away too soon" (Verbeek & Kockelkoren, 1998, p. 28). Thus Eternally Yours designers attempt to consider how products can invite users to keep and use them longer.

Through these considerations, Eternally Yours identifies several factors that contribute to product disposal and endurance as well as other institutional and cultural challenges to product durability, and make recommendations for product design based on their observations. Because Eternally Yours represents a significant attempt to intervene in patterns of obsolescence by defining a program for durable design, I discuss the Eternally Yours project, their recommendations for product design, and the potential challenges to product durability in the sections that follow. I also link the Eternally Yours findings to more recent iterations of digital products in order to show how digital writing devices reflect even more acutely the rhetorics of obsolescence.

Factors that Contribute to Product Disposal

The overall goal of Eternally Yours (EY) is to reduce waste through product durability. However, the designers note that many institutional factors such as government policies and social customs contribute to how frequently many consumers dispose of their objects. For instance, in many countries and especially in the United States, consumers do not pay immediately for the full cost of their consumption. The costs of recycling and disposal, for instance, are not built into product prices but are paid through local taxes (Cooper, 1997, p. 61). Because the cost of disposal is separate from the purchasing price, many consumers do not conceive the issues of purchasing and disposal to be intimately interrelated. When I pay for a new laptop, I am purchasing the hardware and its functionality but I am not paying immediately for the other, related costs, even those incurred during product life—necessary software packages, internet access, a power source to plug it into, a desk to sit at when I use it, or, and especially, what will happen to the laptop when I am finished using it. By building the price of disposal into the price of acquisition, EY suggests, consumers will already be held responsible for the end of product life at the time of purchase.

Tim Cooper (1997), writing for EY, also points out that what I call market-based obsolescence is a factor which contributes to early product disposal. Like Slade (2007) a decade later, Cooper notes that "repair costs are often high relative to the cost of buying new products" (p. 69). The EY collective (1997) explains this problem by noting that it is a problem of skilled labor: "The key figures who know how to get inside and know their way around [equipment] are expensive. This is

one reason that buying new things often is cheaper than repairing or upgrading old ones" (p. 119). As I suggested earlier in this chapter, when it is cheaper to purchase a new device than it is to purchase a replacement part for an older one, consumers are priced out of sustainable or ethical choices. Individual consumers with more personal wealth are at greater advantage to make sustainable choices, but as Cooper points out, the available evidence suggests that "affluence does not necessarily lead to environmental commitment" (p. 63). Rather, individuals with higher income levels often purchase more products instead of more durable ones (p. 63).

Another factor that contributes to repetitive consumption and disposal, the EY (1997) designers suggest, is corporate advertising. Advertisements emphasize what potential buyers need before the moment of purchase but could be extended to advertise as well "what products do after they are purchased" and the continued relations between purchasers and products throughout product life span (p. 57). Bottles of water, for instance, are advertised and marketed for the purpose of quenching thirst. The advertisements could go on, however, and emphasize how drinking water has enduring health benefits that last beyond the moment of satisfying the initial need for a drink. After all, the continued relation "is what products do after they are purchased and that is what producer-customer relations do as long as their mutual interest through the product remains intact by provision of services" (EY, 1997, p. 57). Thus by emphasizing the initial moment of need satisfaction as the end goal of purchasing, advertisers elide the enduring effects of purchase and narrow the consumer's attention to the moment of consumption

rather than her longer relationship with the product. Together, these factors limit consumers' view to the initial moment of purchase and obscure the ecological implications of their products.

Factors that Contribute to Product Endurance

In order to develop principles for design that will encourage consumers to use their products for longer periods of time, EY (1997) also lays out several factors that contribute to product endurance. Chief among these is a product's capacity to age gracefully (p. 20). The authors note that certain materials, such as leather and wood, develop character over time rather than coming to look shoddy or worn down. Unlike plastics, which are designed for specific applications and are degraded by being reused in different treatments, leather and wood develop more "character" and become more appealing as they are used and exposed to weather and other environmental effects (p. 127). A product's ability to age often corresponds to its quality; products made of leather and wood are typically of higher quality and are more expensive than products made of plastics and synthetics. Because product age or life span relates directly to disposal and because EY codes disposal as wasteful, EY claims that "product quality and its ability to age is a moral issue" (p. 95). Rather than focusing on creating products which will appeal to consumers for their functionality or appearance, EY contends, designers should focus on creating products which will age well and last longer.

Related to aging, EY (1997) finds that product owners' interactions with their products generally increase product longevity. When we use objects for

social rituals or when we interact with them repeatedly over time, we are more likely to invest them with emotional significance (p. 39). Products that have emotional significance or sentimental value for their owners are less likely to be thrown away (p. 234). Further, when products allow consumers to interact in their own chosen, particular ways, they are even more likely to have enduring significance for consumers. As an example of how rituals can be personalized, EY uses Hetty van Bommel's three designs for funereal rituals. As the first of these, van Bommel created a rocket to be filled with the deceased's ashes and launched over the sea, at which point it explodes and scatters the remains (p. 39). Another funeral service product van Bommel created is a balloon filled with the ashes of the deceased that is five feet wide and also gets released over the sea. Unlike the spectacular and visually impactful exploding rocket, the balloon slowly fades into the distance (p. 39). The third product consists of blocks of dry ice which support the body of the deceased, melt slowly, and allow the body to gradually sink into the earth (p. 39). By offering three different ways to personalize the social ritual of burying the dead, van Bommel's three products also offer ways to individualize the grieving process and to instill a sense of uniqueness into what is typically a standardized social ritual. Although these products are not examples of durable consumer goods, they do suggest a practice of personalization which designers might use to begin conceptualizing products that offer different alternatives to different consumers. Such personalization, EY shows, is a contributing factor to product longevity.

Other principles that contribute to product endurance are exclusiveness and customization. In general, consumers hesitate to dispose of products that are rare or limited. As EY puts it, "nobody knowingly discards an exclusive product" (p. 158). If I own a copy of the A&M Records "God Save the Queen" single by the Sex Pistols, I own one of 10 to 15 vinyl copies that currently exist in the world. If I know how rare it is, the chances of my throwing it away are extremely slim. Still, EY also notes that there is also a relationship between exclusivity and quality; after all, "a unique piece of trash will always be just that" (p. 158). Nevertheless, products that are exclusive tend to endure longer than mass produced ones, especially if those products are made of materials that can survive years or generations. On an even smaller scale of exclusivity, products that are customized by the consumer or are designed for one person also tend to endure longer than those that are mass produced. EY holds that "people are bound to feel more attached to their own creations than to impersonal contraptions" (p. 150). Giving the consumer the chance to design her own product makes it less likely that she will throw it away or replace it with a new one.

At the other end of the spectrum from exclusivity, product sharing can also decrease product purchase and disposal. Although it is not a direct contributor to product endurance, EY notes that social structures which reinforce product sharing reduce excessive purchasing. For example, in the Netherlands, car sharing services have shown to decrease overall car purchasing as well as the miles traveled and the number of times people use the car rather than bicycles or public transportation (EY, 1997, p. 226). However, in cultures in which individual identity

and personal wealth and property are emphasized and encouraged, economic shifts toward sharing and communalism may take longer to materialize in product design, purchasing, and disposal.

Challenges to Durable Product Design

Although they maintain that their strategies for durable product design would be effective in enacting sustainability if they were to be implemented systematically, Eternally Yours also notes several challenges to creating and selling durable products. Many of these arise on the level of culture, which suggests that product endurance is an issue which requires social and cultural shifts in addition to changes in individual consumer habits. Consumers' perceptions of product features as well as their desire—or lack of desire—for product durability, together with what designers can reasonably be expected to accomplish, all contribute to how likely it is that there is a market for durable products.

One factor Eternally Yours (1997) points to is the cultural mythology surrounding particular devices. Some devices and categories of devices seem more disposable to us than others. As they put it, "The question remains, why cars, motorcycles, and watches produce more mythology than dishwashers, beds, or office chairs" (p. 53). It is hard to imagine a grandfather's office chair getting handed down over generations and treasured the way his watch might. Designers can change the manufacture or styling of office chairs to make them last longer, but as EY suggests, the chair may still seem less valuable or inherently less likely to be cherished than a watch. As regards mythology, rhetorical inquiry provides a way to

understand more clearly how consumer desires are constructed through texts and how persuasion functions through advertising and material devices to help construct mythology and generate perceptions of certain devices or certain kinds of products.

Another cultural condition that contributes to device disposal is that durability is not high on consumers' lists of concern. Writing for EY, Tim Cooper (1997) notes that Gallup polls suggest that many consumers identify as environmentalists and when surveyed, they report that reducing environmental impact of their purchases is important to them (p. 63). However, in practice, very few consumers are willing to spend significantly more on eco-friendly products than they normally would for a less eco-friendly version of the same product (p. 64).[5] The challenge, then, is to make durability more attractive to consumers and to motivate them sufficiently to prefer durability above other concerns, like low cost. Some products do get marketed to consumers on the basis of their durability. The Subaru car company, for instance, enjoys a reputation for making cars that last longer than other brands, and uses product endurance in advertising their cars. Of course, Subaru's marketing along these lines serves primarily to sell new cars (EY, 1997, p. 48–49). So again, the challenge is that consumers, especially in western societies, are consistently persuaded and are often culturally predisposed to purchase more and newer products rather than to extract more use or more life out of old ones.

[5] A Gallup poll report from 2010 suggests that the numbers of people who recycle, reduce household energy use, and purchase eco-friendly products have not changed since the year 2000 (see Morales, 2010).

As previously mentioned, Laurie Anderson (1997) notes that many electronic devices are thrown away while they are still functional (p. 19). As such, simply producing products that last longer will not necessarily change the number of products that get purchased or discarded. The point at which products get wasted has much to do with consumers' perceptions of the device and its usefulness. As I mentioned, the Dell Dimension 4500S that I purchased in 2001 still works in many ways. However, it opens programs very slowly and I am no longer accustomed to waiting more than 20 minutes for the machine I'm using to boot up. As EY (1997) puts it, "a discman or a compact camera[] may be strong enough in technical terms and at the same time fail to evoke the feeling of sturdiness necessary to make it last long" (p. 35). When we use old computers or play music on old tape decks, we may have the sense that they do not work as well as new devices with high operating speed and digital rather than analog functionality. That we associate digitality and speed with a high level of function are also contributing factors to device disposal, and associations that are culturally constructed and sedimented are much harder to disrupt through micro-level individual practices.

EY designers (1997) repeatedly note that the sentimental value that accrues to objects is one of the most important factors to discouraging disposal (p. 38, p. 52, p. 192, p. 234). If something has sentimental value for me, I am unlikely to throw it away, even if it is a scrap of paper or a plastic guitar pick. Sentimental value emerges from an individual's particular relationship to her product; it can be created through memories, associations, and context, such as when someone

special to you gives you an object as a gift. Sentimentality is emotional and personal. Unfortunately, EY recognizes, "[t]his is precisely the kind of bond that designers cannot influence" (EY, 1997, p. 234). Design can encourage certain modes of behavior, but cannot necessarily encourage specific emotional relationships between users and products. If manufacturers are fundamentally incapable of constructing the very bonds which make it least likely for consumers to dispose of their products, then looking only to the design of digital products to change disposal habits will produce only limited results at best. However, if we take a capacious approach to design and consider how obsolescence is a function not only of the product but of the system of relations and services surrounding the product, we may find other inroads for addressing waste and consumption of digital devices.

One significant factor which contributes to the likelihood of product disposal and which goes largely unspoken in the EY project is wealth. Although I am almost out of memory on the hard drive and although it does not work as well as it might or as it used to, I am still using the laptop I purchased in 2009 because I cannot afford to buy a new one. I have to extract as much use as I can out of the electronics I own because I am unable to replace them with newer devices. Moreover, the problem of wealth goes both ways; when a colleague's computer crashed during his final year of the Ph.D. program, he purchased the cheapest one he could find because he could not afford a more expensive replacement. Cheaper electronics are presumably those that also have the shortest life span, and so lack of wealth seems to contribute both to less and more disposal at different times and

under different circumstances. Tim Cooper (1997) does note that interest in durability or environmental friendliness does not necessarily increase as wealth increases (p. 63), but how wealth and poverty contribute to the purchasing choices people make is a question for critique of obsolescence as well as a question of waste flows and global environmental justice.

Recommendations for Product Design

Based on their observations about what factors contribute to product endurance, EY designers make several recommendations for product design that can decrease the likelihood of disposal. EY recommends that designers consider ways to make products useful not only over a longer period of time but also to more people and to different groups of people. Multifunctionality, in particular, is a product feature that reduces the likelihood of object disposal (EY, 1997, p. 31). The classic example of a multifunctional device is the Swiss Army Knife, which has several different uses and applications. In electronic devices, the growing emphasis placed on applications or apps is another example of how one device can be used to serve many purposes. Following the iPhone, most smartphones now have downloadable apps which give the phone the capability of functioning like a flashlight, guitar tuner, stopwatch, GPS device, or camera (see Figure 2.4). Rather than carrying around a camera and GPS device in addition to my cell phone, I can use one smartphone device for all of these purposes.



Figure 2.4: Apple iPhone Screen Shot
screen shot by the author 2015

Even more effective in preventing disposal, EY (1997) suggests, are devices which are useful to multiple groups or individuals (p. 31). For instance, the Dutch designer Moniek Gerner designed a kitchen table which has built in hooks so that children can turn the table into a tent to play in by attaching sheets or blankets to the hooks. Unlike the Swiss Army Knife, the multiple functions of which all appeal to the same user, the tent table is useful to different types of users; it is designed both for parents and for their children. Likewise, Oskar de Kiefte designed a car that doubles as a bench for sitting (EY, 1997, p. 31). Although we view a car's primary functionality in terms of its capacity to transport us around town, cars spend most of their time parked on the street. De Kiefte's invention allows the car to serve multiple purposes at different points in the context of its use.

In addition to designing products that can be used for multiple purposes, EY recommends that we rethink how the services around our products are

conceptualized and sold. In his contribution to EY, Ezio Manzini (1997) argues that designers should work to ideate and sell not products alone but products combined with services. Products that are bundled with the services needed to make them function, Manzini claims, reduce the likelihood that the product will be discarded or replaced with a new product (p. 213). For instance, rather than selling just a printer by itself, the manufacturer could sell a printer with a lifetime supply of ink, replacement parts, and maintenance included. If the consumer owned all of these from the outset, it is less likely that she would purchase a new printer when the old one runs out of ink or needs to be repaired. Such shifts requires designers to consider how products are "rooted in social and spatial context[s]" (Manzini, 1997, p. 215) and to reorient design to selling results of a product rather than discrete objects (p. 212).

Implications for Digital Devices

The question of the "social and spatial context" surrounding our devices raises other questions about digital writing tools and interfacing. In recent years, tech manufacturers have begun to design laptops without compact disc (CD) drives. Because many consumers are using cloud-based storage and are streaming music and movies, manufacturers are phasing CD drives out of new hardware. Many people still have CD drives in their cars and own stereos that play musical CDs, but the phasing out of CD drives implies the coming obsolescence of that media format. Likewise, any data and files stored on CDs will soon become inaccessible. Obsolescence is therefore not a property of devices or a bounded

state they enter into but a set of criteria. For example, my VCR might be functional in the sense that it works and it can play VHS tapes, but it's obsolete in the sense that I can't rent new movies on VHS and I cannot purchase new tapes except on the secondhand market. Adam Banks's (2006) work on varieties of access is relevant here. Banks points out that having material and functional access to a technology, or physical proximity to it and the ability to use it, is only one level (p. 41). Banks points out that access is complex and is also about which literacies carry the greatest cultural capital. To link this to obsolescence, then, varieties of access help us understand varieties of obsolescence and the way that cultural capital functions as an obsolescing mechanism.

As previously suggested, EY (1997) points out that sentimental value and personal attachment are qualities which tend to reduce the chances that objects and devices end up in the trash can. Although sentimental value cannot be manufactured, EY speculates that interaction with an object or product leads, over time, to emotional connection and attachment. As EY puts it, "Engagement is not just something that happens momentarily when we use something. It is also a relationship that has to grow over the years" (1997, p. 126). A goal for design, then, is to manufacture devices that encourage user engagement. Alternately, one could argue that recent shifts in digital device design do indeed suggest attempts on the part of designers to enact meaningful relationships between products and their users. One notable example is Siri, the Apple iPhone® program. All generations of iPhones since the iPhone 4S (released in October 2011) come with Siri as a standard feature, as do Apple iPads®. The Siri program uses natural language

processing, which means that it responds to human speech with talk that also sounds human; if you ask Siri a question, a gentle, female-sounding voice will answer. Siri is programmed to mimic the cadences of the human voice, to interact with the human user by having conversations, and even to make jokes. If you ask Siri, "Are you human?" The program will answer, "Does it matter?," "Close enough, I'd say," or even, "What do you think?" By giving the impression that it is responding to your question in the moment rather than in ways it is programmed to do, Siri appears to be having a "real" conversation with the user. It is easy to forget, when talking to Siri, that its programmed algorithms—rather than an intentional being—are determining what Siri says next. The jokes and ability to respond in different ways to the same vocal prompt make it seem like Siri has a personality.

In her discussion of Siri, Emily McArthur (2014) argues that Siri contributes to what Walter Benjamin would have called the iPhone "aura." In his discussion of art's capacity to be mechanically reproduced, Benjamin (1936/1968) claims that an original work of art possesses an aura which is not possessed by the copies of it (p. 223). The original Mona Lisa, for instance, has authenticity and value that a picture of it or a photocopy cannot have. Because works of art can be endlessly reproduced, Benjamin asserts that aura is deteriorating in the modern age (p. 234). McArthur extends Benjamin to say that Siri "reconstructs the aura in an age in which neither the human nor the divine has a monopoly on authenticity" (p. 115). In other words, because Siri gives the impression that it is an understanding and intentional being by interacting and conversing with the user as another

human would, Siri lends the iPhone a sense of authenticity and aura that a non-conversant device does not possess.

And yet for all its aura, interacting with Siri does not prevent the user from discarding her iPhone and replacing it with a newer one when Apple releases the new generation. Although Siri helps to construct a personal relationship between the user and the device, Siri's status as software discourages the user from associating Siri with the device itself. We talk *through* the iPhone to Siri; Siri is not a material property of the iPhone. Likewise, Apps encourage the user to focus on functionality instead of the hardware. Rather than separate buttons which resist the touch and offer haptic feedback, smartscreens do not have discrete regions; they respond to touch and give visual and auditory feedback. The Apple iPhone has a flexible display that responds to the phone's position in space, for instance, by rotating the display 90° when the user tilts her phone horizontally. Like Siri, such flexibility gives the impression of disembodied ephemerality; the user's attention is directed away from the materiality of the object itself and to its application, functionality, and software. EY suggests that devices that can enact a personal relationship with their users will be more enduring than impersonal ones; Siri shows that this personal relationship must be a quality of the object's materiality rather than its functionality. As Peter-Paul Verbeek & Petran Kockelkoren (1997) put it, "in a culture where people only care for [products] because of what they do, [products] will be easily discarded and replaced" (p. 104).

By foregrounding these concerns for waste, sustainability, and how designers can create products that invite users to develop sentimental and

emotional attachments to them, EY highlights the ethical dimensions of design. The quality of a product and its ability to age, EY claims, are moral issues (1997, p. 95) In his later work, Peter-Paul Verbeek (2006) pushes this claim even further and suggests that designers should create technologies explicitly with ethics in mind and should consider more carefully how their products shape user behavior. Because products and technologies shape our ways of being in the world and the way we interact with each other, Verbeek claims, designers are already in the business of ethics. He notes, "[T]echnologies profoundly influence the behavior and experiences of users. This charges the ethics of engineering design with the task to conceptualize this influence and anticipate it in design" (p. 361). Of course, designing products explicitly for the purpose of guiding human behavior raises other ethical questions, such as who gets to decide whose morals and which ethical positions get built into products. However, as Verbeek (2006) points out, technologies are always and already shaping user behavior (p. 370). From this perspective, paying more explicit attention to how this happens and the ethical dimensions of design can be viewed as an attempt to acknowledge and take responsibility for the ways in which the devices we use shape our behavior.

Design Ethics, Multistability, and Obsolescence Rhetorics in Design

Because the design of digital tools favors rhetorics of obsolescence and disposal and because the design of technologies shapes user behavior and interaction, we need an ethics for design (Verbeek, 2006). Although there is potential for problems when designers are tasked with creating products that

explicitly shape user action, Verbeek (2006) notes that pretending that the ethical dimensions of design do not or should not exist only ignores how that responsibility already falls to engineers and corporations. As such, he claims, engineers are already acting as our moral philosophers (p. 366). For example, expecting parents cannot see the unborn fetus in the womb without ultrasound technologies. Ultrasound technology can therefore shape action by shaping a person's experience of his or her unborn child (p. 366). Verbeek claims that "the specific way in which these technologies represent what they 'see' helps to shape how the body or a fetus is perceived and interpreted and what decisions are made" (p. 366).[6] In this way, user behavior and the ethical implications of her actions are guided by what the technologies afford and the way they mediate her experience of the world.

The challenge for design, then—at least in Verbeek's view—is to create technologies that guide use ethically and that encourage certain types of behavior. In order to explain how technologies shape action, Verbeek (2006) draws from the concept of technological "scripts," as developed by Madeline Akrich (1992) and Bruno Latour (1992, 1994). In Akrich's definition, "much like a film script, technical objects define a framework of action together with the actors and the

[6] In the context of unborn fetuses, the shaping capacity of technologies becomes obvious when we consider legislation such as the fetal heartbeat bills, which passed in several states between 2011 and 2014. Such laws, many of which have since been overturned, required women seeking abortions to listen to the fetus's heartbeat or view its body on ultrasound before they were permitted to abort the fetus. On the other hand, new materialists, bioethicists, and disability studies scholars have pointed out that ultrasound technology and prenatal screening are sometimes used to justify aborting fetuses with disabilities. Both of these examples corroborate Verbeek's (2006) point that technology's capacity to represent the unborn fetus has significant potential to shape human action relative to that fetus.

space in which they are supposed to act" (p. 208). A playground seesaw that requires two people sitting on either end in order for it to move up and down defines a collective activity; it will not function properly with only one child or one actor involved. In this way, the seesaw's design inscribes a particular form of action and presupposes certain kinds of interaction between the actors and the tool. This is its "script." In his discussion of scripts, Latour (1992) uses as example a car seat belt that beeps if the driver is not wearing it when the car starts moving. The noise is an attempt to remind or persuade the driver to put the seat belt on, and the driver can resist, but the repetitive, irritating sound of the beeping is hard to ignore. In this way, technologies are designed with scripts that encourage certain types of user behavior.

Akrich (1992) and Latour (1992) suggest that even when they are not as overt as the beeping seat belt, technologies always possess scripts and are always designed to guide user behavior. This script is a function of the device's materiality: two people do not play on the seesaw because its directions say only two people should use it, but because it does not work as well with only one person playing on it as it does with two (Verbeek, 2006, p. 367). Furthermore, as the example of the seat belt suggests, users do not have to comply with the device's scripts. Latour (1992) describes driving with the beeping noise on (p. 225) and says he eventually asked his car mechanic to detach the sensor and beeping device so that he can now drive without a seat belt and without hearing the belt alarm (p. 226). One person can play on the seesaw by standing in the middle of it, over its axis, and shifting his weight from the left to right foot to make the far ends of the

seesaw move up and down. Verbeek's (2006) claim that design should guide users to ethical behavior is therefore problematic because design does not determine the full range of scripts or the full range of uses to which a product can be put.

The capacity to be used for many different purposes is what Don Ihde (1990) called "multistability." For example, the telephone and typewriter were initially developed as assistive technologies for the blind and deaf, respectively. Though these assistive capacities may have been their designers' initial purposes, the way these devices got taken up in activity systems guided future development and influenced future iterations of the products. A device is "multistable" in that its affordances can be multiple and allow the device to be put to multiple different ends depending on how it stabilizes in different use contexts. Likewise, in her study of new media, Lisa Gitelman (2006) points out that "media and their publics coevolve" (p. 13). As evidence, she examines the development of the phonograph, which was originally designed as a business tool for taking dictation (p. 26). When developers such as Thomas Edison and others were marketing early phonographs, they would set up public exhibitions to demonstrate the machine's capabilities (p. 34). In many of these demonstrations, audience members would be called to speak or sing into the phonograph, and then their voices would be played back for everyone to hear. Later, this capacity to record and replay music began to catch on in public contexts. Instead of being used for business and dictation, the phonograph gained popularity as an amusement device for playing recorded music, and consumer demand for its uses in these contexts shaped how it developed and got produced over time (Gitelman, 2006, p. 44).

Research such as Gitelman's emphasizes that by studying obsolescence, digital communication and writing researchers can study how communication practices change over time in ways that are co-constitutive with changes to devices. If planned obsolescence is a rhetoric that gets instantiated in the design of our devices, it is worth asking how that rhetoric might be reimagined for the future of digital device design and what users and communities of practice can do to influence patterns of obsolescence. Studying obsolescence through the changing iterations of hardware and software interfaces offers a vantage point from which we can view more clearly the changes to writing and cultural communicative practices. For example, when I enable the predictive texting function on my smartphone and it starts finishing my sentences for me, the agency of the device and my own writerly agency are in tension or are working in tandem—or both. Helping students to consider how writing devices shape their writing processes as well as how those devices and attendant processes change over time is important if they are to become critical producers of text.

In the next chapter, I extend the concern for obsolescence, design ethics, and materiality to disciplinary conversations within composition studies. In particular, I show the relevance of obsolescence to ongoing conversations in ecocomposition and use obsolescence as a heuristic for analyzing ecocomposition theory. This analysis helps me show that ecocomposition is essentially a materialist lens and thus demands attention to issues of social justice as well as attention to the longer life spans of tools.

Chapter 3: Ecocomposition in the Anthropocene

Chapter abstract: This chapter traces ecocomposition's evolution from addressing questions of social context to questions of environmentalism and subsequently many scholars have retreated from environmentalism. I argue that ecocomposition needs an environmentalism for the Anthropocene and propose obsolescence and waste as the new problems for writing that ecocomposition should address.

Introduction

Regions all over the world suffer the negative consequences that result from poor international environmental legislation, and Guiyu, China is among the most devastated cities. Guiyu has been called the world's largest e-waste dump site and Greenpeace (2009) reports that in addition to thick chemical pollution in the air, the water is poisoned with lead and other toxins which will impact the health of local populations as well as the biological sustainability of habitable land for centuries. Similar dumping grounds can be found throughout Asia, Africa, and South America as well, and Google image searches for "e-waste" turn up mountains of laptops, keyboards, cell phones, and other communication equipment that could have come from any composition classroom or household in America. Though such detritus does not constitute *writing* as it has traditionally been theorized in research in composition, rhetoric, and literacy, the material waste that digital writing equipment becomes at the end of product life is ecologically related and ethically relevant to the production and consumption of writing. Disciplinary

paradigms that invite us to ignore the piles of garbage and their attendant social justice issues—even while we invest so much energy into digital writing practices—raise questions about the politics of composition's research territory.

When environmentalist issues come into composition, it is usually within the area of ecocomposition, or the intersection of ecology and writing studies. Ecocomposition is often defined as the study of the relationships between place and writing (Dobrin & Weisser, 2002; Rice, 2012). In their comprehensive discussion of ecocomposition, Sidney I. Dobrin & Christian R. Weisser (2002) emphasize how relationships of people to places are discursively constructed; ecocomposition "does not simply focus on the natural world" but on "how discourse creates natural places and how all environments affect written discourse" (p. 8, 11). Dobrin & Weisser locate the roots of ecocomposition in ecofeminism's tendency to question how gender ideologies inform human domination over nonhuman species and natural environments (p. 34) and ecocriticism's tradition of examining "nature" in relation to issues of narrative representation (p. 24), although ecocomposition focuses more on textual production than either of these areas (p. 29). The authors also trace ecocomposition to traditions of literary and humanistic inquiry that emphasize the contingency of knowledge, the role of language in shaping the social and political spheres, and the constructedness of human relationships to natural and built environments. In general, then, ecocomposition brings the contexts for writing into relief by highlight the important role that social and environmental factors play in shaping the production and circulation of writing. And yet although it has

historically dealt with issues of environmental sustainability, ecocomposition has not dealt sufficiently with the problem of obsolescence and the way that obsolescence intersects with "sustainable" global conditions. Although some scholars have begun to address the environmental impact of electronic writing equipment (see Apostel & Apostel, 2009; Killingsworth, 2010; Selfe & Ulman, 2013; Ulman, 2014), the relatively small body of research on the topic represents a significant omission from ecocomposition discourse.

In this chapter, I argue that ecocomposition needs an environmentalism for the Anthropocene. The lens of obsolescence helps us see that because wasted writing technology is a growing social problem and because scholars in ecocomposition are invested in social context and questions of ecology, ecocomposition can and should take up waste. In order to make this claim, I trace ecocomposition's history as a three part movement. I show that in its inception, ecocomposition was an attempt to recognize and value the influence that the social surround has for writers, audiences, and the production of text. In the second stage, ecocompositionists developed pedagogical theories which took an explicitly environmentalist, activist approach to the teaching of writing. In the third and current stage, there has been a retreat from environmentalism and a movement back toward the deployment of ecology as a metaphorical concept rather than a pedagogical program for engaging environmentalism. The third stage uses ecology as a way of thinking about writing's circulation and its capacity to engender multiple and often unintended effects, but the emphasis is not on material-environmental contexts for writing as much as it is on how writing functions

symbolically as a living organism responsive to particular communicative environments or situations. Through tracing this lineage, I show the limitations of the concept of ecology and suggest that the metaphor of ecology without attention to material environment is an insufficient description for writing.



Figure 3.1: Wasted Television Sets
photograph by the author 2014

Ecocomposition's Roots in the Social Turn

In its inception in the 1980s, ecocomposition theory was responsive, in part, to the recognition in composition studies that writing pedagogies can inadvertently reinforce dominant and exclusionary social ideologies. As has been documented by historians of the field, the inclusion of nondominant dialects and

linguistic practices helped enact more socially just writing pedagogies (Berlin, 1987; Parks, 2000). Early ecocomposition extended this important impulse toward educational inclusion by recognizing that writing is more than just the individual writer's thoughts externalized onto the page, as was implicit during composition's process movement and tested with qualitative empirical methods such as think-aloud protocols.[7] If writing is the externalized or material markers of thought, the logic follows, then bad or good writing is a reflection of bad or good thinking. In response to conceptions of composition that framed writing as an analogue of thought, first wave ecocomposition was defined by attempts to acknowledge external factors beyond the cognitive that impact acts and processes of writing, reading, textual interpretation, and discursive community building.

Thus early ecocomposition moved in tandem with the social turn in composition (Reynolds, 2004, p. 27), which looked outward to social factors that influence the production of individual identity. Scholarship associated with the social turn maintained that individuals' language practices are reflective of social and political circumstances (see Bizzell, 1982; McComisky, 2000). Marilyn Cooper's (1986) article "The Ecology of Writing," often cited as the initiating moment of ecocomposition, was also part of a more general shift toward a view of

[7] The think-aloud protocol is a method drawn from the social sciences in which composers describe their writing processes out loud while they are engaged in the act of writing. As they talk through the process, the researcher listens and records their descriptions. Janet Emig (1971) as well as Linda Flower & John Hayes (1980, 1981, 1984) published early studies of composition that used think aloud protocols. Because the process of speaking aloud while writing is not something most writers actually do while writing, the data gathered and conclusions drawn from think aloud protocols were later called into question. Detractors argued that the testing environments fundamentally changed typical writing practice and so could not accurately reflect the "real" writing situation (see Cooper & Holzman, 1989).

writing in which material and social factors accrued greater significance in the research on textual production and writing pedagogy.[8] In the cognitive process paradigm, composing is analogous to thinking and thus material circumstances like the writer's body and physical location have little impact on writing. Cooper rejects this view of composition and proposes a situated composing model, one in which environment and social context are of paramount importance. She writes, "Language and texts are not simply the means by which individuals discover and communicate information, but are essentially social activities, dependent on social structures and processes not only in their interpretive but also in their constructive phases" (p. 366). Thus an ecological view of writing should consider social interaction as integral to the production of text rather than looking only to the individual writer's creative process as the generative force for communication. Writing, in this paradigm, is a set of interactive relationships. Cooper calls on images of interconnection: "The metaphor for writing suggested by the ecological model is that of a web, in which anything that affects one strand of the web vibrates throughout the whole" (p. 370). She suggests that because impacting factors resonate beyond the local situation, writing teachers and researchers should consider how communication emerges within and is enabled by a rich social context.

Likewise, Richard Coe (1975) argues in an essay that pre-dates Cooper's by more than a decade that the concept of ecology can act as corrective to

[8] It is important to note that Cooper's essay challenged the cognitive process model as it was originally proposed; later, Linda Flower (1994) also developed a social cognitive model.

instructional efforts that fail to emphasize the importance of context in shaping writing.[9] He writes, "Most communications are appropriate to their contexts, and the contexts are so obvious to participants that we overlook the importance of these contexts" (p. 234). Coe notes that to the writer in the act of composing, context is experienced and thus intuitive to the point that writers hardly notice its importance; however, rhetorical context is always and already shaping the writer's response. By situating writing assignments for an audience, Coe suggests, teachers can help students respond to rhetorical problems in an ecological way (p. 235). Thus Coe argues that "we should teach rhetorical modes based on eco-logic as well as on analytical logic" (p. 233). Coe suggests that cognitive or analytical logic is not a sufficient model for teaching writing; the context or ecological situation also shapes texts and writers. In this model, ecological thinking is more capacious than audience awareness; thinking ecologically means recognizing that not only the audience but also the enabling mechanisms for communication and the writer's material conditions affect texts. Both Coe and Cooper emphasize that writing is a complex social activity and propose strategies for how ecological thinking can help writers understand—and teachers teach—the importance of context in shaping composing and meaning.

Later, ecocompositionists would take the importance of context even further by suggesting that communication is not limited to the immediate moment of the present rhetorical situation. In her study of ecology in composition,

[9] Coe's essay was not commonly considered part of the early ecocomposition canon until recently, but has been reclaimed as part of the discourse by Sidney Dobrin (2001, 2011).

Margaret Syverson (1999) builds on the ecological framework to include a richer understanding of social context that is embodied and temporal. Although Cooper's (1986) essay does address embodiment by proposing that the writer's environment and physical location determine—to greater or lesser extent—the composing process (p. 370), Syverson's work expands this view of writing's materiality to suggest that we come to know the world experientially and diachronically. That is, beyond Cooper's point that where I sit when I write and the kinds of tools I use impact what I think and compose, Syverson suggests that living in the world is what makes meaning and writing possible. Following Lakoff's & Johnson's (1980) *Metaphors We Live By*, Syverson claims that "embodiment grounds our conceptual structures, our interactions with each other and with the environment, our perceptions, and our actions" (p. 13). An ecological view of writing would examine how communication is enacted over time even beyond the writer's lifetime or frame of activity. Syverson uses a ship captain navigating his boat into harbor as an illustrative instance of the complexity of communicative acts and to show that they are situated in temporal, cultural, and environmental ecologies. In a detailed example that is worth quoting at length, she writes:

> On the social axis, we might note that the career of a naval officer on a navigation team . . . occurs typically on a scale from zero to thirty years. There will also be, at any given moment, several people on the navigation team at different loci on that scale, and the team itself has a history of interactions. Furthermore, the entire process is embedded in a cultural system, the navy, which has its own history dating back to earliest human attempts to navigate the seas. On the environmental/technological axis, we observe that some members of the team may use a piece of structure in the environment, such as a natural landmark, whose history evolves on a scale of thousands of years, but the task will also involve various man-made technological instruments and practices, some new and some older, whose usefulness spans perhaps hundreds of years. (p. 21)

Even for communicative acts that seem simple, then, a whole host of technological, social, cultural, and cognitive processes are at play. As Syverson envisions it, the ship captain steering into harbor is influenced not only by his experiences in the moment, but by his interactions with the technologies that mediate the piloting activity and even the cultural traditions of the navy.

For Syverson, writing is a physical, material activity that unfolds over time in natural and social environments, and that bears traces of cultural situation and history. In this way, Syverson anticipates studies of rhetorical materiality such as those by Robert Hariman & John Louis Lucaites (2007), Amy Propen (2012), and Laurie Gries (2012, 2015), who examine how texts and rhetorical objects circulate and participate in the construction of public life in ways that change over time. This definition of communication—that rhetoric is a material act emerging through people in coordination with environment, technology, and other cognitive entities—emphasizes how writing takes place within a broad scale of time and a complex frame of activity. Furthermore, Syverson claims that composition studies is limited by its assumption that cognition is uniquely human. By assuming that cognition is "a computational activity of the [human] brain" and that language represents and is preceded by thought, she says, we also maintain "a collateral assumption . . . that we can understand composing atomistically, as distinct entities (texts, individual writers, genres, strategies, tasks, decisions, problems, and 'processes'), rather than as an ecological system with a high degree of integration among its components" (p. 25). As she puts it, "Composing is a situated and distributed activity that provides, not a mirror, but a manifest trace of cognitive

and cultural processes" (p. xiv). An ecological theory of writing, then, should account for how cultural processes materialize in rhetorical practices and textual objects.

Ecocomposition Goes Green

As metaphors of ecology gained traction in composition, some scholars in writing studies began to take up the ecological lens for explicitly environmentalist ends. I call this intensification of environmentalism the second stage of ecocomposition, in which scholars adopted the language of ecology in a more literal way to describe how writing relates to and participates in the construction of environment.[10] For instance, M. Jimmie Killingsworth & Jacqueline S. Palmer (1992) study the rhetoric of environmental policies to examine how uses of language influence and participate in material interactions with environment. The way that "nature" gets rhetorically positioned, they argue, has effects for public policy and for how people move through and behave with respect to their environments. In their view, the ways that individuals position the environment rhetorically betrays "distinct ethical and epistemological perspectives on environmental issues" (p. 11). Analyzing those rhetorics can therefore contribute to a broader understanding of how discourse helps to construct the environment as well as how discourses of environment impact individual action and public policy.

[10] For his part, Dobrin (2011) labels environmentalist pedagogy the first branch of ecocomposition. I return to Dobrin's categories and outline some limitations of his binary narrative of ecocomposition later in this chapter.

Other scholars likewise have taken up ecology to advocate place-based pedagogies that invite students to engage with their local home environments and to recognize the role that geographies play in shaping their identities and epistemologies. For instance, Julie Drew (2001) turns her attention to the role that place plays in textual production, and pays particular attention to places outside of the composition classroom. Drew notes that although students write in a variety of places and interact rhetorically within many environments, writing studies scholarship tends to consider student writing only as it happens inside the writing classroom. Instead of locating student writers exclusively within curricular environments, Drew urges us to consider students as travelers among a range of places (p. 58). She points out that "Naming the writers in our classrooms 'students' is a way of confining them, reducing them to knowable objects, by intimating that one aspect of their discursive and intellectual lives is accurately representative of the whole" (p. 62). Instead, the classroom is only one arena in which student rhetors interact with others and engage writing. Drew claims that reconsidering students as travelers who move through different discursive arenas can help writing students consider the work of composing as a process of engaging linguistic registers that are "local" to particular discourse communities and communicative spaces—of which curricular writing in academic environments represents only one part.

This emphasis on co-constitutive relationships between people and environments set the groundwork for a related approach to second wave ecocomposition, in which teachers incorporated environmentalist awareness and

environmental advocacy projects into writing pedagogy. In *Composition and Sustainability*, Derek Owens (2001) proposes methods for helping students think critically about the ethics of their everyday habits as well as the impact of consumerism on their local communities (p. 7). For Owens, the problems surrounding sustainable living are intertwined with consumerism, and First-Year Writing (FYW) is an ideal place for thinking about waste, commercial capitalism, and environmental impact because at most universities, the FYW course is a generalized requirement that reaches all students regardless of discipline.[11] In this way, Owens claims, "the inherently cross-disciplinary [FYW] course can serve as an introductory arena where students begin to view their personal and academic needs and desires through the lens of sustainability" (p. 6). Such pedagogies, Owens suggests, would provide a kind of civic education through which it would be possible for students to see themselves as part of a global community and to understand their own responsibility to others within that community. Further, by calling into question the ethics of our professional and pedagogical practices, Owens suggests that academics have a responsibility to teach and act in ways that align with their social ideals. Owens's focus is on practical sustainability and the perpetuation of a livable world for future generations, and his work draws into

[11] Although it may be true that the populations of FYW courses are interdisciplinary, here Owens seems to appropriate the service model of composition for the ends of environmental awareness, and Matthew Newcomb (2012) follows Sidney Dobrin & Christian Weisser (2002) in critiquing Owens for shifting the course emphasis away from teaching practical writing skills (Newcomb 2012, pp. 602–603). Despite this limitation, I appreciate Owens's efforts to highlight the ethical aspects of our educational objectives and academic practices, and contend along with Kristie Fleckenstein (2005, 2010), John Duffy (2014), and others that ethics should not be viewed only as "content" or as separate from what we teach in writing courses.

relief the larger ethical systems in which academics and academic institutions participate as well as the material, environmental consequences of academic practices and epistemologies.

As I will discuss in more depth later in this chapter, Owens's call for sustainability may seem idealistic and even unrealistic to today's audiences. After all, scientists have argued that the destruction of the earth is already a foregone conclusion (see Steffen, Crutzen, & McNeill, 2007). However, Owens's sustainability project makes evident the aspect of second wave ecological writing theory that I argue we need to emphasize and rehabilitate for ecocomposition going forward, which is that it advocates research and pedagogy ethically oriented toward social justice. Like Owens, Nedra Reynolds (2004) maintains that we have an ethical commitment to help our students become responsible civic participants in the communities they inhabit. For Reynolds, space and literacy share a dynamic mutuality; literate activity is not only shaped by the geographies we dwell in, but also is the means through which we orient ourselves to the world (2004, p. 6). Reynolds draws attention to how writing can be taught as a set of embodied practices. She writes:

> Geographies of rhetoric and writing begin with the assertion that the way we map the world is a direct but complex result of gender, race, class, and abilities; images and feelings get imprinted in our heads and on our bodies, affecting how we walk through a neighborhood, choose an apartment, find our way across campus, or navigate texts or acts of literacy.
> (p. 140)

By framing writing as an embodied practice that shapes and is shaped by place, Reynolds considers how individual ways of interacting with others and with the world reflect, in some ways, the places they inhabit. This is also an ethical project

in that in Reynolds's view, composition, writing, and literacy shape individuals' interactions with one another as well as their modes of behaving in the world. Furthermore, individual interaction with other people and with the world are themselves a kind of composition; we compose the social sphere through our behaviors and embodied practices. She explores how materialist, space-based pedagogies can help students think more carefully and critically about the environments they inhabit as well as how spatial orientation grounds literate activity and the construction of individual identities. In Reynolds's view, composition needs to undertake spatial work in a more forceful way: "Geography gives us the metaphorical and methodological tools to change our ways of imagining writing through both movement and dwelling—to see writing as a set of spatial practices informed by everyday negotiations" (p. 6). Such work in composition pedagogy, Reynolds claims, will help students become more capable rhetors and will also help them to more fully and responsibly inhabit their worlds.

In my view, Reynolds's emphasis on ethical action, here framed as a type of embodied habit or practice, is crucial to second wave ecocomposition and to where ecocomposition should locate its program for future research. Critics have contended that Owens and Reynolds are most interested in regulating student identity and encouraging their students to become environmentalist individuals (see Dobrin, 2011, p. 125). More important than their focus on environmental sustainability, however, is their focus on the ethics of rhetoric and pedagogy. In the context of the Anthropocene and the imminent depletion of natural resources, ecocomposition needs an ethic of social justice rather than of sustainability.

Although I show in the next section that some versions of ecocomposition have retreated from environmentalism in recent years, that shift has not been universal and the concern for environment does persist in some circles. Within digital writing, Shawn Apostel & Kristi Apostel (2009) use an ecological lens to analyze the global flows of e-waste. By examining global environmental legislation, Apostel & Apostel draw ethical and relational connections to the work that we do in the writing classroom. They write, "If we continue to erode our natural environment, then sustaining our workplace environments—our computer labs, our classrooms, and the other spaces in which we teach and research—is much more than a local matter, especially when viewed from a global, ecological perspective" (p. 2). Here, Apostel & Apostel frame the ethical and the practical as inextricable; finding a way to preserve and perpetuate our pedagogical spaces, they suggest, is hopeless without a way to preserve and perpetuate the material environments surrounding our universities and classrooms.

Likewise, Killingsworth (2010) takes issue with theoretical and pedagogical standpoints that elide ecology and materiality. Through an investigation of contemporary writing research on digital technology, Killingsworth claims that some research about digital technologies could be contributing to unethical circumstances outside of our classrooms because it has failed to draw environmental contexts into view. Killingsworth draws from N. Katherine Hayles (1999), who argues that scholarship in postmodernism, cybernetics, and informatics inherits the Cartesian dualist tradition by divorcing information conceptually from the material forms in which it is instantiated. Building on this

claim and examining its applicability to composition, Killingsworth argues that "techno-rhetoric," or the strain of writing studies that focuses on digital literacy and computers and composition, enacts "contemporary neglect of the body" (pp. 77–78). In particular, Killingsworth takes issue with scholars like James Paul Gee, who Killingsworth claims focuses so heavily on what video games can teach us about literacy that he dismisses questions of violence and gender, among other important concerns (p. 89). Killingsworth sets techno-rhetoric in opposition to eco-rhetoric, which "favors a complete identification of person with body" (p. 84). In Killingsworth's view, techno-rhetoric, unlike eco-rhetoric, enforces a "discourse of forgetfulness" regarding the materiality of technology (p. 88), and Killingsworth points out what is lost through such forgetfulness:

> First and foremost is the tendency to forget about the demand of silicon-based writing and teaching on the energy supply. A discourse of forgetfulness diminishes awareness of the electrical uptake required to make thousands of computers run all day and all night in most every house and office around the country. A nice clean connection to a virtual world usually depends upon a much dirtier connection to a coal-fired power plant somewhere near somebody's home place. I have never read an environmental impact statement as part of a plan to install a computer classroom or to increase the use of computers in a writing program. (p. 88)

Indeed, as Killingsworth goes on to discuss, where to draw the line around the digital writing's environmental impact is itself a complex question. Within an ecological framework, the impact of digital writing exceeds simple boundaries. Even if we begin to calculate impact with the moment of product use, we can include not only the power plants that generate electrical energy to power computing devices, but also the energy used to run and cool server farms, which

we access through seemingly immaterial networks.[12] To neglect the environmental effects of networked writing is to ignore the complex ecologies in which computerized composition is embedded as well as the enabling conditions of its possibility.

Attention to e-waste prompted by the issues receiving more international attention and prompted within composition by Apostel & Apostel (2009) has spurred a small number of writing studies scholars to address e-waste. For instance, Richard J. Selfe & H. Lewis Ulman (2013) presented an interactive poster at the 2013 *Conference on College Composition and Communication* in Las Vegas, in which they argued that e-waste is a question of social justice for the contemporary age and an exigent problem for our current writing pedagogies. In the following year, Ulman (2014) proposed an undergraduate writing course on environmental citizenship designed to address e-waste at a panel on e-waste presented at the 2014 *Conference on College Composition and Communication* in Indianapolis. Following his earlier work with Selfe, Ulman contended that questions of sustainability and justice are interlinked, and argued that the concern within writing studies for social justice should encourage specialists in the field to think carefully about how we might enact ethical pedagogies in the context of global disenfranchisement. Ulman offered writing assignments that encourage students to take stock of their beliefs on environmental citizenship and consider their own

[12] Server farms, the data centers that house thousands of computers, support the major computing networks of Amazon, Google, Facebook, Yahoo, and others. These farms require large amounts of energy to keep the servers running and prevent them from overheating, and generate large amounts of diesel exhaust. Although activists and corporations both show a great deal of interest in reducing power consumption, progress toward energy-conserving servers has been limited (see Mitriani, 2013).

horizons of care for global populations. In this way, Ulman suggested that taking up digital waste in pedagogical contexts would make more environmentally conscious citizens of our students. Despite some recent claims, which I discuss in the next section, that environmentalist pedagogy is obsolete in the context of the current landscape of writing studies and even in the context of the Anthropocene, Ulman maintains that it is our responsibility as teachers to help students consider the ethical and environmental dimensions of their writing practices. Further, his attention to waste as a problem of social justice opens a line of inquiry that ecocomposition should pursue going forward.

Ecology as Metaphor: Ecocomposition After Nature

Despite its environmental commitments, ecocomposition has been proposed by Sidney I. Dobrin and others as a lens appropriate for theorizing writing networks. In his survey of the literature, Dobrin (2011) divides ecocomposition scholarship into two areas and proclaims that "ecocomposition has already failed as an academic enterprise" (p. 125). He groups environmentalist teachers such as Owens, Reynolds, and Killingsworth in the first area and argues that their place-based writing scholarship is too narrowly concerned with subject formation and identity politics, and their concern with pedagogy leaves them trapped in what Lynn Worsham (2002) described as the field's obsession with *teaching* at the expense of concern for *writing*. Drawing from Lester Faigley (1992) and Raúl Sánchez (2005), Dobrin links these tendencies to larger trends in composition studies; like Faigley, Dobrin contends that the discipline of

composition is overly invested in obsolete notions of subjectivity—and particularly student subjectivity—that are no longer tenable in the context of postmodern conceptions of the self and posthuman understandings of distributed agency.[13]

As such, Dobrin privileges the second strand of ecocomposition, in which he groups scholars who take complexity-based approaches to composition by considering writing systems as dynamic environments. Such a notion of writing, it is argued, cannot be studied apart from the complex networks within which writing and meaning are (re)produced and circulate; writing *is* a complex, not a discrete product or a linear process. For Dobrin, ecocomposition's shift post-subjectivity allows writing theorists to let go of their traditional focus on teaching the subject to write—a focus which Dobrin finds untenable given the fluid status of posthuman and postmodern selfhood—and instead to establish disciplinary identity centered on writing. And while Dobrin is careful to say that eco-friendly work is "admirable" and should not be abandoned in general, he wants writing researchers and ecocompositionists to move beyond environmental sustainability because "this work does little for writing studies" (p. 126). In his view, environmentalist concerns are unproductive for current theories of composition because they tell us little about writing. Still, Dobrin's repeated call to do

[13] The distinctions are subtle. Faigley (1992) argues that as a field, English studies has proclaimed its rejection of the notion of the autonomous, individualistic self, and yet that self or subject is persistently reinscribed through writing instruction. Dobrin (2001, 2011, 2012) maintains that composition pedagogies privilege an obsolete notion of the autonomous self and adds that the privileged place of pedagogy and writing program administration within composition research is a problem for our discipline's capacity to theorize writing.

ecocomposition *beyond* environmentalism—a preposition he uses more than 150 times in his 200-page book—posits a separation of writing from the material resources that make it possible.

As corrective to what he sees as ecocomposition's limitation, Dobrin calls for—and has edited collections that take up—writing as complex ecology. He argues that these studies address "writing qua writing" (Dobrin, 2011, p. 123) inasmuch as they are studies of relationality rather than of stable texts produced by autonomous subjects. In a strain of criticism that he refers to as "post-ecocomposition" (2012, p. 3), Dobrin groups scholars who address writing as a distributed activity and a complex process of manipulating tools and materials in ways that transfer and shift rhetorical agency. Because poststructuralist theory finds meaning to be an emergent quality of the relationships among texts, intertexts, audiences, and contexts, Dobrin claims that studies of writing that are suitable for this paradigm would deal with these complex interrelations and investigate how ordinary writers and environments collaborate to construct communication and meaning. Traditionally, compositionists have looked to the student writers in their classrooms in order to study textual production by ordinary writers, and Dobrin links this tendency to a larger preoccupation in composition with what he views as the obsolete humanist subject.[14] He claims that this focus on first year writers is a problem because the stable subject does not

[14] Dobrin goes on to claim that research in Writing Program Administration (WPA) is another example of how through our research we writing scholars are always trying to manage this subject (2011, p. 93).

exist. This focus is also a problem, in his view, because writing scholars are more concerned with managing the subject than with writing itself.

Thus the brand of ecocomposition that Dobrin recommends looks toward the complex systems in which networked communication is constructed and through which networks of texts make meaning. In this way, scholars he advocates frame writing as a process of transferring agency (Dobrin, 2011, p. 78). Rhetorical agency, in this paradigm, is relational and operates in the spaces between writers, texts, audiences, tools, and technologies. Dobrin looks to Byron Hawk (2007) as a good example of this type of study; Hawk argues that the concept of vitalism, which is commonly dismissed within composition studies as it carries associations with Romantic and expressivist rhetorics, actually has the potential to reinvigorate current thinking on pedagogy and invention (p. 4). In Hawk's usage, vitalism is the philosophy that living beings are fundamentally different from non-living matter because life is animated by a vital force. Hawk claims that within composition research, vitalism is mistakenly conflated with expressivist and Romantic modes that figure writing as an outpouring of creative, poetic genius. Because compositionists have largely rejected this individualistic view of writing's production, Hawk claims, they have also dismissed vitalism. Contrary to this dismissal, Hawk demonstrates that composition's history has been defined by its adherence to a vitalist view of writerly agency and that vitalism provides a paradigm for thinking about writing in complex, ecological ways (p. 7). Hawk's purpose is both to "arrive at a more accurate image of the past" with regard to vitalism's place in composition and, in so doing, to "create a particular affect in the

present" (p. 11). Hawk finds that "the concept of ecology moves discussions of writing, rhetoric, and invention beyond the standard inventional heuristics and social categories toward models that integrate environments into writing and invention processes" (p. 223). Although he indicts Dobrin & Weisser (2002) for limiting their use of "ecology" to the social-epistemic, which Hawk finds to be an oversimplification of the ecological metaphor (p. 224), he nonetheless asserts that ecocomposition holds the most promise for writing studies in that it allows for "a focus on systems, dynamic change, complexity[,] . . . an emphasis on situatedness, and an acceptance of the unconscious or tacit elements of lived experience" (p. 224). Hawk finds therefore that an ecological perspective can account for the complex vitalism that characterizes current systems of writing.

In response to Dobrin's call to theorize writing in these ways and without subjects, Laura Micciche (2014) writes that "[Dobrin's] anti-subject postprocess theory suffers from mission ambivalence: we know what the movement is against, but not what it's for" (p. 495). Micciche suggests that the purpose of thinking writing as divorced from subjects is not entirely clear. I would add that Dobrin's version of anti-subject postprocess theory does dematerializing work by disembedding writing from the material contexts in which it circulates. In this way, postprocess ecocomposition is not ecological at all, and neither is the subject obsolete, as Dobrin would have it. Marilyn Cooper (2011) notes that we experience ourselves as causal agents (p. 432), and Dobrin needs her feminist corrective on this point. Discourse comes to matter when it is embodied and theory becomes relevant when it becomes material in practices.

In a later text that would seem to mark a shift in his thinking, Dobrin (2015) includes an article on conflict resources and electronic equipment in his recent textbook for first year writing courses (pp. 567–569). His inclusion of a reading on conflict resources is important because the textbook is designed to teach writing from the standpoint of rhetorical ecology, which he defines as "a complex sense of connection, an intricate and evolving network that not only connects a speaker or writer and a situation but also connects that situation to a host of other factors, including its place and historical context" (p. 7). As an example of rhetorical ecology, Dobrin offers the networks of connections among digital texts such as blog posts or videos that circulate on social media (p. 7). Still, his inclusion in the textbook of conflict resources as a legitimate topic for writing pedagogy is interesting given his own claims (2001, 2011) about appropriate areas of study for writing research and the need to move beyond environmentalism in our research. By including conflict minerals in the sustainability chapter of his writing textbook, Dobrin highlights the interconnections among our work in the writing classroom and the distant contexts for our digital tools.

Ecocomposition in the Anthropocene: Waste, Circuits of Production, & Social Justice

As suggested previously, many scientists argue that the earth has already entered the geologic era of the Anthropocene, in which human impact is controlling the fate of the planet (see Steffen, Crutzen, & McNeill, 2007). In this context, sustainability of the planet is a quaint hope; humans have already

devastated the earth to the point that we have no way to preserve it for future generations. In the context of the Anthropocene, ecocomposition needs a new environmentalism, one that is oriented toward social justice rather than sustainability. Following Apostel & Apostel (2009) and Selfe & Ulman (2013), ecocomposition can look beyond its traditional boundaries that end at the digital writing product in its use phase and adopt an attention to waste, to the detritus of rhetoric and communication. Currently, our notions of ecology in writing studies are not ecological enough—we need more attention to where our writing tools come from and where they go when we are through with them, which would help us construct a more comprehensive account of writing's materiality.

Focusing on the literate act in the moment of composing or interpretation—focusing on the digital tool in its use phase—is a limited deployment of ecocomposition. The concept of ecology challenges us to consider writing as a complex system with material consequences that unfold diachronically on a longer scale of time. Considering writing in this way can help writing scholars articulate literacy and education to environmental degradation and can bring Foxconn and e-waste into evidence for digital writing. A narrow focus on the use phase of digital product life within composition studies has the potential to dematerialize writing technologies by divorcing them from the circuits of their production and disposal.

Furthermore, the traditional focus within writing studies on digital writing tools in their use phase represents a limit situation at which our discipline's knowledge encounters a crucial threshold. As I suggested at the beginning of this chapter, our narrow focus on writing tools in their use phase has, in some respects,

defined our discipline of study. Even when scholars acknowledge the ecological, complex, and networked status of writing, composers, texts, and audiences, they rarely push beyond the writing tool on the desk, the writing product as it circulates among audiences, the writer as she navigates complex tactics and concepts in her own process. Even when they study agency as a material flow that emanates from interactions among writers, tools, and environments, scholars often figure the tool's materiality only in the case of its status as a functional object. The tool does not appear in our scholarship as e-waste, nor as amalgam of rare earth minerals and complex plastic polymers, nor as the outcome of a suicidal Chinese factory worker's 18-hour day. The relationships are material, and they are also philosophical and symbolic: what is *writing*, and where does the writing act begin and end? What does the Foxconn worker who assembles the tool have to do with my process of producing text on the new Mac workstation in Bizzell Memorial Library? As an area of study which challenges us to consider broader consequences, systems, and material realities in which writing and writing tools circulate—and their unfolding over long periods of time—ecocomposition encourages us to expand our traditional research focus on writing tools in their use phase to examine also where these tools circulate before and after the useful period of product life.

In an effort to emphasize the role of embodiment in ecological rhetoric, Marilyn Cooper (2010, 2011) argues for a distributed vision of agency that takes into account how communicative beings manipulate materials to make meaning. Cooper (2010) examines a *USA Today* article about how crows gather food in an

experiment conducted at Oxford University. In the experiment, crows fashioned hooks out of straight wire to retrieve food from inside an encased tube (p. 23). The scientists and the *USA Today* article's author use this as evidence of how nonhuman species engineer tools for particular activities and to control their environments. Additionally, when the male crow did not have a hook with which to retrieve the food, he simply waited for the female to retrieve her food and then stole it from her. Cooper uses the crows' behavior as a metaphor for how writers collaborate with tools and technologies to marshal available resources for communicative ends. Cooper notes that "[the crows] achieve these feats not because they have technological or social intelligence but by interacting with their surroundings in ways that benefit them" (p. 23). Furthermore, in stealing from the female, the male bird does not show less technical ingenuity but is in a parallel manner marshaling the materials available in self-interested ways (p. 23). By extending this to writing, Cooper shows that communication is a process of "interact[ing] with other beings and objects in our surroundings" (p. 22). The use of technologies, she argues, is not a unidirectional and individually agentive act; "in the process of writing, words and tools do not . . . arise as separate objects to be used but are experienced as part of our bodies and brains" (p. 19). In this view, writing is a process of manipulating materials, and these materials act as prosthetics through which the agentive self is extended and projected.

Yet for Cooper, networked agency is still embodied and is not detached. In a related article published around the same time, Cooper (2011) deals with rhetorical agency as an emergent property of material interactions. Our theories of

rhetoric and persuasion depend on the notion that individuals have ideas and desires and persuade others using cogent arguments and collaborative discussion. Thus without an individual, agentive subject, Cooper implies, our theories of rhetoric threaten to collapse. As she puts it, "individual agency is necessary for the possibility of rhetoric, and especially for deliberative rhetoric" (p. 426). Laurie Gries (2012) puts a slightly finer point on it: "We need theories and methods that better account for rhetoric's intense materiality in order to make visible how rhetorical matter becomes consequential in our material world" (p. 70). In other words, the discipline of writing needs to make clearer its importance for a world in which the capacity for suasion and to effect change is distributed among networks of agents and environments.

Likewise, Fleckenstein (2005) also highlights how the poststructuralist, postmodern, posthuman paradigm of distributed cognition that Dobrin privileges stands as hurdle to writing pedagogies which seek to help students claim agency as writers and thinkers. Fleckenstein frames the issue as the need for an ethical basis to ground rhetoric. She asks:

> If we have no stable boundaries, no stable reality, and no stable subject, how do we judge whose 'voice,' as well as whose reality, resonates with the greatest ethical authority, the greatest 'good character'? In a reality founded on shifting sand, on what rock do we build our belief, our life choices, and our ethical actions? (p. 325)

Thus for Fleckenstein, Gries, and Cooper, the assertion that meaning is contingent poses a disciplinary problem. Without stable values or stable subjects, these scholars suggest, rhetoricians do not have a way to ground their ethical positions. By operating on the assumption that normative ethics are hegemonic, rhetoricians

also risk succumbing to an "anything goes" ethic that holds all values and truths to have equal potential for veracity inasmuch as veracity is contingent on situation.

In my reading of the discourse, ecocomposition encourages us to adopt a longer view of writing that is attuned to writing's variegated materiality and to how writing and its conditions of possibility unfold in a longer process over time. When we do so, we see that while ecocomposition scholarship has laid important groundwork for considering digital writing ecologies, the traditional focus has been on digital tools in their use phase. This narrow focus represents a limited view of ecology that is disrupted by consideration of the materialist and diachronic elements of writing tools. The time has come to question our disciplinary territory as well as what lies beyond our borders.

Robert Yagelski (2011) claims that writing is an ontological act, a way of being in the world (p. 3). Using as example an academic conference where Yagelski sat in a room with 1,000 people who were all writing at the same time, he points out that even when our texts do not reach audiences and thus have no ostensible communicative purpose, the act of writing can itself be a powerful experience for the writer (p. 137). As he puts it, "Writing intensifies the writer's awareness of him or herself *at the moment of writing*" (p. 112, emphasis in original). Yagelski claims that through understanding writing as an ontological act of world making, compositionists can correct current forms of writing pedagogy that frame writing as an ego-driven process that reasserts the primacy of the individual and the Cartesian sense of the autonomous self (p. 15, 12). He claims that "writing instruction, like schooling in general, is an ontological process; it is part of how we

learn to *be* in the world" (p. 30, emphasis in original). Thus when we teach students that composing is a process of using the technology of writing to act on others, we reinforce the notion that the individual self is separate from the rest of the world. This notion, Yagelski and others suggest, is why we find ourselves in the anthropocene: we are accustomed to viewing ourselves as agents who are fundamentally separate from the world rather than part of an integrative network of agentive living and nonliving beings. On the other hand, a holistic view requires that we see all parts of the system as working in concert.

Calls for sustainable pedagogies encourages us to pay attention to the larger ethical and material systems surrounding academic institutions. These systems are enacted and regulated through writing, and construct and maintain the economic, environmental, and social status quo (Yagelski, 2011, p. 48). It is these systems and writing's participation in them that I want to address and that, I argue, we are responsible for considering. Kristie S. Fleckenstein (2010) persuasively argues that individuals should imagine alternatives to difficult social situations and that we should also demonstrate in practice our commitment to those alternatives. Fleckenstein claims that our pedagogies, in particular, carry with them our ethical positions. She writes, "The *how* we teach and the *what* we teach implicate the kind of citizens our students may become. *How* we teach and *what* we teach also implicate the kind of vision we privilege and the kind of social action we sanction" (p. 149, emphasis in the original). Fleckenstein uses "social action" broadly to include any individual and collective symbolic act that aims to change social habits

(p. 5), and here she urges teachers to consider what social habits and relationships their pedagogies endorse.

As Fleckenstein suggests, writing and education are always ethical inasmuch as writers and teachers are accountable for the effects of their texts and practices on audiences, students, and on others. Cooper (2005) notes, "Communication is always an ethical act[;] . . . designers are responsible for the effects of their actions on situations and on the [communicative] resources" (p. 37). John Duffy (2014) likewise claims that "to teach writing is by definition to teach ethics" (p. 213). For instance, when we teach student writers to write credibly and to honor counterarguments, we are asking them to enact certain dispositions and construct particular relationships with their audiences. He writes, "When we teach students to read and write claims, . . . we are teaching them to practice the ethical dispositions of honesty and respectfulness. We are teaching them to trust their readers and write in ways that earn trust in return" (p. 220). Within ecocomposition, Matthew Newcomb (2012) also addresses this responsibility when he argues that pedagogy of design can help students think about how extra-textual relationships impact writing: "Design encourages writers to focus on composing relationships and ecosystems, rather than texts. Instead of asking about visual elements, or constraints, or even human impact, design should be about how something fits with the world around it" (p. 607). For Newcomb, the metaphor of sustainability can help writers think about how best to compose durable relationships between their texts and potential audiences (p. 609). In addition to helping students construct relationships with audiences, we might

think—as writers, teachers, and practitioners—about the relational contexts surrounding our writing praxis and academic practices, and about our responsibility to others in distant places as well as our responsibility to future generations. When we teach digital composing without grounding the digital in the material world, we risk proposing relationships wherein the global, environmental, and human rights issues surrounding digital technologies are inconsequential to digital writing. Problems such as e-waste and sweatshop production conditions are both ecologically related and ethically relevant to literacy and education, and the continued intensification of such problems necessitates that we "pay attention" (C. Selfe, 1999).

Ecocomposition provides a framework for directing the attention outward to the environments we inhabit as well as dialectically inward toward our relationship to and participation in these phenomena. In their discussion of how ecology can inform writing studies research methods, Fleckenstein, Spinuzzi, Rickly, & Papper (2008) propose an expanded view of writing research. The authors ask that we "envision research as a web of interlocking social, material, and semiotic practices" (p. 394). This research model highlights the interdependence of researcher, context, and object of study, and situates the researcher within the research project; an ecological perspective acknowledges that the researcher is never an objective observer but is an active participant inescapably influencing that which is studied (p. 399). Like Dobrin's, the authors' larger claim is disciplinary: "[In order] to flourish, writing studies must generate individual research projects that focus on a wide array of contexts, from the bodies

of individual writers to classrooms, workplaces, clubs, churches, neighborhoods, virtual environments, and historical moments" (p. 401). In other words, writing studies must be a diverse field if it is going to thrive and remain relevant for the future of writing and education. The authors recognize the need for mapping our disciplinary terrain. However, rather than narrowing toward one type of research which will help writing studies stake out its disciplinary borders, the authors advocate expansion and plurality: as a field, writing studies should include "multiple sites of immersion, multiple perspectives, and multiple methodologies within a particular discipline and research project" (p. 401). An ecological view encourages us to adopt this multiplicitous perspective.

The problem of obsolescence poses a challenge to maintaining in view the materiality of digital technologies as well as their ethical dimensions. In their discussion of electronic miniaturization and ubiquitous computing, Byron Hawk & David Rieder (2008) claim, "As smaller technologies recede from human scale into the background, they seem as if they are not there, but they still exert considerable force on what becomes humanly possible" (p. xii). We might add that as well as exerting force on what is humanly possible, like Latour's actants, they also exert force on their own (see chapter 1). As Teddi Fishman & Kathleen Blake Yancey (2009) put it, mobile tech "attract us specifically because they are free from physical constraints." Of course, they go on to say, "Wireless is not untethered" (p. 39). Still, writing scholarship is often enthusiastic with regard to the vast quantity of composing tools available and excited about writing's hypercirculatory quality, and this excitement sometimes leaves us in danger of eliding digital materiality.

For example, composition theorist Raúl Sánchez (2005) argues that "the most striking features of writing are its sheer proliferation and its constant, rapid circulation" (p. 3). Thus, he finds exigency in the proliferation of networked writing ecologies: "writing pours forth from countless computers and travels to multiple places around the world instantly, simultaneously, and continuously" (86). Of course, he is not quite right: information transfer is not instantaneous and it "pours forth" only via complex networks of machines, wires, satellites, and information processing servers. Sánchez finds that the sheer volume of text being produced and the speed with which it circulates necessitates that writing specialists find theories appropriate for the contemporary textual environment. But the overwhelming volume of "writing" as such has the tendency to dislocate its proliferating "networks" from the material, social, and temporal environments in which they are embedded. As Amy Kimme Hea (2009) puts it in her discussion of mobile tech, "Ubiquitous computing . . . argues for the invisibility of technology—making critique of technological practice nearly impossible or irrelevant—and perpetuates the idea that individuals need not consciously engage technology—assuming that agency in relation to technology is unnecessary and undesirable" (p. 201). Yet digital tools have consequences for human rights and the livability of inhabited environments that scholars in the humanities—as those scholars who consider phenomena in relation to humans—must take up.

Chapter 4: Obsolescence and New Media Pedagogy

Chapter abstract: In the context of Web 3.0, a critical literacy approach to the pedagogy of new media is no longer sufficient for engagement with digital tools. A historical survey of pedagogies of critical literacy demonstrates the limits of a critical literacy approach in the context of rapid, planned obsolescence of digital writing devices.

Introduction

In 2012, a high school girl made the national news when she was identified as pregnant by Target's advertising data before she had even told her parents that she was expecting (Duhigg, 2012). After she received coupons in the mail for baby clothing, strollers, and maternity clothes, the girl's father confronted his local Target store manager. In what was reportedly an angry exchange, the father accused Target of marketing baby items to his daughter in an effort to encourage the girl to get pregnant (Duhigg, 2012). But when the store manager called him days later to apologize, the father too had an apology to make. His daughter was, indeed, pregnant. Target's purchasing algorithms had figured it out before her own parents did.

Within the field of composition and rhetoric, the predominant response to our hyper-informationalized environment and the proliferation of digital tools has been to call for critical literacy with regard to new media texts and technologies. Students are navigating profoundly media-rich environments, the argument goes,

and need critical and rhetorical savvy in order to be capable, responsible communicators who can protect their own interests and keep themselves safe. As I have argued in this dissertation, the rapid, planned obsolescence of digital tools also threatens to render our research about and pedagogical strategies for engaging these tools obsolete. Early studies which set a program for research in computers and writing are easily dismissed by those who recognize that many of the devices, systems, and interfaces that these early studies address are no longer in circulation among the general public. Concerns about students' capacity to recognize the ideological assumptions underpinning the Microsoft Office desktop display (Selfe & Selfe, 1994), to evaluate the authenticity of online images (Baron, 1999), and to resist being duped by forwarded email "chain letter" hoaxes (Gurak, 2001) seem today to have little relevance to students who have grown up consuming, remixing, and producing nonprint media online.

Still, the promise of critical literacy is that it is transferable despite the apparent obsolescence of the particular interfaces under discussion. If students can "read" new media texts critically, analyze their hidden assumptions, and use new media texts to "write" for suasion, then these skills should be applicable for a range of texts in that genre or medium. To be critically literate is to be equipped with habits of mind that enable a shift in focus to different texts or different tech while still functioning as a critical, rhetorical consumer and producer of those media. And yet the proliferation of digital tools on the market stands as obstacle to critical literacy because different media demand a variety of different literate practices. Jonathan Alexander & Jacqueline Rhodes (2014) resist the universalizing

claim, made by some scholars invested in multimodal communication, that "everything is writing" (p. 17). In light of the multimodal turn in recent years, many have argued that the crafting of a video is still a process of creating an argument—albeit in a nonprint format. For Alexander & Rhodes, creating a video requires distinctly different ways of thinking, composing, and organizing information than those required of writing in print. They challenge what they read as a trend in multimodal pedagogy in which teachers encourage students to "make arguments" with nonprint texts, and thus invite students to simplistically graft their understandings of linear, alphabetic argumentation onto nonprint texts (p. 17).

Certainly many can agree with Alexander & Rhodes that the literacies and literate practices required to engage the new media tools currently in circulation are multiple, complex, and variegated. They are also significantly different from the literacies needed for navigating old media. In order to create an interactive digital book that is accessible on tablet computers, such as an iBook®, I need a set of functional literacies that are not demanded by other composing situations and I need rhetorical and critical literacies that are not identical to those I bring to the reading or creation of a print book. In this way, planned obsolescence limits the transferability of critical literacies. Although some skills, rhetorical understandings, and production practices are useful across different platforms, the range of those skills which are transferable is getting smaller as the range of products available and in use in public contexts gets wider.

Furthermore, critical literacy suggests not only functional ability but also attention to questions of power and justice. Following the critical instructional methods developed by Paolo Freire (1968/1993), critical teachers seek to engage students in problem-posing, an activity through which the instructor offers problems up for students to engage, discuss, and interrogate. In the critical classroom, then, "students—no longer docile listeners—[are] critical co-investigators in dialogue with the teacher" (Freire, 1968/1993, p. 62). To be critically literate means being able to wrestle with problems of power and social inequality. In this way, to be critically literate with digital tech in the context of the rapid, planned obsolescence of digital devices means questioning how different devices and different literate practices command social and political power in different measures, as well as interrogating how digital technologies contribute to social injustice and participate in broader social structures that disenfranchise particular people and groups. As Henry Giroux (2006) puts it, "pedagogy always represents a commitment to the future, and it remains the task of educators to make sure the future points the way to a more socially just world, a world in which the discourses of critique and possibility in conjunction with the values of reason, freedom, and equality function to alter, as part of a broader democratic project, the grounds upon which life is lived" (p. 5). Critical educators help students claim authority in the classroom and in the public sphere by questioning ingrained institutional structures that have become naturalized over time.

Yet the context of rapid, planned obsolescence limits the potentials for critical literacy both because it is logistically difficult for teachers to keep up with

the wide range of tools on the market in a functional way and because critical approaches to digital tools have been limited in their attempts to challenge the commercial structures that encourage excessive purchasing, updating, and obsolescing of equipment. Critical approaches that invite students to interrogate the ideologies implicit in software interfaces (see Selfe & Selfe, 1994)—while important and still necessary—do not ask students to question the broader power structures which have contributed to the accumulation of electronic waste in impoverished regions across the globe or those that create the need for unsustainable production conditions such as those surrounding conflict resources and sweatshop labor.

In this chapter, I argue that the critical literacy approach to new media is still necessary but is no longer sufficient for addressing our contemporary communicative environment. Web 3.0, which John Markoff (2006) dubbed the "semantic web," is learning from us.[15] Data about the writing we publish online, the queries we enter into the Google search box, and the way we move among different texts and tasks online are collected and synthesized. Increasingly advanced algorithms cull patterns and statistics from these data, and interpret the patterns to inform future action. The Google PageRank® tool, for instance, organizes Google search results based on numbers of links between pages and user clicks. These results also change over time based on changes in patterns of linking

[15] Web 1.0 was the read only web, the presentational version in which information could be presented but web users could do little else besides consume the information. The shift to Web 2.0 emphasized user-generated content and audience participation; one person can post a text on the web and someone else can comment on it or interact with it. Web 3.0, as I mentioned at the opening of this chapter, is the semantic or intelligent web, in which web technology assimilates and deduces patterns from user generated content.

and clicking (Vaidhyanathan, 2011, p. 59). The Apple iPhone® program Siri gets smarter every time we talk to "her." The program stores information from our conversations with it and uses those data to structure its future conversational interactions with us and with other users. As Apple describes it on their website:

> The more you use Siri, the better it will understand you. It does this by learning about your accent and other characteristics of your voice. Siri uses voice recognition algorithms to categorize your voice into one of the dialects or accents it understands. As more people use Siri and it's exposed to more variations of a language, its overall recognition of dialects and accents will continue to improve, and Siri will work even better.
>
> ("About Siri," n.d.)

Siri is learning your voice and will be able to communicate with you more effectively over time. It is also learning the voices of people all over the planet, and so, Apple implies, it is becoming more aware of and more responsive to cultural diversity.

Web 3.0—evident in Siri, algorithms, and data mining—shows the limits of a critical literacy approach to new media. What can we teach students about critical consumption of media in an age when students are generating the content from which web algorithms "learn"? The exigent question thus becomes something more than how students can learn to use smartphones and navigate the web critically. The web, as it were, is learning from our students and is using the writing they do online to create new connections across documents, texts, and pages. Advertisers pay for space on students' screens based on what they write and what spaces on the web they navigate, and so our students, in a way, are themselves the products being consumed. The pedagogical dynamic is a new one that changes the shape of the literacies needed for critical engagement. The rapid,

planned obsolescence of digital devices should shake our confidence in the virtue of critical literacy pedagogy. Web space is commercialized and so any critical literacy transacted in web space is radically skewed in favor of commercial power and corporate control. The models of critical pedagogy with which we have become familiar that encourage students to question power and justice, and should do more to question who has power to control digital literacies as well as the implications for justice of these power structures.

In what follows, I use narrative history to analyze examples of new media educational initiatives from the 20th century in the U.S. to show the limits of a critical literacy pedagogy for our current educational and cultural situation. By looking back to older models for new media pedagogy, my goal is to frame critical literacy pedagogy in terms of inheritances from older models and to deploy a method related to what Debra Hawhee & Christa Olson (2013) call "pan-historiography," which they define as "writing histories whose temporal scope extends well beyond the span of individual generations" (p. 90). Hawhee & Olson argue that synchronic and diachronic histories can and should be brought into balance so that we might more clearly see the continuities and discontinuities that exist across time (p. 93). By drawing early new media pedagogies into view in this chapter, my intention is not to elide the differences between different historical moments but to understand more clearly our theoretical inheritances and the discursive traditions that inform educational trends and current conceptualizations of new media pedagogy. In my use of it in this chapter, pan-historiography together with the obsolescence heuristic can help us trace the ways

that arguments about the pedagogical capacity of new media and the role of critical literacy in new media education have changed over time.

Obsolescence of Traditional Models in the Progressive Education Debates

Despite claims to newness and the recent excitement over global changes enacted by digital media and multimodal communication, the use of new media for pedagogy has a rather long history in U.S. educational institutions. In the early to middle of the 20th century, what we might today call "new media" were at the heart of debates about the purposes and methods of education. The use of film and radio for educative purposes became popular both because new media seemed to offer new potentials for dissemination of education and because those media had already gained a foothold in public contexts and popular culture. Much as is the case today, many educators argued that the public prevalence of new media required that students learn how to interpret and use new media critically. As John Culkin (1968) put it, "Today's students are immersed in a sea of communications . . . If we are interested in students, we should want to teach them how to swim in these new and uncharted waters" (p. 11). Educators in the 20th century argued that the media-saturated environments that students regularly encounter necessitated critical education. These early positionings anticipated more recent claims about "digital natives"[16] and the extent to which students who are already navigating new media require more critical and rhetorical training in order to

[16] I recognize the troubled discourse surrounding the "digital native" trope. However, I use the phrase here as shorthand for the various ways that scholars have asserted that students, because they grew up in digitally-saturated culture, inevitably have more facility with digital technology.

become capable communicators.

In the 20th century, conversations about teaching with new media circulated within the context of broader discussions about progressive education and the most appropriate methods for helping students develop into educated citizens. In this way, conversations about whether or not to implement new media in classrooms were related to broader discussions about the purposes of education more generally. Andrew Hartman (2008) notes that progressive education, which began after the turn of the 20th century, was not monolithic and generally fell into two camps, "education for social efficiency," what he called "the 'order' variant of progressive education," and "education for social democracy," or what he called "the 'justice' variant" (p. 9). In general, both of these branches distinguished themselves from traditional methods by focusing explicitly on student-centered pedagogy (Hartman, 2008, p. 9). In both cases, progressive educators argued that traditional school curricula were obsolete for being ineffective in preparing students to adjust to industrial society (Hartman, 2008, p. 10). Educational training left students unable to meet the demands of the modern world, these educators argued, because changes to educational institutions and curricula failed to keep pace with social change (Hartman, 2008, p. 11). The demands of industrialized society were such that traditional learning was viewed as inadequate for helping students to become capable social citizens in this "new" modern environment.

New media pedagogy was related to these debates through the focus on whether and to what extent social education should be part of a required curriculum. Progressive educators such as John Dewey and Jane Addams claimed

that social citizenship should be a cornerstone of general education. In order to teach social citizenship, Jane Addams, for instance, used newspapers, works of art, and study of nature in the Hull House, a settlement house established in 1889 in Chicago (see Stankiewicz, 1989). The Hull House was designed to provide social and educational programs to working class women. On the other hand, critics of this view contended that social training eroded the purposes of school to prepare students for rigorous intellectual work. In his historical study *Traditions of American Education*, Lawrence Cremin (1977) attributes transformation in American schools in the first half of the 20th century to competing claims about the purposes and desired effects of education as well as to unprecedented social and economic factors which necessitated classroom and administrative change. Cremin identifies an increase in school enrollments, the growing rate of divorce, the dilution of the influence of the church, and the continued impact of modernization and industrialization among the factors that contributed to the lack of consensus over school curricula (pp. 99–100). Progressive educators attempted to ameliorate these problems and the growing issue of high school dropouts by preparing students for vocations, parenthood, and citizenship through life adjustment training and family life education, but critics of such programs consistently pushed for more rigor in public school curricula (Gibboney, 1994, p. 38). In *Educational Wastelands: The Retreat from Learning in Our Public Schools*, Arthur E. Bestor (1953) recounts a discussion which he sees as emblematic of the problems with progressive education:

> At one state teachers college which I visited, a faculty member asked me in all seriousness whether a course in general education was not the proper

> place to teach good table manners to college students. Since 'general education' has come to signify, in so many institutions, complete educational inanity, we ought to abandon the term forthwith, and restore the traditional phrase 'liberal education,' which, despite frequent misuse, has never suffered such utter degradation as the new one. (p. 169)

Here and elsewhere in the volume, Bestor condemns progressive education for what he sees as its "vanishing sense of purpose" (p. 1), arguing that it has "undervalued liberal education" and thus contributes to what he saw as anti-intellectualism in school curricula (p. 8). In particular, Bestor aimed his critique of anti-intellectual pedagogies at "Life-Adjustment Training," calling such efforts a parody of education which "[refuse] to subordinate incidental activities to essential ones" (p. 81). Conversely, progressive educators maintained that "a person's emotional adjustment, his happiness, his ability to meet all kinds of situations with balance and self-control, his ability to get along well with all sorts of people . . . are the most important things for [students] to achieve" (Washburne, 1952, p. 145). Many progressive educators thus maintained that life adjustment pedagogy was a necessary foundation for the education of the whole citizen and as the basis for curricular education in all areas.

The pedagogy of new media was interlinked with social training via the progressive notion that teachers should help students critically navigate new media—such as radio (which became widely available around 1920) and film (which gained importance for education starting in the 1940s)—because they were already consuming those media in their daily lives. By situating life adjustment and social pedagogy as central to the mission of education, progressive educators also took a more capacious view of the purposes of education and the

role of educational institutions in engineering social structures. Rather than considering the social sphere to be self-sustaining and self-generating, progressive educators maintained that part of the purpose of education is to prepare children for democratic citizenship. If education for citizenship was the goal, then methods for public distribution of educational information were necessary. The new media of radio and film offered possibilities for such mass distribution and also offered an opportunity for educators to clarify their own understandings of the purposes and functions of education in the context of claims about obsolescence of traditional models.

Radio for Distance Education at the University of Oklahoma

As is often the case with recent studies of online discourse and multimodal rhetoric, many earlier discussions surrounding new media focused on the need for critical literacy with regard to new technologies such as radio and film. Because new media were beginning to saturate culture, some progressive educators called for critical awareness of these technologies and of their roles in public life. One example of how critical education in media was disseminated and supported is evident in the work and new media pedagogy of Alice Sowers, who was a professor of education and director of the Family Life Institute (FLI) at the University of Oklahoma (OU) from 1938–1959. The FLI was one iteration of the life adjustment pedagogy initiatives that were common of some strands of progressive education.

Under Sowers's direction, the FLI helped instruct students at OU as well as the broader Oklahoma public in family life, social belonging, and norms for public

engagement. Sowers worked to take FLI pedagogy outside the university, and toward this end, she helped to create classroom films that circulated in public high schools nationwide. She also produced and recorded weekly radio broadcasts that were disseminated throughout the state of Oklahoma. Sowers collaborated on two classroom films with Coronet Instructional Media, authored several books and more than three hundred instructional pamphlets, and produced weekly radio broadcasts which were aired on WNAD, an Oklahoma radio station ("Obituary," 1978). The two films Sowers collaborated on, *Are You Popular?* (1947) and *Shy Guy* (1947), were widely disseminated in high schools in the U.S. and provided instruction in social belonging and norms for fitting in with others.

In Sowers's work on radio broadcasts, she articulated her desire to use radio as a civic project and a form of distance learning that would educate those who did not have the opportunity to engage formal study at OU. In a letter dated 3 December 1945, Sowers informed John Dunn, the director of the WNAD radio station that another radio station stopped replaying broadcasts of her FLI radio shows because of poor sound quality of the recordings, which were being taped at Dunn's station. Sowers (1945) wrote:

> I am distressed about [the cessation of the broadcasts] since it means the breakdown of a large part of the program I have been building up over the past years. Since early in my program, radio has been used to make it state-wide. Our system of radio listening groups and individual listeners has received nation-wide recognition in books, reports, and conferences. In Oklahoma, where adult leaders are not available, a system of lay leadership has been developed through the coordination of radio, correspondence, articles in state-wide publications, and conferences.

This letter, written in response to the radio broadcasts she coordinated being obsolesced at one station, demonstrates Sowers's recognition that radio affords

potentials for distribution not available through other media and also shows her belief that critical education can be enacted through engagement with radio technology. Although records from the radio listening groups do not exist, the listening groups were reported to have engaged in discussions following the broadcasts, and probably those discussions encouraged continued deliberation and critical engagement with the issues presented (see Waller, ca.1945/2013). Though her sentiments about the absence of public leadership in Oklahoma may seem simplistic and even paternalistic, this letter makes evident Sowers's belief in the educational capacity of new media technologies and the emerging possibilities for education engendered by new media.

Although Sowers's Family Life Radio broadcasts were extensive and incorporated several different topics relevant to the social sphere and family life, for the purposes of this chapter, I focus on two Family Life Radio broadcasts that explicitly address the need for critical awareness with regard to new media. The two broadcasts I study in this section address the radio and the newspaper, and both argue for the necessity of critical consumption of and engagement with those media. In addressing critical literacy, these broadcasts also foreground the pedagogical importance of the surrounding environment. In other words, critical education is presented as interactive; critical understanding of the newspaper requires that parents and children interact with the newspaper in particular ways and situate its information delivery in a broader learning context.

Like much of the recent scholarship on new media pedagogy, both of these broadcasts, in their own way, argue that the ubiquity of new media necessitate the

public's critical literacy in engaging those media. The title, "The Problem Child: The Radio" (n.d.) is meant to be ironic. According to this broadcast, the radio is not the problem, individual users are. The discussion makes the point that "radio has further democratized education, taking to all citizens who care to listen, the finest products of study, thought, and research" ("Problem," n.d.). The democratic promise of new media is afforded by the radio's speed at reaching audiences and ability to connect to audiences at a distance. These affordances, the broadcast suggests, also make radio a powerful way to sway audiences and thus audiences must engage radio broadcasts thoughtfully and critically if they are to engage the medium responsibly. The broadcast states:

> Everyone will agree, I am sure, that the field of emotional training of children is a most important one. It is probably true that the feelings and emotions contribute more to the behavior stability or instability than any other factor unless it be the integrity of the human organism itself . . . . Here again the radio offers tremendous possibilities, because it is true that if anything other than first-hand experience has the power to sway us, it is drama. Effective character education by radio depends more largely on drama than on any other device. ("Problem," n.d.)

By "dramatiz[ing] history" through aural communication, the broadcast suggests, radio can stir the audience's emotions and thus has potential to be more persuasive to its audiences than print can be. The assumption that new media are more engaging to younger generations than print texts is also evident in this broadcast as well: "Children today can actually hear history happen, and can, through dramatizations presented on the radio, get a much more definite, meaningful, and lasting impression of many topics formerly presented only in rather dull textbooks" ("Problem," n.d.). The broadcast acknowledges the ubiquity of radio and calls therefore for critical consumption of radio texts as well as

attention to design. That is, in addition to critical use, the broadcast suggests that because the mode is so powerful, its ethical dimensions must be addressed. It states, "Our task is to adjust the machine and its functioning to our way of living and to our goals, and to adjust the individuals operating the machine to it in such a manner that it will contribute to the development and entertainment of the individuals to the limit of its capacity." As was addressed in chapter 2, such arguments about ethical design anticipate later claims by Madeline Akrich (1992), Bruno Latour (1992), and Peter-Paul Verbeek (2006) that designers should be attentive to the power of media and should take an ethical approach to the construction of new media technologies.

Like "The Problem Child: The Radio," "The Family Reads the Newspaper" calls for critical engagement with popular media in general and when reading the newspaper in particular. Because "the newspaper is a reporter of the serious and important, as well as of the light, frothy trivialities of life" ("Family," n.d.), readers must learn to recognize the differences between different sections of the paper and must also understand that journalistic reporting presents an interested version of "reality" rather than a transparent window on newsworthy events. The program calls for a method of reading the newspaper that is critical and that allows readers to account for the "disjointed," "piecemeal" status of its articles, rather than accepting everything in the newspaper as equally true or useful.

In addition to calling for critical information literacy, "The Family Reads the Newspaper" argues that students can use the newspaper to make literal the lessons they learn in school. The broadcast makes an implicit argument for the

benefits of extracurricular learning through new media, especially in conjunction with curricular education. Though it starts with the value of newspaper for educational purposes, the broadcast also argues that students can use the newspaper to make real-world connections with the information they learn in school: "The financial section may be a bit outside the ken of the seventh- and eighth-graders in the home, but there are parts of the paper from which they can get some mighty good material for that civics lesson in school on Monday" ("Family," n.d.). This kind of "off-the-record" or extracurricular education, the broadcast argues, can be used as a direct supplement to curricular instruction. This method of environmental learning was popularized in the progressive era through the works of John Dewey, Jane Addams, and others, and resonates with the value on student centeredness and reflective pedagogy that has persisted throughout the history of composition instruction in the U.S. Furthermore, because it is not taught in school, the newspaper invites student engagement by appearing to be a form of entertainment when it is actually informative and educational: "When [the student] looks at [a newspaper], he doesn't know he is being educated. Such unconscious absorption of knowledge is entirely painless, and hence more effective" ("Family," n.d.). And, the broadcast suggests, requires critical literacy.

As suggested by the works of Alice Sowers and as mentioned previously, the OU FLI radio broadcasts were an attempt to provide a kind of distance education to the general public. Although they did not use the term, these broadcasts called for critical literacy in engagement with the new media technologies of radio and newspaper, and although these may seem to be obsolete pedagogical media in the

current context of MOOCs, open courseware, "personalized" algorithmic training modules, and other digital university initiatives, they anticipate the approaches to critical literacy that dominate much of the current research on digital technologies. Additionally, their obsolescence helps us understand the limits to a critical literacy approach to new media technologies. Studying the ways that texts and technologies have changed over time, as the obsolescence heuristic helps us to do, shows that while the calls for critical consumption of and literacy in new media delivery systems have endured, the communication landscape is different enough that a pedagogy of critical literacy is no longer enough. The rapid, planned turnover of digital devices has created a fractured communication environment in which there are many different kinds of tools requiring many different kinds of literacies. The FLI radio broadcasts' suggestion that critical literacy is environmental and requires not only critical consumption on the part of new media audiences (and students) but also critical implementation by teachers and parents. As I show in the next section through classroom film, enacting critical environmental implementation requires time, labor, and consideration. Such critical implementation becomes difficult and even impossible in the context of rapid, planned obsolescence of devices.

A Pedagogy of the Visual in Classroom Films

Like radio, as film began to gain popularity in public culture, it also began to influence and gain traction within education. Early arguments for pedagogical film projects rationalized the use of film both on the basis that it was already a popular

entertainment medium—and thus would be engaging to student audiences—and because it appeared to afford unique and attractive opportunities for the delivery of education. Ken Smith (1999) argues that the use of film caught on in pedagogical contexts after educators noticed that film was being used for training purposes during WWII. In that context, films were used to train soldiers how to disassemble rifles and train civilians how to rivet bulkheads, and the use of film for practical instructional purposes during the war eventually led to what were called "attitude-building" films which were designed to motivate and influence people psychologically and emotionally (Smith, 1999, p. 20, p. 21). As Smith puts it, "Women on the assembly line and soldiers in boot camp learned not only *how* to perform their tasks, they learned to *want* to" (p. 21, emphasis in original). Civilian educators noticed this trend and began to incorporate filmic texts in mainstream schooling, partly because of the effectiveness of film in WWII and partly in response to a call for more innovative, engaging, and interesting methods of education (Smith, 1999, p. 22). As observed by one educator in a 1937 special issue of the *Journal of Educational Sociology* about the educational possibilities of film: "Everyone knows how exceedingly difficult it is to build character, citizenship, health, and aesthetic appreciation through lesson assignments and reading materials alone. More powerful educational tools must be found" (May, 1937, p. 160). Because it was a medium both familiar to the public and assumed to be attention-grabbing, film seemed to ameliorate many of the concerns with ineffective pedagogy, among which student engagement was primary.

Film was perceived to be captivating to young audiences and also provided

an easy way to disseminate a message to a broad audience, so film came into use in educational contexts for social belonging pedagogy by the 1940s. Jean Pinney (1936) of the American Social Hygiene Association noted the appropriateness of film for "mass education" as early as the 1930s, suggesting that film was particularly useful for teaching students about public health issues like syphilis and gonorrhea which "cannot be stamped out unless intelligent cooperation of the public is secured" (p. 159). Her use of the term "mass education" foregrounds not only the transmission of information made possible in film but also the possibilities for a broad audience. The use of such media in the classroom was seen as engaging to students for being associated with popular culture, but film also appealed to administrators for being economically practical; educators could convey the same information in many places at once at a relatively low cost. The use of film for training, Smith asserts, "forced a radical shift in the way most people thought about movies, education, and how the two could work together" (1999, p. 20). Thus by the late-1930s, educators began to recognize the value of film for the life adjustment social pedagogy that was important to progressive education.

In some ways, the critical literacies advocated in classroom films were not so different from other pedagogies intended to educate students on how to perform everyday tasks. For instance, one visual classroom text that combined social pedagogy with literacy instruction is the Coronet Instructional Film, *Writing Better Social Letters* (1950).[17] The film explicitly disrupts the assumption that writing well is a natural or innate skill and offers specific advice for writing thank

[17] Ruth Strang, Ph.D. and professor of Education at Columbia University was the educational collaborator on *Writing Better Social Letters*.

you letters, letters of sympathy, and other social notes. In the film, a girl, Nora, requests help writing letters from her brother, Wally. Nora has been studying models of social letters written by other people and is still having trouble crafting a thank you letter to her aunt. She asks Wally how he writes so well and at first Wally tells Nora that "It's a talent; some people have it and some don't." Nora promptly disagrees with her brother and demands his assistance. Throughout the rest of the ten minute film, Wally helps her understand how letters are crafted for different purposes and how they shape readers' emotions. Wally then gives her plenty of rules to follow for how to format the letter with appropriate margins and alignment, how to use specific details to convey sincere gratitude, and how to avoid sending mixed emotional messages in thank you notes. By addressing the ostensibly extracurricular literate practice of writing friendly letters, this film provided the social education valued in some circles in the progressive era. It also advocated critical literacy in that medium by demonstrating that the medium is not as transparent as it may seem; the word choice and arrangement of social letters guide readers' emotions, the film claims, so writers should be attentive to the potential impacts of these features as they craft thank you notes for their intended audiences.

Beyond this model of critical literacy in print, other films did critical pedagogy work by arguing for film as a pedagogical medium. These films made arguments about how visual texts can be used to teach and also implicitly made claims for their own viability as educational tools. In many cases, the films dramatize the learning process they are designed to enact; characters are shown

watching school films, talking with their parents, and memorizing and learning the film's lessons, and this process leads to the characters' fulfillment at the end. A narrator will often describe this learning process in a voiceover as it takes place, and proper behavior is often contrasted with negative examples which underscore the film's messages. In *Are You Popular?* (1947), the Coronet Instructional Film Alice Sowers at OU collaborated on, teens are given specific advice for "getting to be popular with lots of people" by enacting proper social and dating etiquette. Carolyn, the new girl in school, is the positive example who is contrasted with Jenny, a girl who parks with a new boy every weekend and is disrespected in her peer group as a result. Jenny is used as a counterpoint in the film's narrative, and the positive advice Carolyn follows which leads her to be well-liked and popular with both boys and girls is consistently demonstrated in inverse through Jenny. As Carolyn absorbs what she learns from her experiences and from Jenny's bad examples, the film demonstrates how Carolyn learns those lessons, and underscores her differences from Jenny by making the audience privy to their peers' discussions about each of the girls. The audience learning about social etiquette also watches Carolyn and Jenny learn it, which leads the audience to reflect on its own position and implicitly identify with the characters. In this way, many classroom films argued for the pedagogical status of visuality and thus made implicit claims about why film is an appropriate teaching tool.



Figure 4.1: Still from "How to Use Classroom Films" (1963)
Image property of the public domain

The narrative of watching and learning here dramatized through Jenny and Caroline is pervasive across a range of classroom films, perhaps as a comment on the medium of film as a teaching mechanism or perhaps because they were offering advice about effective implementation. Classroom films were designed to stimulate discussion afterwards and were intended to be coupled with an in-class discussion to make the lessons stick, though as Ken Smith notes, this did not always take place in practice (1999, p. 31). Though implementation was often far from the designers' intended use in this regard, the fact that these films were meant to be paired with discussion foregrounds the student's role in classroom film pedagogy and represents another way in which these texts were meant to encourage critical literacy. Students were supposed to watch the films but were

also supposed to have a supportive educational environment through which the film's lesson were made material.

The instructional video *How to Use Classroom Films* (1963) outlines for teachers the steps necessary for implementing classroom videos effectively, and highlights the importance of the educational environment and careful teacher preparation in film pedagogy. Classroom films, the video argues, are not pedagogically useful by themselves; the videos' ability to stimulate critical thinking is a function of how the teacher situates them in class. In particular, the video text notes, "The objective should always be to use the film as a springboard for learning, understanding, and creating." The video offers teachers a series of steps for implementing classroom film; first, the teacher should carefully select a video that is keyed to her particular lesson plan. Next, the teacher should watch the film a few times, ideally with a small number of students who are serving as a test audience and who can discuss with the teacher their questions and offer feedback on their experiences as viewers. Third is "class motivation," a phase in which the teacher explains for students why they are watching the video and primes them for what details to watch for and to what aspects to pay attention. After the film gets screened in class (the fourth stage), the teacher should engage the students in activities and participatory learning events (the fifth stage) which help them to assimilate knowledge gained through the video and to apply their knowledge to other contexts. Throughout this process, the teacher's labor and preparation are pronounced and are framed as crucial to the success of film pedagogy. The narrator states that "Using a film is part of a creative process." The film, alone is

not what teaches; the film must be implemented critically and the students must be primed to study it purposefully.

Critical Multimodal Literacies in the Context of Ubiquitous Computing

In some ways, the critical film literacies advocated by educators who pioneered the use of film for educative purposes are easily transferrable across a range of filmic texts as well as to television and in some cases even to other visual media such as photography and and graphic design. Pedagogies of film can also foster critical skills in "reading" images and in "writing" visual compositions using images. The time teachers spent preparing to implement films effectively and the teachers' literacies with regard to pedagogies of the visual could be easily transferred to other visual media. Still, the rapid, planned obsolescence of devices, tools, and interfaces threatens today to obsolesce new media pedagogies and literacies, as well as their transferability. The obsolescing process was, in the past, much slower and thus pedagogies and critical skills developed could endure more easily and more readily than the multimodal literacies needed to engage the wide range of tools available on today's product market.

Indeed, even with the advent of Web 2.0, the interactive web, scholars argued that new literacies appropriate for the web were needed. Laura Gurak (2001) called for "cyberliteracy," or "a set of concepts and critical views with which to understand today's Internet" (p. 3), in the face of the web's new affordances. For Gurak, the key features of the internet were speed, reach, anonymity, and interactivity (p. 29), and these features affect how we relate to one

another as well as how we construct identities online. Additionally, Gurak argues, through these affordances the internet is initiating radical changes in commerce (p. 128), attitudes towards privacy (p. 112), and copyright issues (p. 123) about which we need to be vigilant and critical. More recently, Kristin Arola (2010) encourages writers to question what seems natural about interfaces and how template-based composing in Web 2.0 "render[s] form standardized and invisible" (p. 4). Thus for Arola, the affordances of the web require more rhetorical training for students; in particular, the ubiquity of template-based composing can stand as obstacle to web consumers' and students' critical consciousness with regard to interface design.

Today, of course, the use of film and web texts in educational contexts is common, and many first year writing courses train students to compose videos and webpages in addition to composing traditional print-based texts. Composition's "multimodal turn" expands the purview of rhetorical studies as well as first year writing. Many of these conversations start from the assumption that because students are already engaging in multimodal public discourse in digital spaces, print based pedagogies have become obsolete. Because students in their daily lives regularly encounter media-rich environments in which they compose images, video, and remix compositions on social media and in digital spaces, these scholars contend, we do students a disservice when we privilege print-based "academic" writing to the exclusion of other modes. In an oft-cited piece about the role of the visual in English studies, the linguist Gunther Kress (1999) calls us to rethink English curricula and develop new theories of semiosis which account for

the role of visuality in contemporary communication. He writes, "If English is to remain relevant as the subject which provides access to participation in public forms of communication . . . then an emphasis on [written] language alone simply will no longer do. English will need to change" (p. 67). Kress suggests that in order to maintain its significance in higher education and its ability to prepare students to engage in public discourse, English as a discipline must account for the roles that other modes of communication play in contemporary literate practices. As Kress argues, "the visual is becoming prominent in the landscape of public communication and . . . this cannot be ignored by school curricula" (p. 67).

Within writing studies, Kathleen Blake Yancey (2004) frames shifts in public communication as exigence for defining more broadly the work of composition. She claims, "Literacy today is in the midst of a tectonic change. Even inside of school, never before have writing and composing generated such diversity in definition. What do our references to writing mean?" (p. 298). The proliferation of digital media and the reliance of contemporary communication on multiple modes and on various semiotic resources have surely contributed to this confusion. "What *is* writing, really?" Yancey asks. "It includes print: that seems obvious. But: Does it include writing for the screen? How visual is it? . . . What about the circulation of writing, and the relationship of writing to the various modes of delivery?" (pp. 298–299, emphasis in original). Yancey's questions prompt us to clarify the work that we do; if public writing is increasingly multimodal and if the function of the first-year composition course is to teach students to analyze, understand, and participate critically in public forms of

writing, then our professional identities and our contributions to education are at stake in what it is we mean by "writing."

Anxieties about educational obsolescence surface in both of these twin concerns for how we can best serve students who are deploying complex literacies outside of our classrooms and for how we define the disciplinary work of writing studies. The question of whether or not practices of literacy education are appropriate for what students are doing outside of school suggests a suspicion that the work of the classroom has become culturally obsolete. This worry, in turn, speaks to a greater fear that our discipline and its methods are in danger of obsolescence. Alexander & Rhodes (2014) identify what they see as two contending responses to the fear of print's apparent obsolescence. On one side, they position scholars such as Yancey and Cynthia Selfe, who argue for a broader and more capacious definitions of "writing" in response to the obsolescence of print pedagogies. On the other, they show that Doug Hesse and respondents on the Writing Program Administration (WPA) listserv take issue with this broadening of "writing" to include sound, image, and webtext by suggesting that perhaps our definitions of rhetoric and writing have become too diffuse and thus incoherent. By implication, Hesse and others ask, if it is our purview to teach designing, composing with sound, and creating images, how do we differentiate rhetorical work from the activities housed in other spaces on campus such as Design, Music, and Art departments? If "everything is writing," as some scholars have suggested, then how can we sufficiently limit—so as to articulate and perform—what it is that writing scholars do?

As mentioned previously, Alexander & Rhodes agree that rhetorical practices need not be confined to print-based writing (p. 7), even as they want to challenge the prosaic imposition of linear, alphabetic understandings of argument onto nonprint texts (p. 17). While it is outside the scope of this project to argue for or against defining more broadly or multimodally the work of writing studies, even a cursory examination of recent writing journals and scholarly monographs in composition suggests that the field, in general, has come down on the side of capaciousness by appropriating and developing strategies for teaching multimodal rhetoric. Within this scholarship, the calls are resounding for critical and rhetorical literacy with regard to media.

Still, such a capacious view of rhetorical production also entails a capacious arsenal of literacies needed to engage these media and formats. The challenge to stay critical of digital tools and to understand the ways different hardware and software interfaces variously engage us cognitively, emotionally, physically, and communicatively can be difficult or impossible when those devices are so quickly changed, updated, and obsolesced. The challenge can be even greater when the task of interface design, as I argued through my discussion of Siri in chapter 2, is to encourage the user to look beyond the interface and to focus on functionality. Anne Frances Wysocki & Julia I. Jasken (2004) demonstrate that we must be attentive to interface design in order to better understand "how interfaces fit into and support the varied and entwined sets of practices that shape us" (p. 36). Although scholarship in computers and writing disrupts the invisibility of such shaping practices, the authors note, "interface design encourages us to see forgetfully" (p.

30) in that design allows interfaces—the hardware and software points of contact between consumers and machines—to fade into the background of consciousness. Such scholarship draws attention to the materiality of composing technologies and encourages teachers and composers to be attentive to the means through which writing tools situate and reconfigure the bodies and attitudes of the individuals who engage them, as well as to what threatens to escape awareness.

However, the problem obsolescence poses for critical literacy is to render our literacies obsolete. Critical literacy in "reading" and "writing" popular film is transferrable, perhaps, to "reading" and "writing" television show or public service announcements (see Selfe & Selfe, 2008). However, these same critical production skills may not necessarily help students compose an interactive text such as an iBook®, navigate a web-based research aggregator such as Zotero®, or even create a rhetorical social media post on Facebook®. Claims about the ways in which new media are intuitive and user-friendly serve to mask the labor necessary for developing and teaching the literacies appropriate for the wide range of media available on the product market. In the context of ubiquitous computing, the phenomenon in which computing devices are implanted in many things from glasses to door locks to thermostats to refrigerators to wearable fitness trackers, the literacies needed to navigate such "smart" environments critically are almost as numerous as the devices themselves. Furthermore, these smart environments can themselves disturb critical literacy through their very ubiquity. As Amy Kimme Hea (2009) puts it in her discussion of mobile tech, "Ubiquitous computing . . . argues for the invisibility of technology—making critique of technological practice

nearly impossible or irrelevant—and perpetuates the idea that individuals need not consciously engage technology—assuming that agency in relation to technology is unnecessary and undesirable" (p. 201). Yet the social justice implications of computing material and their rapid, planned obsolescence makes critical engagement with these digital tools more crucial now than ever.

In her study of educational media, Elizabeth Losh (2014) demonstrates that the importation of digital and new media into educational contexts also shifts and reframes the purposes of education. Losh analyzes digital educational initiatives such as the Coursera® MOOC at the University of Virginia, the iPod® initiative at Duke University, and the HP Jornada® pocket personal computers implemented at the University of California, San Diego to study what values these educational initiatives promote. In many cases, digital initiatives model pedagogy as a signal to be broadcast (p. 5) rather than a dynamic interaction between teachers and students. For instance, during the iPod® initiative at Duke, which began in 2004 and only lasted a year, teachers were encouraged to record podcasts that their students could listen to instead of attending lectures. According to Losh, iPods were adopted because they were familiar to students, but faculty had little training and support for implementing iPods in their courses (p. 182). Additionally, the device is mostly unidirectional; students could listen to the lectures but were not able to talk back to the device, ask questions, or interact with the teaching materials in any other way besides as passive consumers. Digital initiatives like this one, Losh argues, frame pedagogy as disseminating a message to an audience rather than a mutual process of collaborative problem solving and interaction

between teachers and students.

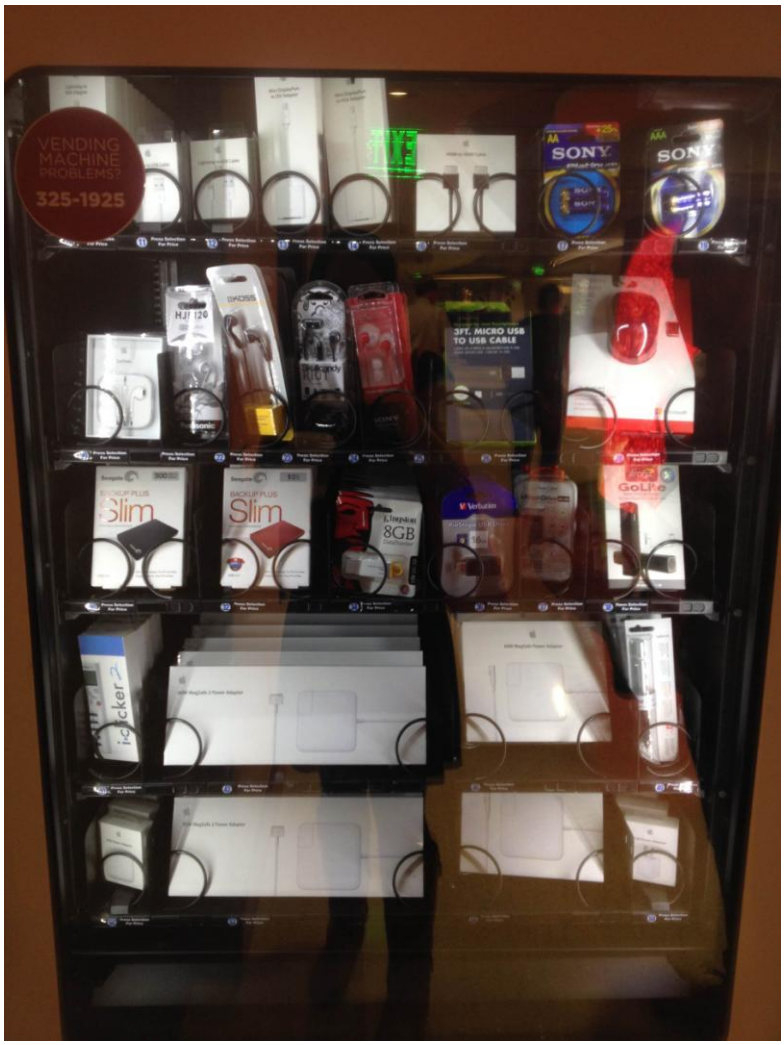


Figure 4.2: Tech Vending Machine in Bizzell Library, University of Oklahoma photograph by the author 2015

If, as Akrich (1992), Latour (1992), and Verbeek (2006) argue, technologies are "scripted" with potentials for use as well as values, then education has to answer the question of whose values are scripted into educational technologies. What modes of behavior, practices for interacting with others, and models for engaging the world do our educational technologies promote? A great deal of scholarship within composition addresses plagiarism detection software such as

Turnitin.com®. Rebecca Moore Howard (1995, 2003) and others argue that such software violates the very principles we seek to teach through discouraging plagiarism. That is, by handing student intellectual property (IP) over to Turnitin.com® so that the corporation can turn around and sell that student IP back to universities at tremendous profit violates the principles of ethical use of intellectual property that we seek to instill in our students. As universities develop even stronger partnerships with corporations and with private companies, and as education is increasingly filtered through software, we should be careful to consider how adoption of technologies alters, reshapes, and reframes our educational missions.

Recently, book publishers have begun to produce and promote algorithmic learning modules such as MyCompLab for writing pedagogy. These modules teach grammar and other sentence level skills by "learning" from students' mistakes about what they need to know better. Students who use the modules get questions and problems that become increasingly attuned to the areas in which they need development, which helps them to get extra practice in the skills they need the most. Just as is the case with the data mining that allowed Target® to determine a young girl's pregnancy before her parents did, these modules are quite literally learning from our students. Thus the time has come to consider what should be our pedagogical response when students' engagement with digital technologies alters the shape of the texts they encounter. In other words, students' critical literacy is limited not only by the rapid turnover of their devices but by the instantaneous shifting and reconfiguring of the programs in response to their

writing. While such algorithmic pedagogies certainly have potential to benefit students in some ways, we should be wary of the rhetorics through which these hyperpersonalized learning initiatives are framed as benevolent, as inevitable, as necessarily preferable to older models, and as crucial to the future of education. As progressive educators argued, learning is an embodied practice and requires collaboration and interaction in order to be truly assimilative. The project, for us, is to remain vigilant and to be conscious of how models for pedagogy get framed and reframed by the importation of new media in our classrooms.

Chapter 5: Coda on Instructional Technology and Future Research

Chapter abstract: Educators should be vigilant about the changes to pedagogical contexts and educational institutions that are initiated by digital technologies. In response to such changes, we should adopt a critical stance and study carefully the benefits and drawbacks of new media educational initiatives.

Introduction

Amid redesign efforts in the spring of 2006, the writing center coordinator at Football University requested 25 ergonomic office chairs to go with the round writing and consulting tables that fill the writing center space. Once the request was submitted, however, the coordinator soon received word that the university purchasing department would not be buying the ergonomic chairs. Despite the writing center's substantial budget and the university president's desire for significant overhaul of the space, the ergonomic seats were to be replaced with inflexible, wooden straight back chairs. In keeping with the university's aesthetic, which centered on heavy oak, rich mahogany tones, and mission-style furniture, the ergonomic chairs were considered unacceptable for being too drastic a departure from the university brand.

As Elizabeth Losh (2014) reminds us, the category of "instructional technology" includes not only smartboards, projectors, digital production labs, and tablet computers, but also lights, windows, chairs, desks, and classroom spaces (p. 237). Sometimes—as in the case of the writing center chairs—instructional

technologies betray the distance between what educators feel or know is the best for students and what technology companies or university administrators feel or know is best for students, for the university brand, or for the project of education. This is not to say that teachers are always right and corporate managers are always wrong; certainly problems can arise in the other direction as well. Many educators resist the implementation of new literacy technologies or new practices in their classrooms out of apprehension, fear, a sense of traditionalism, or a concern for the labor involved in adopting a new tool for teaching—especially when the promise of digital tech seems to be that today's revolutionary tool will tomorrow be replaced, go out of fashion, or become obsolete. Rather than positioning ourselves at either of these extremes, educators must work to take a fully critical approach to educational technologies of all kinds by avoiding either the uncritical adoption or the uncritical rejection of the new technologies. After all, digital technologies promise to change our pedagogies as thoroughly as they have changed communication practices in the public sphere.

I have argued in this dissertation that the rapid, planned obsolescence of digital writing technologies poses a problem for the discipline of writing studies. Scholars in writing studies are interested in how rhetoric—broadly defined—gets used to mediate activity and interactions between people. As part of this project and in light of the growing emphasis on digital communication, writing studies also investigates the way digital technologies enable and mediate communicative acts, and how digital devices participate in and even shape social rhetorical interactions. However, planned obsolescence of these devices interferes with

critical technological research in that the rapid turnover of digital tools and the pace at which their attendant writing practices change threatens to obsolesce the critical insights we develop about digital technologies and their attendant writing practices. Writing teachers who encourage critical literacy in multimodal rhetorics and multimedia technologies must also struggle to keep up with the rapid pace of tools or else submit to pedagogical obsolescence.

I showed that counter to its discursive status as inevitable, obsolescence is a rhetoric or a set of persuasive patterns that gets built into the design of digital tools. Further, rhetorics of obsolescence in design encourage us to look beyond the tool's status as a material object and to conceive it primarily in terms of its functionality. Because it is an ecological problem in that it is environmentally impactful and also inextricable from other structures currently in place, I argued that the study of obsolescence requires a materialist ecocomposition lens and, further, that the problem of obsolescence demonstrates that ecocomposition should pay attention to social justice issues. In other words, an ecological framework which highlights the interrelationships between myself and other parts of the "web" (Cooper, 1986) also makes evident the need for acting in ways that are ethically oriented toward improving living and working conditions for others within that web. Through historical analysis of new media pedagogies, I showed that obsolescence renders a critical literacy approach to new media insufficient. Because our students have available to them a range of digital writing devices that require a range of literacies and because those devices (and often, their attendant

literate practices) change, get updated, and become obsolete so quickly, critical literacy is no longer sufficient as a pedagogical response to new media.

In this chapter I provide examples of the objects of study which scholars in composition, rhetoric, and literacy can use to challenge rhetorics of obsolescence as they materialize in educational institutions. The obsolescence heuristic, as I have shown, provides a lens through which we can study change to writing and education over time. Rather than accepting uncritically the digital initiatives which obsolesce and inflect current educational models, we should study how students and teachers are impacted by particular digital-educational initiatives. By studying carefully pedagogical and institutional changes, we can develop the hard data needed to advocate for students, teachers, and labor from a well-researched and thus more persuasive position.

Digitizing Placement through Accuplacer®

In the spring of 2014, the Placement Testing Office at the University of Oklahoma approached the First Year Composition (FYC) Office to ask about replacing handwritten and hand-scored essays with a machine-scored placement system called Accuplacer®. In the past, the primary interaction between the FYC office and the placement office was typically on the issue of developmental writers. If students scored below a certain number on the English section of the ACT, the standardized national college admissions test, they were automatically filtered into the developmental writing course, which is a non-credit bearing course that students have to pass in order to enroll in the mandatory first-year sequence. If

students' ACT scores resulted in their placement in developmental writing, they could appeal that automatic decision by going into the placement office and writing in response to an essay prompt that was designed by the FYC office. They wrote this essay by hand, in pencil, and had 45 minutes to compose it. When the student was done writing, the Placement office would make a phone call to the FYC office. At that point, one of the graduate staff members in FYC would walk across campus and take a few minutes to score the student's essay. The rubric FYC uses to score the essays emphasizes rhetorical facility, conceptual understanding of arrangement and argument, and marshalling evidence effectively. If the student's writing meets certain expectations, FYC would change that student's course permissions and allow them exemption from developmental writing.

Although it may sound old fashioned and perhaps obsolete to walk across campus and hand score a handwritten essay, one benefit of this method was that the English section on the ACT is a multiple choice segment that tests for grammar. FYC readers grade for content and argumentative choices according to the values of OU's program. The placement office pitched the idea for machine grading to us with the justification that it would allow more students to take the test in a controlled environment. Many of the students who get filtered into the developmental courses are international students, and many of these individuals do not come to campus until the first week of school. Taking the paper-based placement test can be challenging logistically given these time constraints, and writing the test online in the machine grading situation would allow them to take the test at a distance instead of writing it by hand on the OU campus. On the other

hand, the FYC office worried about what this might mean for students. How does the machine score the essays? How does it rank the things the FYC program values, like argumentative fluency and audience-based choices? To what extent might grammatical errors cause students to receive low scores? Administratively, FYC also wondered what this would do to placement numbers. Would even more students end up required to take the developmental writing course as a result of the shift to machine scored essays?

As a critical lens, obsolescence provides a way to investigate the benefits and drawbacks of digital initiatives such as this one. As educators, it is our responsibility to evaluate changes to education and to consider most of all how students, teachers, labor, and access to quality education are impacted. How is the purpose of education figured and reframed? Who gets included and who is denied access? Obsolescence provides a heuristic we can use to consider how methods of education—and how educational institutions—participate in rhetorical patterns that elide materiality of digital tools, limit educational access, and suppress the visibility of the underprivileged. When the methods of education or assessment shift, as was the case with Accuplacer®, educators should consider critically the fallout of such shifts. In the next section, I discuss a hypothetical survey designed to provide a first year writing program with data about student access to technology on one campus in the face of campus-wide adoption of digital learning tools. The survey is an example of how we might use data gathered from empirical studies to challenge implicit assumptions about technological ubiquity that may be

serving a second purpose of offloading the cost of tech literacy acquisition onto students and teachers.

Surveying First Year Writers to Challenge Narratives of Universal Access

In 2012, Football University entered into a partnership and a 5 billion dollar contract with Apple Computers. At the same time, students witnessed university-wide overhaul of on-campus digital spaces, the appearance of new printing kiosks all over campus, and the installation of an Apple store in the middle of the student union. Amid these changes, the unspoken and sometimes even explicit assumption in much of university rhetoric was that students were fully digitally literate and that they all had laptops they would be bringing to class every day.

Because it seemed intuitively not to be the case that all students owned brand new laptops, the First Year Writing (FYW) Office's initial step was to push back on the basis of access issues. FYW cited institutional demographics such as the percentage of first-generation college students—which, at the time, was around 15%. They also cited decades of research in composition by such scholars as Cynthia Selfe (1999), Charles Moran (1999), Adam Banks (2006), Annette Harris Powell (2007), and others in order to suggest that not all of the students at Football U have consistent access to digital materials outside of class. Further, FYW pointed out that requiring that students have laptops in order to do university study privileges affluence. FYW worried—and argued—that the specific groups of people who would be excluded by this initiative would be low-income and first-

generation students, minorities, people with disabilities, and others who have historically been denied access to education and technology.

The new digital curriculum at Football U relied on students and teachers bringing their own laptops to class. FYW requested a budget to create a technology check-out systems through which they could provide equal access to both students and teachers who could not bring their own tech to class. The administration cited a figure from Institutional Research that all incoming students have computing capabilities. When FYW inquired with Institutional Research to learn more about their methods, they shared survey data from first-year students with an overwhelming figure—98% of survey respondents had computers. When FYW looked into their survey more closely, they learned, first of all, that the poll Institutional Research used to gather this data was emailed to students in advance of their arrival on campus. The 98% figure for tech access, then, was the result of a fully digital, emailed survey.

FYW also found that the rate of response to the email survey was roughly 85% of all incoming students. So in that case, the best case scenario was that the 85% response rate was an indicative sample and 98% of incoming students have reliable, consistent access to technology. If, on the other hand, the web-based survey methods privilege those who already have constant access, then the worst case scenario would be that those who did not respond failed to do so because they did not have computers. In this case, only 98% of 85% or about 83% of incoming students in the Fall 2013 semester had constant, reliable access to digital materials. In any case, somewhere between a fifth and a tenth of FYW students

would need additional access to fit the "bring your own technology" model. That semester, the FYW program had 2900 students enrolled, so the exact figures were between 58 and 490 students. Even the low figure of 58 students is a significant number of individuals and constitutes several full sections of first year writing.

In order to test the email survey data and gather evidence on access for students in first-year writing classes, FYW created a paper survey to give out to students on the first day of class in Composition 1 courses that was designed to add nuance to the institutional findings. FYW's goals were to:

- Complicate what was meant by "computers"—were students using laptops, tablets, smartphones, or cell phones? Because these different devices have different interfacing capabilities and interact with course management software, online files, and the University's email system differently, the types of devices students owned and used could make significant differences for teacher preparation.
- Find out about device age, compatibility, and other factors that impact access. The administrative assumption was not only that students had access but that they had a particular kind of access to particular devices.
- Find out about teachers' access to see whether students and teachers would be able to interface with course materials in ways that allowed them to do the work of the course together.
- Learn something about functional computer literacy (Selber, 2004). Again, owning a computer does not necessarily mean having capability with regard to its functional and rhetorical potentials (Banks, 2006).

In order to get at the nuances that the emailed survey might have elided, the FYW survey asked students to report not only whether they had access to computing, but also to report on the amount and types of access they had. Rather than asking simply whether or not students have a computer, FYW asked whether the devices they used were shared (for instance, with family or roommates), whether and how often they relied on the on-campus computers for their digital needs, what kinds of devices they were using to access course materials, and how old (in years) those devices were. FYW wanted to know about other factors that might disrupt the assumption that students have 24/7 access to digital course materials, such as whether students commute or work outside of school. FYW also asked students to rate their comfort levels with various devices and interfaces on likert scales from 1–5. Finally, FYW had an optional, qualitative section where students could report anything else they wanted us to know about their access needs or any other particular circumstances that might affect their performance in class or their ability to interact with digital materials. FYW was considering, for instance, devices such as screen readers for the blind and how they might interact with the files and documents teachers post online, as well as students who may be using smartphones to log into the course management software, which also interact with files and documents differently than a traditional desktop or laptop would.

Assumptions about student devices matter because obsolescence is also a function of interfacing: when new laptops are manufactured without CD-ROM drives, then CD memory becomes obsolete. If a student's laptop is too old to run the video software the teachers is using in class, that student's access issues are a

function of obsolescence. Thus the environment of equipment into which I take my device can also "down-class" (Anderson, 2010) or obsolesce my device and my literacies. Assuming that all students and teachers have access also implies an assumption that students have access to the hardware and software that will interface with their teachers' equipment, and vice versa. Interfacing is also an obsolescing mechanism, and the FYW survey was intended to point out the nuances and differences between devices and equipment, rather than covering over the potential problems by assuming that all students and teachers can "bring their own device" and so must have generalized, neutral "access." Through the survey, FYW was able to learn much about student access as well as about instructor access, and was able to advocate for the students who could not be present to self-advocate and debate in those conversations between FYW and the administration. Further, even when access is truly universal, as is the case in the following example of an iPad initiative at the University of Oklahoma, educators often still must work to maintain sufficient support and training for implementing tech pedagogically.

The iPad® initiative in OU Education

In the spring of 2013, the Education department at OU gifted fourth generation iPads® to all undergraduate students enrolled in the teacher preparation program. In a blurb about the iPad initiative on OU's website, university president David Boren framed the iPads as a way to "enhance" education through these "dynamic" and "collaborative" devices. He claimed, "By

providing [them with] iPads as supplemental education resources, our students will learn how to develop more powerful learning models, which they can then utilize in their own classrooms after graduating" (quoted in Yarbrough, 2013, par. 4). Later in the same article, associate professor Theresa Cullen tempers Boren's positioning of iPads as inherently "more powerful" by drawing attention to the necessary infrastructure for effective pedagogical implementation. In her words, "If you really want a one-to-one technology initiative to be successful, you first have to empower the faculty to feel comfortable and knowledgeable about the technology that they are learning how to use" (quoted in Yarbrough, 2013, par. 7). Indeed, Losh (2014) notes that with many iPad® initiatives nationwide, faculty are offered inadequate supported and are insufficiently trained to implement digital tech effectively and pedagogically (p. 183). In many cases, beliefs about tech and student engagement as well as students' digital literacies infuse the rhetorics surrounding implementation and interfere with an adequately critical approach to digital tech. In other words, outdated views about the democratization of media and the ways in which digital tech are making our world into a "global village" views that have been disproven through research (see Selfe & Hawisher, 2000) infuse the narratives surrounding iPads and other mobile tech when they get implemented in education.

A critical theory of educational technology should work to understand how tech initiatives play out in practice. A critical view of the OU iPad initiative in Education could study how faculty are supported and trained to use iPads, how students are invited to engage the technologies, how university structures

encourage certain models for tech use, what literacies their implementation encourages and discourages, and the surrounding infrastructure that shapes how the iPads get used. In order to better understand how undergraduates in Education are using the iPads for their own learning and to prepare for their future careers, we should start by resisting the idealistic narratives about how tech are revolutionizing education and should work to research their actual effects. How do teachers use the iPads? How are students encouraged to use them? What do the iPads afford with regard to undergraduate teacher training and what do they constrain? What is gained; what is lost?

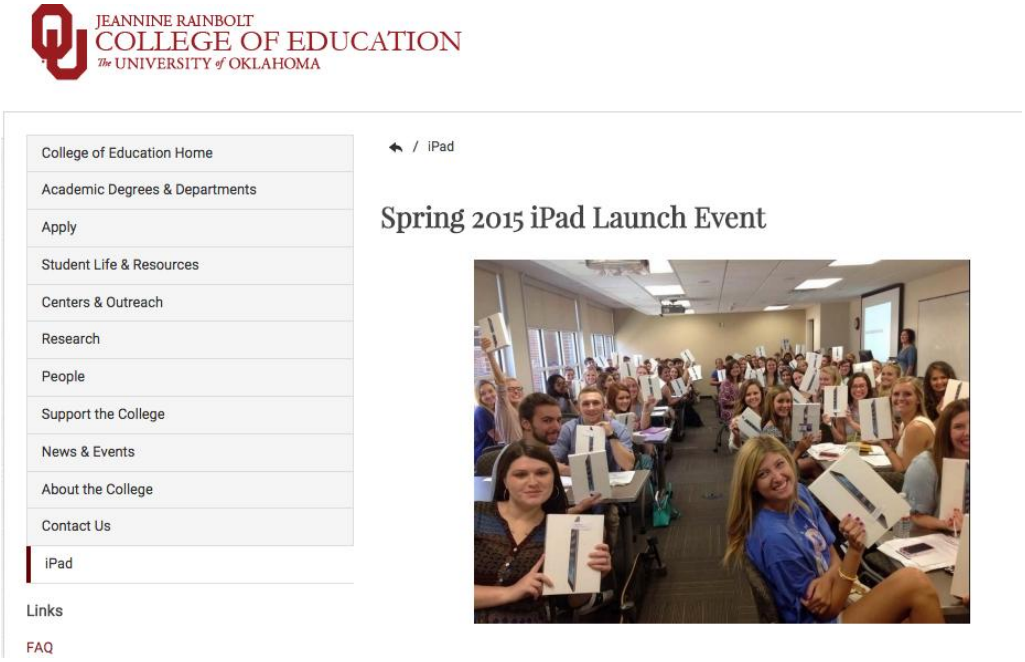


Figure 5.1: OU College of Education Website screen shot by the author 2015

Because it has been shown that digital hardware has significant environmental impact, we might also consider the material infrastructure and long-term planning around tech initiatives like the OU iPad program. In her

presentation at the *Conference on College Composition and Communication* in Indianapolis, Kristi Apostel (2014) noted that while many institutions are implementing mobile tech initiatives, the sustainability and disposal of these devices is rarely considered at the time of their implementation. Apostel (2014) nicely complemented Losh's (2014) point that educators are often insufficiently trained to teach with new media technologies effectively; additionally, Apostel encouraged educators to make plans for end of product life in designing digital tech initiatives. When institutions roll out initiatives to gift several hundreds of new media devices to students, Apostel claimed, it is almost never the case that they also make plans for the disposal, reuse, or sustainability of those devices. At the end of life, iPads are typically stored or sometimes donated to lower-income schools or sold at public and online auctions (Apostel, 2014). Thus Apostel called for sustainable iPad initiatives that create "options for their continued use and purpose" (2014).[18] The heuristic of obsolescence allows us to do upstream analysis on training and implementation such as that recommended by Losh (2014) as well as downstream analysis like Apostel's (2014) about how universities plan for the end of product life—or how they could do so better. As was noted in chapter 3, M. Jimmie Killingsworth (2010) questions the environmental planning that goes into new tech initiatives. In his words: "I have never read an environmental impact statement as part of a plan to install a computer classroom or to increase the use of computers in a writing program" (p. 88). Given the global conditions surrounding computing material and given that universities are among the largest purchasers

[18] For instance, as of 2009, the state of Indiana requires public schools to recycle devices.

of electronics equipment, educators and educational institutions can no longer afford to neglect such considerations.

Obsolescence as an Issue of Social Justice and Educational Access

As was noted in chapter 2, obsolescence is a particularly severe problem because device obsolescence and disposal are not contingent only on a device's functional capabilities. As pointed out by Eternally Yours, it is estimated that 25% of discarded vacuums, 60% of discarded stereos, and 90% of discarded computers still work when they are junked (Anderson, 1997). People throw devices away when they are still functional, which suggests that obsolescence is not a property of our tools or a bounded state they enter into but a set of criteria. In other words, one could argue that discontinuing use of a product does not make it obsolete at all; instead, discontinuing use only renders that product unused. Rather, I use obsolescence as a broad description of how the material rhetorics of our devices together with design circumstances, product marketing, and cultural fashion converge to persuade us to stop using—or dispose of—digital tools.

In this way, the concept of obsolescence contributes discussions of differential access to digital literacies (see especially Moran, 1999; Grabill, 2003; Banks, 2006, 2011; Powell, 2007; V. Anderson, 2010). For instance, Adam Banks's work highlights the different varieties to access in order to show that access is more than simply owning or being able to use a particular piece of equipment. In order for access to technology to be meaningful, Banks claims, users must not only be functionally literate but must also to be able to use the tech in a way that is

meaningful and even transformative (2006, p. 40). Furthermore, obsolescence compounds this struggle to acquire meaningful access, especially for those who have historically been denied access to literacy and technology. Obsolescence is implicated in Banks's discussion of how black Americans and other minority writers have been systematically excluded and even actively prevented from acquiring digital literacies in that his analysis suggests the difficulty of maintaining access to literacies with the greatest cultural capital in the face of technological change:

> Not only are Black people forced to catch up to technological tools and systems and educational systems to which they have been denied access, but they are required to do so in a nation (or a system) in which the struggle they endure to gain any such access . . . is rewarded by a change in the dominant technological systems and the literacies used to facilitate access to them, and thus the same struggle over and over again. (p. xxi)

The problem of minority access to technology, then, is (at least) two-fold: the challenges associated with gaining access in the first place are compounded by planned obsolescence and the repeated "upgrading" of digital equipment. In this way, Banks's research highlights the ways in which planned obsolescence has differential impact for different socioeconomic groups.

Obsolescence compounds problems of access and literacy acquisition and affects some groups more readily and more immediately than others. Like access, obsolescence is a set of criteria; functionality, cultural associations with particular devices, usefulness in particular contexts, availability of other devices, and manufacturer support for older products all work together to shape users' different perceptions of product usability, durability, or ineptitude. Laurie

Anderson's (1997) description of a product's psychological life span (p. 19) and Giles Slade's (2006) categories of obsolescence (p. 5) are also pertinent here. As these writers show, obsolescence is more than simply whether or not a particular device is useful or unusable. An old Remington typewriter purchased at a yard sale may still function well enough to produce communicative artifacts, but it is nonetheless rendered obsolete by digital computing and portable laptop devices. Banks (2006) points out that having *material* and *functional* access to a technology, or physical proximity to it and the ability to use it, is only one level. Through this analysis, Banks shows that access is complex and is also about which literacies carry the greatest cultural capital. Thus varieties of access help us understand varieties of obsolescence and the way that cultural capital functions as an obsolescing mechanism. For example, I can teach my students to create rhetorical MySpace pages, but MySpace is culturally obsolete even though it is still alive on the web.

In this way, obsolescence is a social justice issue in that some individuals and groups are positioned to acquire and maintain access to the digital literacies which signify and command cultural capital. In response to calls in the field of writing studies for teachers to become capable digital rhetors who are working at the cutting edge of technological development, Virginia Anderson (2010) highlights how the cost of acquiring tech literacies is not evenly distributed among teachers or among universities (p. 125). Through discussion of her university's transition to a different course management system (CMS), Anderson shows how obsolescence can "down-class" (p. 126) even those who are extremely

technologically adept by shifting the literacies required for navigating particular interfaces and thus positioning them as "passive consumer[s] without the agency to affect [their] own technological fate[s]" (p. 125). Furthermore, different campuses and different institutional types are differently positioned to support the implementation of new digital tech (p. 131). Thus Anderson argues that the tech advocates within the field of writing and within universities should position themselves as representatives for those with less access. Educators should likewise position themselves as representatives for students who have less access to technology than perhaps is assumed of them by university administration or the structures of digital initiatives themselves.

As a field, writing studies has evolved significantly to meet the challenges presented by the digital and multimodal turn in public discourse. And yet early calls for critical technological literacy by Cynthia Selfe (1999) and others are still exigent, their urgency still felt in a culture of endless technological change. David Noble (1998) reminds us that whereas universities have sometimes been pioneers in technological research and development, they are increasingly treated by corporate tech vendors as a market (p. 29). Claims that digital educational initiatives are student-driven are undercut by the reality that students are not addressed or consulted in design (Noble, 1998, p. 28). As teachers, we shouldn't be simply encouraging critical literacy at the bleeding edge of technology; universities should be leading the charge toward technical development to engineer social justice and equal access to educational resources.

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