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MOVING COMPOSITION: WRITING IN A MOBILE WORLD

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Rhetorics, Communication, and Information Design

by
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August 2017

Accepted by:
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ABSTRACT

We live in an increasingly mobile society on many levels. Mobile devices, including the smartphone, tablet, and wearables, allow for composing and communicating from anywhere and in new ways, a phenomenon that is especially deserving of attention by composition studies scholars and teachers. Mobile composition processes are impacted by the symmetry of humans and technology as each equally shapes one another. This interplay of mobile devices (including wearables) and humans impacts composition ecologies, processes, and definitions of writing. The role of analog mobile writers also informs our current practices and approaches to a mobile composition as many writers have sought to write on the move.

Educational researchers identify mobile learning as unique with attributes not afforded in analog or tethered learning environments. Mobile composition is poised to take advantage of the authentic, collaborative, and new opportunities for making meaning that exist in this form of teaching and learning. Mobile composition also transcends the literature from established composition studies and mobile learning frameworks by residing and inventing the burgeoning digital apparatus, electracy, that follows and extends the practices of oral and literate civilizations. Electracy's teaching and learning corollary, post(e)-pedagogy, offers ways to make use of mobile devices in this new framework. Finally, this dissertation project includes a mobile composition course prototype that models a post(e)-pedagogical approach and encourages further critical exploration and invention of communication practices with mobile devices, especially by composition faculty and students but in higher education overall.

DEDICATION

Dedicated to Chelsea and Adalee

ACKNOWLEDGMENTS

So many people played a direct or indirect role in seeing me through to this stage of my academic career. I can only hope that I contribute back in a way that “pays it forward” based on the helpfulness and encouragement of family, friends, and colleagues.

First, my family and friends have been a significant part of this endeavor. My wife, Chelsea, has especially made sacrifices of time and energy to allow me to complete this milestone. Long-time friends like the Atkins, the Lashleys, the Salleys, and more recent ones have been supportive and encouraging in this and many other endeavors, which means a lot.

The academic communities of which I have been a part have been key in my quest to complete my doctorate and advance the research in this area – from NGU, UNCG, to Clemson. At Clemson, this includes my dissertation chair, Dr. Jan Holmevik, and my committee members, Dr. Cynthia Haynes, Dr. Dani Herro, and Dr. Darren Linvill. As well, Dr. Victor Vitanza, faculty, students, and alumni in the Rhetorics, Communication, and Information Design program are some of the most thoughtful and innovative in higher education. Outside of these immediate groups, I have been invigorated by scholars and researchers across academia in my many areas of interest.

Finally, as I am a practitioner at heart, I have worked full-time in higher education during the pursuit of my doctorate. For almost the entire time that I have been working on this project, I have worked at Anderson University (SC), and their innovative programs have been the basis for much of this work. I send heartfelt thanks to the administration, the faculty, and staff for their support, especially Dr. Ben Deaton and CIDL colleagues.

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CHAPTER ONE

INTRODUCTION

Humans have always leaned toward mobility. Hunter-gatherers established mobile communities throughout a large portion of human history. While the rise of agrarian economies stymied the peripatetic nature of nomads, we still sought to move – across oceans via ships, across continents via trains, and across the world via plane. We have pursued figurative movement as well. As we moved around less in the physical sense, we began seeking social and economic mobility. This history of mobility has moved from mostly literal to largely figurative, which we see epitomized in digital technology. Mobile technology receives most of the attention in this dissertation, but it also contextualizes and builds upon the pre-digital desire to be mobile and how we can move forward within a digital society where mobility impacts every aspect of life.

Even while our discussion of mobile is mostly connected to the capabilities of digital devices and networks, it is not just about the technology, but about a conception of society that is taking hold as part. The ubiquity and mobility afforded by these devices impacts society and culture on a scale that analog mobile devices did not. Benedict Evans, a venture capitalist, has repeated the phrase “mobile is eating the world” for an annual report on his website over the past several years. He notes the increasing percentage of mobile shopping, time spent online on mobile screens, and general mobile device use and sales compared to laptops or desktops. Evans is not a technologist or an educator, but recognition by him and peers as to the pervasiveness of mobile devices in banking, business, healthcare, entertainment, and just about every other industry should

prod those of us in higher education to be further along than we are in integrating these devices. While there are often administrative pushes in higher education for mobile learning, attention at the disciplinary and interdisciplinary level is needed to achieve the best results for our curricula and students.

Not only does mobile technology impact the industries mentioned above, but it also impacts our democracy as evidenced by the communication from the highest office in the country. While his tweets have often caused uproars, on May 31st, 2017, the President of the United States had print publications, news channels, and the online outlets especially stirring. The rousing was over his enigmatic post on Twitter that read, “Despite the constant negative press covfefe” that he posted from his phone a little after midnight as shown in Figure 1.1 (Trump). Trump tweeted this from a mobile device, which is his typical tool for using the social networking site (Waddell). While news organizations were attempting to make meaning of this tweet and the word *covfefe*, social media users and bloggers began parodying the use of the word, and it has become a meme used outside the context of its initial blunder. A regular on Twitter even before his entrance to politics, the President has embraced the mobile form of writing over other outlets, and it has often upended their coverage as they seek to make sense of it. Other social media users, largely on mobile devices, have responded, however, by engaging in a manner that takes advantage of mobile communication by circumventing traditional forms of critique and analysis, all of which are indicative of the way that mobile and the digital society in which it exists are changing society.



Figure 1.1 President Trump’s “covfefe” tweet

Thus, it is clear that mobile devices have changed the way we communicate and that they present newly available means of persuasion. The field of writing and composition studies, then, must carefully consider the implications within our field not only to ensure we remain relevant in our teaching and scholarship but also for the cross-disciplinary impact of the skills we teach – and to prepare our students for the critical use and analysis of these devices as citizens. This dissertation is an examination and synthesis of research from composition studies, mobile learning, and apparatus theory as it informs the possibilities and challenges that mobile technology presents to writing and composition studies.

While have always been increasingly mobile in our communication – from orality to literacy and now into electracy¹ – the advancements of mobile technology present the

¹ Electracy is a term coined by new media scholar Gregory Ulmer as the combination and successor of orality and literacy apparatuses, building on work by Eric Havelock and Walter Ong concerning apparatus theory. Electracy, in brief, involves proficiency in

capabilities and pedagogical frameworks to afford unique teaching and learning opportunities for composition studies as well as build upon strategies that pre-digital mobile writers used. The practices and processes of mobile composition, however, present challenges to our conventional approaches to teaching writing. Using research in areas of writing ecologies, postprocess, multimodal composition, this dissertation identifies ways to move forward on the integration of mobile devices and offers a conceptualization of mobile composition. Further, I make use of frameworks in the field of mobile learning to identify ways that composition can use such principles and frameworks. Finally, the work on electracy and its teaching and learning corollary post(e)-pedagogy challenges mobile composition to move outside established frameworks in either of these areas of research in composition studies or mobile learning to embrace fully the potential that exists in our digital economy. As electracy prioritizes invention and theory through practice, the development of a mobile writing course demonstrates a way to embrace all three areas of findings (composition studies, mobile learning, and electracy) in a way that does not majorly compromise any of them.

This dissertation seeks to give readers a full discourse in which they can research and practice mobile composition. However, it is not meant to suggest the discarding of practices of conventional writing or even orality as those have situations in which they are still necessary, for example in legal settings. I mention this caveat often to remind us that we not only make use of mobile composition, but just as important is that we do not

communicating across digital media comparable to the way literacy was an aptitude for using print-based text. Electrate is its adjective form.

place mobile composition only within the framework of conventional composition studies. Neither should we relegate mobile to the conversations about what we think we understand to be the role of computers in our field as these are often centered around tethered devices. Mobile technology is unique as compared to analog and tethered learning, and mobile composition is unique in its processes and competencies. We need to embrace those qualities on their own to fully experience and invent the future of digital, mobile society, being careful not to carelessly fit them within established frameworks while also not denigrating many of the important qualities found within conventional composition research and pedagogy.

Significance of the Research

As evidenced, mobile technology has the potential to change not only the work we do in composition studies but higher education in general. This dissertation attempts to fit this revolution within a context of mobile technologies and how they fit (or do not fit) with current and emerging frameworks. There are personal, professional, and ethical significances of this topic.

First, the significance of this research is tied to my personal and professional educational experience – from my stalled experiences with emerging technology as a student because it did not fit within the assigned curriculum (detailed more in chapter four) to being part of a mobile learning initiative in my first full-time teaching role. When I was a high school student, I experienced disciplinary action for experimenting with mobile and digital learning, an innovation that was apparently concerning to the curriculum gatekeepers. I detail this story further in chapter four, but a key event that

explains my early interest in emerging technologies and their impact stems from this experience.

As evidence of the changing acceptance of the digital economy since my experience in secondary education where I was punished for experimenting with technology and fascinated with mobile technology before use of devices spread, my first full-time teaching job was at a university where all students were given an iPad. When I began my teaching career at a regional comprehensive university in 2012, I learned of their Mobile Learning Initiative and wondered if there were actually academic uses for the tablet that each student received. In fact, if I were to teach as I was taught during my undergraduate years—privileging literacy and stalling electracy—the tablets would have no use other than causing frustration in trying to replicate paper-based processes. Recognizing the tablets were part of a digital movement – at the time, I’d not heard the term electracy – I embraced the challenges of exploring and inventing new approaches to teaching and learning that made use of the tablets. Not only did I come to realize the affordances of the devices but the importance of critically reflecting on their use, which I began having my students do as well.

In my further study of the issue, I would recognize that mobile digital devices are part of the electrate apparatus and help us invent new ways of knowing, making, and doing. More specifically to the courses I taught, the use of mobile devices impacts composition processes and introduces new genres that deserve attention by composition and communication educators. Making use of Ulmer’s post(e)-pedagogy and subsequent discussions by Sarah Arroyo, Jeff Rice, Pearce Durst, and others inform this project’s

framework for incorporating mobile devices in a way that takes advantage of mobile composition as part of the electrated apparatus. This challenges assumptions such as the bastion of the long-form essay in composition courses in a search for new approaches and modes for expression and communication in this field, which I know from professional experience is not an easy task.

The overarching significance for our field is that we must adapt if our goal is to provide students the ability to think and communicate critically. Thus, it is not only personally and professionally significant for me, but for our students. Students' personal and professional lives depend on our preparing them for critical use of this medium as the impact of mobile devices is increasingly changing the traditional modes of operation in a variety of industries that our students will enter – from media to business to healthcare. Further, as displayed by the unprecedented use of mobile communication of the leader of the free world, we must prepare students to engage critically in this arena as citizens of a democracy. Building students' mobile composition and communication skills that are relevant to their personal and professional lives entails the integration of mobile devices in composition research and teaching and also involves an ethical charge.

Relatedly, there is an ethics issue in examining and implementing the use of mobile devices in composition pedagogy. Ignoring or even banning mobile devices as is often the case in learning environments can be considered an ethical lapse. Having students use and critically reflect on the role of mobile devices gives them an awareness and framework for not only using but making decisions about their use of mobile technology that pervades their personal, professional, and public lives. Composition and

communication instructors face these issues often in our courses and research as much – if not more—than other disciplines and must lead the way thoughtfully and critically.

Thus, the exigency for this dissertation is that mobile technologies and the mobile society that is developing as part of the digital apparatus are creating a growing gap between students’ realities and needs. Higher education, and particularly, composition studies, has been behind in preparing students to think critically and create using mobile devices. In the summer of 2015, the higher education technology professional group EDUCAUSE released findings from a multi-year study that found device ownership at a high and trending higher but the full potential was yet to be realized (Chen, et al.). The researchers identified the main mobile learning issue as not one of ownership but of effective use and practices by students and instructors. These findings urge continued research in this emerging area. Faculty and students need comprehensive conceptualization to effectively use the devices to improve teaching and learning in our field and by extension in disciplines that rely on research and skills developed from composition and communication programs.

How the Dissertation Unfolds

My career at the regional comprehensive university later turned into one coordinating faculty development for an instructional design and technology office, allowing me a broader view of the integration and adoption of mobile learning across an institution. In thinking through the adoption of mobile learning across the university and in how it can be applied to the field of composition studies, Everett Rogers’s findings in his seminal work *Diffusion of Innovations* helps contextualize. In Roger’s framework,

there are five classifications of participants in innovation in a bell curve distribution: innovators, early adopters, early majority, late majority, and laggards. As noted in Figure 1.2, Phil Hill, an educational technology consultant, has revamped the curve to emphasize the gap between early adopters and early majority, which is perhaps the most significant jump. Hill suggests that the pragmatism of early majority prevents them from seeing from the visionary perspective of early adopters. We must figure out a way to straddle the gap in a way that online education has done to reach mainstream status – though ideally without having it run largely through administrative pushes.²

As Rogers’s theory notes, the diffusion of innovation is about people and not always about the technology. We must take into account all of the types of people and not just those who make headway with technology. By doing this, we get a fuller perspective, too, and will have a better conceptualization of the innovation. This dissertation holds to this idea and identifies how mobile technology fits within frameworks of composition studies, mobile learning, and apparatus theory. I also propose a path forward to mitigate challenges and expand opportunities in a way that can straddle the chasm and serve composition instructors at all ends of the adoption spectrum, which is what is truly needed for transformational change to take hold.

² Still, I envision that online education as even more of an innovative, critical pedagogy for the digital realm if all ends of the spectrum of academics were to work together for student success and the invention of the future of our collective fields and industry. We should do this with mobile technology earlier as this dissertation seeks.

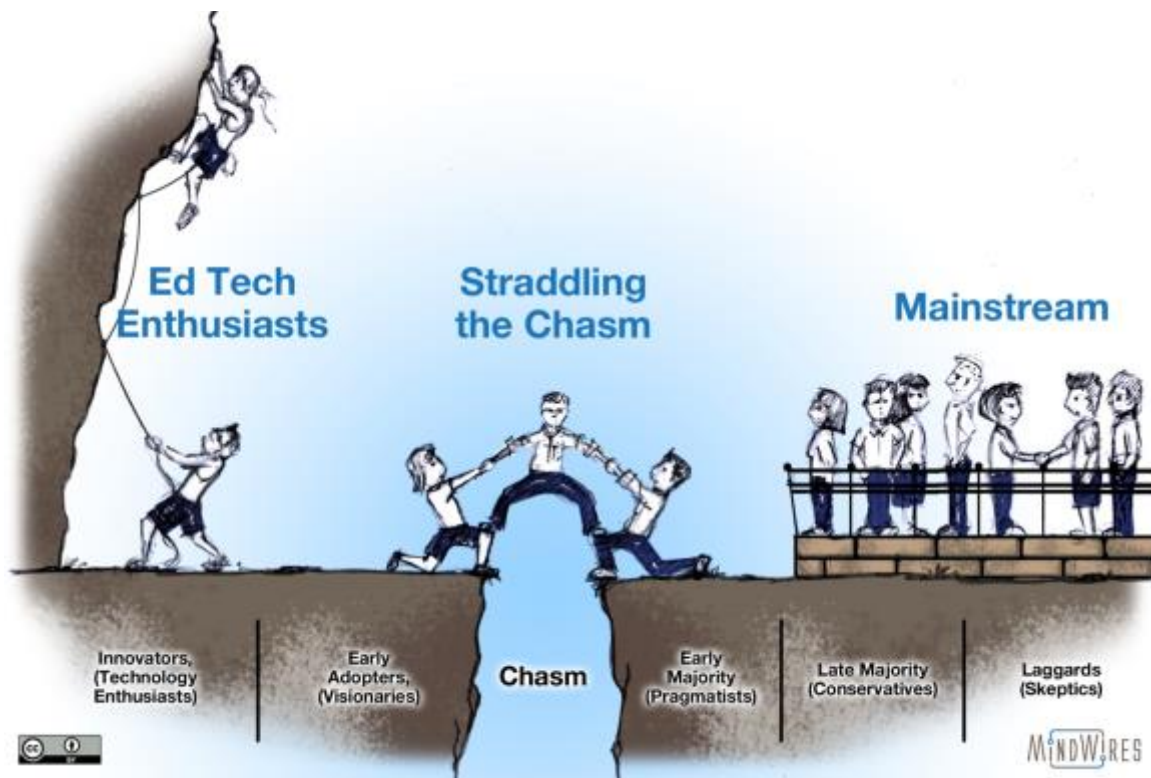


Figure 1.2 Representation of straddling the educational technology adoption gap

To examine the role of mobility in composition processes of the pre-digital era, the initial part of the project examines ecologies of various writers and the impact of this on the processes and products. This includes, for example, Walter Benjamin's desire not only to write on the move but also to have textual content remain mobile through his method of collecting quotations (Marx, et al.). From Roland Barthes to Jack Kerouac, writers have composed on the move and used mobile interfaces well before the introduction of smartphones and tablets. Examining these pre-digital mobile composition processes offers a framework for moving our understanding from literate society to an electrated society as well to help inform and build upon the potential communication processes for current and future mobile technologies. Thus, **chapter two** examines

mobile composition across time as a way to situate the dissertation and identify practices that translate to the use of current mobile technology.

Further, this chapter uses research on the ecologies of writing, multimodal composition, and postprocess scholarship moves the conversation forward as mobile writing extends the arguments of each of these areas, many of which challenge conventional approaches to composition in higher education. The chapter argues that mobile devices significantly impact our writing ecologies, including the human-object network of which mobile devices are a unique part. Mobile composition also changes the way we communicate with these devices as compared with print-based composition and the processes associated with it, which research in the area of multimodal and postprocess is used as a way to identify how to embrace unconventional methods and deliverables.

This dissertation not only makes connections between past and current approaches to mobile composition but it also examines the current and potential impact of mobile learning research on composition studies, which occurs in **chapter three**. Although it has been established that electronic composition impacts the instruction of writing and communication (Corbett, et al.; Depew, et al.; Yancey), mobile devices present unique affordances worthy of their own study. Research from the field of mobile learning will help establish these unique characteristics compared to both analog and tethered devices³.

This chapter also identifies the opportunities and challenges in mobile composition using research from mobile learning scholars. Through the identification of

³ As a way to differentiate mobile learning from desktop or laptops in education, the latter will be called tethered learning. Education that does not involve digital devices will be referred to as analog.

opportunities such as authenticity, collaboration or participation, and new ways with making meaning as part of mobile learning, the chapter makes such applications to the field of composition studies in development of a mobile composition. Throughout, specific concerns regarding the challenges that may be experienced when moving to mobile composition and practical applications for composition instructors are identified.

Further, the advancements of mobile technology and the practices used on devices present an opportunity to fully embrace the apparatus of electracy and experiment outside frameworks of literacy and outside of conventional pedagogy – while not disparaging or discounting the necessity of these frameworks either. **Chapter four** consists of moving toward a mobile post(e)-pedagogy. This section uses research from Greg Ulmer, the Florida School, and others in making full use of the electracy apparatus using mobile devices. While electracy is guiding framework throughout the dissertation, this chapter introduces concepts found in the digital economy that we can use in the development of a mobile composition. By moving from hermeneutics to heuristics, blurring entertainment and education, and embracing image logic and video intelligence, mobile composition can take full advantage of its capabilities in an apparatus and discourse in which mobile technology and practices thrive. Throughout this chapter, the teaching and learning corollary for electracy, coined by Ulmer as post(e)-pedagogy, guides composition instructors in moving beyond conventional pedagogy and embracing the unfixed, inventive role that mobile technology can play in our courses.

As part of the practices of electracy and the “making” methodology as part of knowing, doing, and making, **chapter five** describes the prototype of a mobile

composition course entitled “Writing in a Mobile World.” This course enacts the principles discussed throughout the dissertation and offers a relay or orientation to a mobile composition course. This chapter reflects on the full development process and the goals and projects in which students of the course engages. The description and reflection on the development of the mobile course offer an example as well as items to consider for other writing instructors who are interested in integrating mobile devices into their courses.

The mobile course prototype is also meant to be a guide for pedagogues who experience tension between conventional pedagogical principles and research in the areas of postpedagogy and postprocess. The aim of the course prototype and the dissertation overall is to offer a way forward but not a template. It is meant to stimulate our thinking and invention of new ways of approaching teaching critically with mobile practices and devices.

At the end of the main chapters, there is a short glossary to identify key terms used throughout the dissertation. The glossary is important because there are a number of disciplinary conversations occurring across this project, creating the potential for readers outside any of those disciplines to use a different meaning or connotation from a different context. Footnotes on major concepts or terms are also used for this reason.

Joining These Conversations

As evidenced even thus far, this project involves a number of methodologies from various fields. Cultural and rhetorical methodologies are the overriding frameworks as a

way to analyze and synthesize the research and theoretical approaches from the disciplines of composition studies, new media, and educational studies.

Some of the cultural and rhetorical methodologies that are used derive from Greg Ulmer's electracy. In particular, throughout the dissertation, I use the mystory approach, as discussed in Ulmer's *Teletheory*. Mystory involves identifying patterns across a variety of discourse, including personal, as a method of analysis. This approach is used when I bring myself into the conversation, which is important because the concepts cannot be adequately understood unless we subject ourselves to it as mobile is a personal practice and tool.

Within electracy, there is also the concept of theory through practice, which is used as part of my teaching experiences in connection with the research that is part of this dissertation and especially through the prototyping and invention of a mobile course. I rely on heuristics, a concept rediscovered in electracy and built on knowing by doing, iterative design, and theory borne out of practice (as opposed to a hermeneutical approach involving a fixed method or theory that informs practice).

Relatedly, this dissertation incorporates *knowing*, *doing*, and *making*, three components that are integral to the mission of my doctoral program, Rhetorics, Communication, and Information. These three characteristics come from Aristotle's *Nichomachean Ethics* (Book VI, 3-5). *Knowing* involves a philosophic understanding. *Doing* involves knowledge in action, but it is separate from *making*, which is productive knowledge.

The rhetorical-cultural methodology, specifically discussions around ecologies is important in establishing the symmetry among humans and tools, identifies how mobile technology impacts not only communication but the learning environment, whether in person or online. This methodology supports the idea of *knowing*, the theoretical strand of knowing, doing, and making.

The *doing* component discusses ways to use mobile learning in composition classrooms throughout the dissertation. The *doing* component emphasizes the praxis of concepts, and in this case pedagogy and post(e)-pedagogy. This framing is particularly apparent in chapter three, where I perform an analysis and synthesis of current mobile learning research, using educational theories such as social and cognitive constructivism as well as sociomaterial applications to mobile learning. This includes a review of mobile learning frameworks and their potential application to the realm of composition and communication pedagogy.

Finally, there is the importance of *making*, or inventing. This goes a step beyond incorporating new ideas into current frameworks and involves creating outside of them. Inspired by the call to invent as found within electracy, the project includes a prototype of a mobile course that makes full use of the electracy apparatus in the composition field through the methods of instruction, the activities, and the assessments. The mobile course serves as a relay, or orientation, for faculty interested in using mobile technology in the classroom in ways that make use of electracy and post(e)-pedagogical principles.

The growing network and enhanced capabilities of mobile technology should have us thinking carefully about the power of mobile devices. The mobile device tweaks

an old truism by now being more powerful than the pen and mightier than the sword. This is true in both the potential for good and bad on personal and societal levels, and it is incumbent upon us to use and think critically about mobile communication using the research we have available but also employing the creativity and inventiveness of ourselves and our students.

CHAPTER TWO

ON THE MOVE: MOBILE COMPOSITION

As I noted in the introduction, when I began as a Lecturer of English at a regional comprehensive university, I was given an iPad and told that the institution had just launched a Mobile Learning Initiative. My training had not prepared me for the integration of such devices in teaching composition, and in informal conversations, most faculty members in other departments were even surprised that we tried to incorporate the iPad into English courses. Thankfully, the university offered support for the integration of the iPad, recognizing that it is about more than just the tool. For the most part, however, I used the iPads to replicate paper-based, alphabetic composition experiences, having not yet realized that the iPad would be a catalyst for looking at our field in an entirely different light. In this chapter, I identify ways that mobile devices move composition forward in burgeoning areas of research in our field, including new media writing ecologies, multimodal composition, and postprocess research

During my time as Lecturer of English in this mobile learning environment, colleagues and I transformed the curriculum by incorporating an electronic portfolio program. We posited that with students being able to write and revise anytime, anywhere through the electronic portfolio's mobile interface, they would become much more adept at seeing their work holistically and see writing as constantly in process. My colleagues and I wrote up this research as part of the Mobile Learning Initiative, and I eventually published a piece titled "Using Mobile Technology to Revitalize Process Writing Instruction" in NCTE's *Mobile Technologies and the Writing Classroom: Resources for*

Teachers. I mention that not to enhance my ethos, but to juxtapose the type of work in which I've previously done regarding mobile composition with the work that I'm doing in this chapter and beyond. Digital media changes even how we operate in print-based frameworks as my work concerning mobile process pedagogy shows, but my provocation for the field of composition studies is actually to have us move beyond print-based, process-based experiences and allow mobile technology to transform the way we view and enact composition.

As with any challenge concerning the future, a historical look at writing on the move offers a way forward for the incorporation of mobile technology in writing courses. Examining the range of mobile composition across literate and elecrate apparatuses ensures we identify what is missing when we move to a mobile medium, identify the unique rhetorical capabilities and affordances of the mobile medium, and ensure that students are equipped to compose in the mobile medium. This chapter takes up this work by examining the ecological perspective of writing, multimodal composition, and the postprocess movement while responding to resistance in the field of composition studies that continues to challenge new methods, theories, and practices. I analyze mobile composition through these various contexts and conversations in composition theory a way to identify how composition scholars and teachers can embrace the future of mobile writing in our courses and research.

The discussion of using mobile technology in composition courses is only slowly taking hold in some corners of our field. Works like Amy Kimme Hea's 2009 collection *Going Wireless: A Critical Exploration of Wireless and Mobile Technologies for*

Composition Teachers and Claire Lutkewitte's 2016 NCTE collection *Mobile Technologies and the Writing Classroom: Resources for Teachers* are the only two dedicated tomes to the topic. Thus, there is not yet a full discourse around mobile composition in our field, and much of the work in those texts fit mobile composition in pre-established literacy frameworks (as the example of my work in one of those volumes attests).

Because mobile composition is fairly new, some early researchers have sought to identify metaphors in thinking about the roles of space, place, screen, and interface when using these devices. In "Metaphors of Mobility: Emerging Spaces for Rhetorical Reflection and Communication," Nicole Brown gives us some metaphors to ponder in the framework of mobile technology in writing education. Specifically, she connects the capabilities of mobile devices as similar to public art or graffiti. She notes,

Mobile and location-aware technologies offer a range of rhetorical situations around which we can conceptualize and create writing assignments. These assignments can invite students to construct place-based, public discourse; to foster rhetorical and critical inquiry; to write as a social act; and to view writing as a means to participate in new media literacies. (Brown 241)

Brown discusses further the metaphors of public art and graffiti as a way "to provide teachers and researchers of writing with opportunities for both pedagogical participation and social critique and action" (242). Embracing the opportunity for learning to happen outside of a desk and outside of a traditional classroom in a public way is essential to a mobile composition as it the need for a critical approach to device use. Making use of the

many spaces outside of the screen and the possibilities therein allow for a critical digital pedagogy and even activist approach to teaching and learning through mobile composition. This metaphor leads us well into discussions of ecologies, multimodal composition, and postprocess research to give us a more in-depth understanding of a move toward mobile composition in ways that do allow mobile writing to be as powerful as public art and graffiti.

Composing on the Move: Ecologies of Writing

Writing is as much an ecological act as a cognitive one. Well before the Internet was mainstream and certainly before Web 2.0, in her 1986 “The Ecology of Writing” Marilyn Cooper reminded us that “writing is an activity through which a person is continually engaged with a variety of socially constituted systems of ideas, of purposes, of interpersonal interactions, of cultural norms, of textual forms” (367, 369). As ecological systems are dynamic, a change in one aspect has a ripple effect, making each aspect as important as another. The integration of digital technology in our lives certainly impacts our writing ecologies just as the introduction of mechanical objects (e.g., writing utensils, paper) has done so in the past. One trend that we can note regarding the introduction of digital and mechanical objects into our writing ecologies is that we continue to move toward writing on the move. This mobile aspect of our writing shapes the content and processes despite attempts to establish fixed processes through our research and pedagogy.

There have always been writers who wanted to be mobile – from the invention of cuneiform to the Gutenberg press (moveable print) to Walter Benjamin’s desire to write

on the move, not in isolation (Marx, et al.). Mobile technology is an extension of this notion and of Cooper's argument that writing is an engagement with a set of social systems as mobile technologies engage us in a networked approach to writing. Thus, our composition practices are shaped by these inter-connected systems, and mobile devices shape the systems and thus our practices even further by allowing a completely untethered approach to writing in various places while also connected to and disrupting some of these systems. Systems that had long dominated industries like entertainment, publishing, and even taxi services have been disrupted by the advent of mobile technology.

While writers who wrote on the move in the past were operating against the limitations of their contemporary writing ecology and network capabilities, current mobile technology affords an entire disruptive form of mobile writing which must inform the shape and design of our composition classrooms and courses and consider the interconnected systems in which we are operating and disrupting.

While the digital and mechanic objects have made changes in our writing ecologies, we typically attempt to force the new objects into the same ecological paradigm in which we have previously operated. For example, in higher education, despite the mobility of even pen and paper, we act as if learning mainly happens within the walls of a classroom where the power dynamics between the teacher and student have remain unchanged for millennia. Mobile technology even further opens up new opportunities for our writing ecologies, but most courses (even online) stick with a sense of controlled mastery regarding paper-based writing processes. For example, as I write

this section on an iPad using Microsoft Word application, I have margins and page breaks that remind me that alphabetic composition cannot be thought about without referencing print-based ecologies. While there is no need for such distinctions on a screen, the implication is still that writing is ultimately paper-based. Moving beyond these metaphors and even beyond these programs that are entrenched in composition courses allow us to transcend the paper-based interface. I discuss our need to embrace multimodal composition through the use of the interface rather than print later in this chapter (yes, many of us do that in name already without a full conceptual understanding or approach). Recognizing the opportunity that we have to shape our ecologies with mobile media rather than having our established frameworks shape mobile media is important for this section.

On a fundamental level, space and place are important elements of these social systems that make up the ecological framework that Cooper introduced. Throughout this dissertation, there is a clear distinction between space and place as adapted from Chinese-American geographer Yi-Fu Tuan's *Space and Place: The Perspective of Experience*, where he introduces us to the idea that "Place is a type of object. Places and objects define space, giving it a geometric personality" (17). Space, then, is the objective sense of an area while place involves the aspects that are identified by mobile composers that give the space a sense of culture and personality. A similar distinction exists in the sense of screen and interface, with screen representing characteristics of space and the interface being the intentional use and personalization of the screen space.

Because writers and communicators often emphasize the spaces in which they work, which can be physical and/or virtual, we must carefully consider the practices and tools with which we have students compose. The layout of the physical or virtual space enables, constrains, and can even provide the exigency for the communicative process. The materiality and context of writing ecologies play an important role in integrating mobile composition practices, as this section demonstrates.

For example, writing using the Internet, as mobile technology allows, makes use of a particular notion of space or *cyberspace*. Cyberspace is itself its own space, as Mark Nunes notes that “[n]aming cyberspace reveals and creates a virtual location for actual experiences. This acceptance of cyberspace in its own right has not needed to wait for the arrival of bodysuit-and-goggle ‘virtual reality’; for literally millions of users, cyberspace already ‘exists’ as a place, as real as the work and play conducted ‘in’ it.” As the first mainstream social media channel demonstrated, cyberspace becomes MySpace and is a place to “enter” when you log in to it. Facebook and other social media platforms are similar in that one logs in and is present. Thus, mobile technology allows students not only to be in various physical places but enter networks in cyberspace – which can become a cyberplace if using the above definition. This presence within virtual reality shapes the writing in ways that are not comparable to paper-based deliverables. A dynamic, reciprocal approach to writing replaces a solitary endeavor.

Too, writing in a virtual space raises the issue of the screen and interface in our writing ecologies, especially considering the real estate of a mobile device screen. Students and users of mobile devices have found ways that extend and even transcend the

interface out of necessity. The limited real estate of a mobile screen impacts time spent and layout of content. Instead of concerns that print industries face concerning inches of a page, mobile devices allow us to be creative with the space by linking, abbreviating, and even using emoticons. The opportunities and challenges of such activities are discussed in chapter three, but the takeaway is that the interface can transcend the physical place, adding rather than subtracting content due to the screen size.

While analysis of space matters and has significant impact on composition practices, the role of place in a writing ecology is even more meaningful. Place, then, is the personality, the cultural aspect of space and interface issues discussed above. One concept that is related to space, place, screen, and interface is the notion of the ubiquity of mobile composition. The ubiquity of devices means that they are in more places than any composition instrument that we have used in the past because they are always with us and there are more devices than humans (Mack). This ever-presence is especially true concerning wearables, which are always capturing the attributes of a place whether we realize it or not. This practice of place-based composition is one that is afforded by mobile devices, and it is expanded to the ability to record, edit, and much more within the screen and interface capabilities of new media.

These screen and interface capabilities can also be discussed using the same space and place distinction. The screen itself would be considered a space instead of a place; the layout and size of a screen impact the composing process, but it is largely a technical component. The interface can be viewed as the place, where the user defines the space given all of the cultural considerations. (This is the point where technical nature of

cyberspace becomes a place, like Facebook, Twitter, or Instagram.) The important role of the screen and interface are discussed further in this section as we examine the gestural and procedural characteristics of screens and how they impact our use of the interface.

The Mobile Ecology

When viewing mobile technologies as part of a network or ecology of human and non-human objects, we recognize some issues with the integration of devices in the current environment of higher education composition courses. The integration of mobile technology into our ecologies of writing fits the notion of a human-object collective, in the sense that Bruno Latour uses the term as part his Actor-Network Theory and puts all of the actors in a situation on the same playing field with all acting in relation to another to create the situation. This new mobile ecology where humans and the capabilities of devices converge changes not only our composition processes but how we perceive author and audience. This raises concerns of policies and institutions that require us to engage as academics to make approaches to mobile integration are framed in a way that best serves students and scholarship without either being taken advantage of because of the blurred lines that may now exist in this new ecology. Composition teachers and scholars must position ourselves in the conversation about mobile learning in higher education, and we should seek to ensure that administrators also have a critical perspective on the integration of mobile devices in our particular contexts.

The new mobile ecology thus impacts composing practices, which in turn conflict with physical spaces that were not designed with mobile device use in mind. Educators and researchers should consider the sociomaterial aspects of a mobile society to

determine if and how they should redefine classroom practices and use of space. Mobile technology is not just a device one can bring into the classroom without consideration of its impact on the established classroom practices; either the classroom practices have to adjust to a mobile learning environment or we end up with bans on mobile devices because they conflict with established practices (which is often the case). This was a problem that I faced when I integrated mobile devices as a Lecturer of English at a regional comprehensive university. Having not recognized that the mobile devices impacted the entire ecology of our course, many of my efforts were lost without embracing a hybrid approach to the classroom or having an active learning space. The fixedness of most course environments – again, including online design and its tendency toward the use of tethered devices—prohibits a full use of mobile composition practices.

There are many critics, especially humanists, of Latour's Actor-Network Theory who believe in human agency as the end-all and devices as simply tools. These scholars think devices are prosthetics that give us extended capabilities but without agency. While I argue that mobile devices do have agency and act upon users, there are other ways of thinking about the impact of devices on our ecologies. For example, Estrid Sørensen's concept of space and spatiality identifies how regions in the space of a classroom impact educational practices. He notes that the blackboard space in a classroom is typically one where the instructor resides and that when students are at that space, it gains attention. Thus, the relations between the students and technology in a classroom are impacted by the space of the classroom, too. Using an ecological approach to designing a classroom experience involves analyzing the movement and relations as well as the process of

knowledge making that stems from agency (Mifsud). These same principles can be applied to online course design as well by noticing on whom the attention is placed, how collaborative spaces are used, and how un-tethered the experience is.

Mobile devices are impacting the way we interact with spaces and places in ways we probably do not even recognize. In his book *Digital Proxemics: How Technology Shapes the Ways We Move*, John McArthur opens his second chapter with a story on how mobile devices was changing the experience at an East Midtown Manhattan's restaurant. It was not that patrons had the ability to read and write reviews or make reservations on their phones that gained the attention of the owners, but it was how the devices were being used from the start to finish of dining to the point that the average mealtime was now almost doubled. McArthur writes that customers were spending extra time connecting to the wireless internet with the help of staff, looking up ingredients, taking pictures of food, with several instances of food being sent back as cold due to "extended photo shoots" (16). Thus, mobile devices are not just something that we fit into our lived experiences without impacting everything around us. In a mobile composition course, then, we need to be aware of the design of the classroom space (ideally with a hybrid component if not fully online). We also must be mindful of the online space, ensuring that we build in such elements as navigating the mobile space and knowing what to do in places (similar to diners connecting to Wi-Fi). In any environment, we should expect varied processes and elements of creativity (similar to the diners researching their food and taking pictures).

Mobile devices play a role in situating us and our work through geo-location with consequences beyond just ourselves. The public nature of geo-tagging through social media develops a “collective public archive” (MacArthur 90). Not only do mobile devices play a part in making private moments that were once part of family photo albums public through sharing and geo-tagging, but they shape the world around us as we engage with public areas on our devices. MacArthur cites media theorists Adriana de Sousa e Silva and Jordan Frith in their argument that public spaces will change and even reconfigure based on “popularity, interface potential, networking capabilities, and the networks that participate in and with the space” as determined by our socialization and public archiving (90). Our intentional (and unintentional via mobile sensors) logging of information and data shapes the world around us in a significant way. Thus, we need to not only prepare students for the aspects of a mobile composition course that are directly related to them but to notice the indirect contributions or consequences of their mobile communication practices. Building in assignments that incorporate place-based, activist writing (as the mobile course prototype of this dissertation project does) can point students and faculty in this direction.

The above examples remind us that students do not magically appear and disappear when the writing starts and stops, and the impact on them and the world around them is greater than we realize. Considering all of these aspects in any composition course is important, but especially in a mobile composition course. Just as the example above concerning the restaurant dining times extended due to mobile devices, in *A Composition Made Whole*, Jody Shipka reminds us that there are a number of seemingly

insignificant activities which students are involved before, after, and during their composing processes, such as “arranging themselves at desks, on chairs, on beds, and so on” (10). These activities support Paul Prior and Julie Hengst’s claim that “people are never just talking, just reading, just writing” (qtd. in Shipka 10). The main concern here is that we leave out technologies that are not new in a lot of conversations and that they impact our writing just as much. We not only need to recognize that students are engaging in new media and impacted by the digital realm because we still live in a physical environment.

Recognizing the role that non-digital devices play is especially an important consideration in mobile composition because not only are there many different things going on within the interface but around the device. Although students will be freer than they have been in a conventional classroom, a mobile composition course should still have students at least temporarily ground themselves in the world around them. This allows students to notice the environmental elements that impact the work they are doing as well as changes that may need to occur in the space to better align with their value systems – connecting to the spiritual and moral sense of ourselves along with the digital and physical.

Given this discussion of the activities occurring around a device, we should remember that there is an element of multitasking with digital devices. This impacts the composition process and our sense of multimodality in that we do not use a linear model and we move to new forms of expressing ourselves given our screen size and time spent

on mobile devices. These two aspects – process and multimodality – are impacted by mobile technology in ways that I explore in later sections of this chapter.

Analog Mobile Composition

Building on the idea that even not-so-new technologies impact our composition, it is helpful to examine past forms of mobile composition. Although the mobile tablet or smartphone is typically the first device one thinks of when discussing the mobile, these devices are only the latest iterations of a mobile world. The mobility of writing utensils, notebooks, and the printed book has shaped our writing ecologies as we know them. As these devices were introduced, they afforded writers capabilities that only occasionally get attention because they are so common – e.g., the ability to write using a small utensil and freely available paper as opposed to being tied to a rock wall or time-intensive process like cuneiform. In fact, the introduction of the tethered computer actually took away some of the liberties we had with analog mobile writing. We will need to go back to the forerunners of mobile writing to provide context for integrating mobile writing into our composition research and courses.

Analog mobile writing afforded opportunities that were not fully appreciated in their time. Looking back at these mobile writers who were operating in a different apparatus yet still making use of mobile principles give a framework for understanding the changes we are encountering and even identify practices that we can use with digital mobile writing. As mentioned earlier, Walter Benjamin had a penchant for mobilizing his writing. The editor of his archives notes, “he did not want to carry out work in enclosed conditions, sealed off from reality. Rather he loved to write while on the move, on the

street, in the cafe, on his travels—wherever he happened to find himself’ (Marx, et al. 153). This practice is one that is afforded by mobile devices, and it has expanded to the ability to record, edit, and much more within the interfaces of new media. Benjamin was not the only writer who liked to compose on the move: Roland Barthes knew that there were certain spaces in which he worked well and Jack Kerouac not only wrote about moving in *On the Road*, but actually wrote on the move using pocket notebooks (Holden).

These analog mobile writers are not just interesting anecdotes, but the impact can be seen in their works through their style and open use of themes concerning mobility. Creativity was part of the mobile writing experience. Benjamin wrote in a style that made use of snippets quite frequently and involved a sense of strolling through topics. Barthes resisted the utopia of Literature and conventions, separating language and style from writing, which was a creative act for him (*Roland Barthes*). Kerouac’s writing was often described as spontaneous and likened to jazz (“Jack Kerouac”). The mobile methods of these analog writers certainly played a role in impacting style and content, even foreshadowing a move to electracy in their resistance to the print-based apparatus.

The practices resulting from the intentionally mobile composition in which these writers engaged in were actually practices that fit well in the apparatus of electracy. Thus, mobile composition not only happens within but also across apparatuses, impacting one another. In fact, Greg Ulmer noted that “Walter Benjamin is an exemplary figure for heuristics and the invention of an electrate apparatus. His work gathers most of the major trajectories of apparatus shift, preparing the ground for further invention” (“The Coming

Program”). While Ulmer cites Benjamin’s *Arcades Project* – which certainly relates to mobile in the sense of space and place with its emphasis on strolling, and the flaneur – Benjamin also represents electracy in his use of practices such as the ones described below, which give us insight into developing an approach to integrating and conceptualizing mobile composition in the digital age.

For example, Walter Benjamin introduces some unique capabilities of mobile composition. One particular method that Benjamin used was the construction of passages outside of conventional prose. Benjamin’s approach resembled more of what would become hyperlinking and a practice of chunking that would be most important for mobile device use. Susan Sontag described Benjamin’s approach: “Learning was a form of collecting, as in the quotations and excerpts from daily reading which Benjamin accumulated in notebooks that he carried everywhere. . . . Thinking was a form of collecting, at least in its preliminary stages” (22). This type of organization might be likened to hypertextuality or hyperlinking that developed as part of the Internet and became an electracy practice that fits well with the screen and time constraints that accompany mobile composition.

Regarding the practice of hypertexting in composition courses, Karla Saari Kitalong notes, “The computer as it is associated with rhetorical literacy is conceptualized as a hypertextual medium, in that it is made up of ‘(nonlinear) text, (modular) nodes, and (associative) links.’ Because of the interactivity that hypertext entails, even simply reading an online document can be viewed as a form of production” (64). Benjamin carried this early form of hyperlinking and making use of an interface

(outside of a traditional prose-based literacy framework) further as he “repeatedly treated the elements of his text according to the principle of building blocks: he copied them out, cut them out, stuck them on new sheets of paper and arranged them anew, long before such procedures became established in electronic word-processing” (Marx, et al. 32). Further, “Benjamin’s idea of composing a work entirely of quotations ensures that material within the collection can remain mobile, elements can be shifted at will” (Marx, et al. 32). Hypertext is an effective use of interfaces, especially important for mobile devices considering the space on the screen and the limited amount of time one usually spends with a device.

This act of hyperlinking and the notion of mobile passages lead to the role procedural rhetoric in mobile composition, a term Ian Bogost introduced in *Persuasive Games*. Bogost discusses procedural rhetoric in relation to mechanics of gameplay, but the hypertextual medium of the mobile device involves a procedural rhetoric that is different even from the operations of a desktop or laptop computer. Specifically, there is a gestural aspect to directly touching the device’s screen and knowing how to manipulate the (typically) small space of the mobile screen. Finding and using the passages in the small space of a screen is a productive function just as the earlier quote from Kitalong claims.

As discussed earlier in this chapter, I use the word space deliberately when discussing the technical components of a mobile device. There are unique affordances and procedural knowledge when using a mobile screen than when using a tethered device, particularly that of the gestural movements, which I move to later in this section.

In his book that looks historically at the impact of material writing apparatuses, Matthew Kirschenbaum reminds us that specific technology and language used to describe word processing matters. Related to mobile, he notes that “we walk around with supercomputers in our pockets – but we still prefer to call them by a vestigial name What does it mean, then, to recapture our sense of what word processing once was at a moment when we text each other with our . . . phones?” (23). It is difficult to move from established frameworks in discussing communication. Notice that paper is still used to familiarize computers in Wilfred Beeching’s 1974 prediction: “the letter typed will appear in front of the operator on a television screen in any selected type face, and by pressing a button be transferred electronically to a sensitized paper” (qtd. in Kirschenbaum 119). Beeching was predicting what we would be able to do by typing on tablets and phones, but he was using a literate framework.

When initial word processors caught on, they did not allow multitasking and also tethered the document and person to one location. Now, not only have most devices afforded multitasking and the cloud has afforded accessing work from anywhere, mobile devices enact these principles by allowing people to compose anywhere and anytime. This change has certainly impacted the type of writing we produce. Too, along with the ability to type on glass anywhere, anytime, “we swipe, we tap, and we speak out loud even as our actual output becomes a melange of predictive autocomplete algorithms and micro-motor gestures” (Kirschenbaum 239). Kirschenbaum’s reminder that technology introduced an element of processing between input and output that impacted writing remind us of the role that technology plays in the collective, especially with mobile

devices as they are now more powerful, dynamic than any word processing software or hardware inventor could have imagined.

An electrated term that needs introduction in the discussion of composition ecologies is *chora*. *Chora* is a term used by Plato to represent the inconceivable space of being and becoming, but Aristotle replaced the term with *topos* as part of the shift to literacy, moving away from the nebulous choric space. In electracy, Ulmer champions the inventiveness of the *chora* as opposed to the fixedness of *topos*, even suggesting that “everything having to do with media may be rethought within the perspective of the *chora*” (*Heuristics* 69). Sarah Arroyo’s video “The Choric Swipe” builds on this premise, suggesting that the swiping gesture on mobile devices presents a way of interacting with the world that has not yet been possible. Arroyo connects swiping with erasing, extending the metaphor to suggest that we are erasing the need for writing utensils and keyboards, “making the bodily gesture the instigator of creative processes” (“The Choric Swipe”). Too, she claims that the swipe frees us from relying on interfaces that require letters and symbols, tying the body closer to the creative process. Adding to the importance of space and place, Arroyo suggests that the swipe on mobile devices and its augmenting of reality connects body, geography, and movement together, which she likens to a dance going on at multiple levels. It is as if mobile devices are reversing concerns of a bodily disconnection from writing utensils and keyboards that Walter Benjamin identified: “[t]he typewriter will alienate the hand of the man of letters from the fountain pen [replacing] the pliancy of the hand with the innervation of the commanding fingers” (*One Way Street* 63-4). Mobile devices not only play a role in connecting us to others but also

connect us to ourselves in unique ways. Mobile technology is an embodied practice in ways that tethered composition is not, and thus it impacts the style and content of our writing.

This embodied experience has an impact on the use of mobile devices that we should take into consideration, and it lets us know that there is a distinct difference in tethered and untethered devices. One way that we know this is that we often attempt to add things like keyboards and styluses to our work on mobile devices. While this is not a misuse of mobile devices because we know that new media impacts how we work with previous media, it does let us know that we are using the device to operate in a literate, alphabetic apparatus. The screen alone and the gesture are full of invention but are not yet fully realizable as we are still inventing. In fact, Steve Jobs initially refused to create a stylus for the iPad – claiming “over my dead body” —but consumer demand after his death led Apple’s leadership to introduce the Apple Pencil (Goldman). The possibilities of the tablet or mobile device screen that Arroyo shows in her video “Choric Swipe” gives us an idea of the future of these devices if we allow them to be sources of invention – from experiencing to manipulating virtual realities (spaces and places). A clip is shown in Figure 2.1. In having students compose using mobile devices, we must be careful to allow ourselves to fall back on crutches from literacy using tools such as those described

above to ensure we seek and thus invent new ways to use the gestural, embodied aspects of mobile technology.

Thus, there is a unique distinction of the technical space of the *screen* and the cultural layer that comes across through the *interface*. Walter Benjamin, too, reminds us of the importance of the sociocultural components of the tools of composition. When he was writing, “[h]igh-quality paper, particular pens, ink, and nibs, and furthermore, specific spatial preconditions were important prerequisites for a non-resistant and smoothly running flow of writing” (Marx, et al. 49). The editor of one of his works adds, “Benjamin is an aesthician of the written sheet; the manuscript should appeal to the eye as a textual images” (Marx, et al. 51). This relationship between spatial and aesthetic considerations highlights the element of culture that we bring to our tools and leads to our discussion of the multimodal possibilities within mobile composition.



Figure 2.1 Clip from “The Choric Swipe”

Moving Writing: Multimodal Composition

I may not have made much progress regarding the writing ecologies when I taught composition using iPads because I was still fitting them into a conventional process and print-based framework. I did attempt, however, to make new headway by using multimodal approaches near the end of my time teaching at the institution with the Mobile Learning Initiative. Mobile devices afford opportunities to embrace new media in ways that not only paper-based, analog learning did not allow but that tethered learning did not allow either.

For almost a decade now, composition studies has been involved in these negotiations concerning its boundaries when it comes to new forms of communication. Some attribute Cynthia Selfe to starting the conversation on aural research in 2009. Selfe provoked those in organizations like the Conference of College Composition and Communication (CCCC) and the Writing Program Administrator (WPA). The editors of *On Multimodality* note that “Selfe’s advocacy of bringing yet another medium of communication into the composition classroom, in this case sound, signaled to some that our discipline has perhaps become a bit too open” (Alexander and Rhodes 3). While since then, many composition scholars and teachers have seemingly embraced new media, the concern is that these forms of communication have been made to fit what alphabetic, print-based writing once did instead of addressing the specific aspects of practicing new literacies. Research and practice of multimodal composition have tried to fit themselves into current print-based frameworks without opening the conversation to all of the

elements involved that are outside print and paper and necessary for students to rhetorically navigate new media.

Mobile composition has joined this ongoing debate in the field of composition studies concerning its boundaries. Similarly, composition researchers have questioned how much of extracurricular, personal communication that students perform into courses. The debate has been tense because new media can pose a threat to conventional methods of teaching and learning composition in a print-based, alphabetic framework. Too, the incorporation of outside forms of composing challenges the mastery of instructors. Many recent works on multimodality remind us of the deep history of having composition studies incorporate new media (Palmeri), but even with this history, challenging the theories and methods of composition studies did not always happen despite what appears to be an uptick in interest. The introduction of mobile devices requires a fully multimodal approach to composition if they are to be integrated into our courses.

While our field has a documented history of incorporating multiple modes, we have not always allowed those modes to interfere with the bastion of print-based literacy, and we typically have been able to marginalize such approaches. The ubiquity of the mobile device is changing that, however. Even when teaching at a mobile learning institution, it was often suggested by fellow English teachers that mobile had no place in their class. Bans like this not only support the issue mentioned earlier concerning the space of traditional classrooms and the design of the conventional courses clashing with mobile device use, but it is an attempt to maintain control over writing and where it

happens, separating our students' realities (professional and personal) from what happens in our courses.

This reality of composition outside of academic circles challenges our ideas concerning expression and process and the control many compositionists attempt to have over even electronic writing. For example, several professors were perplexed when the English department where I was a lecturer began using the electronic portfolio software because it did not have all of the capabilities of Microsoft Word and created issues with page numbers, indented citations, etc., demonstrating just one of the ways in which our typical use of the interface in the production of academic writing is tied to print-based processes and paper instead of the potentiality of the interface. We must relinquish the control that print-based frameworks have on our field and on our students' writing, which requires us to recognize that students are inventing alongside of us with mobile composition and that the interface is a place of being and becoming not requiring the use of pre-conceived methods.

The interface, then, is the elephant in the classroom, and it should cause our field to re-evaluate how we can truly embrace multimodal via mobile devices particularly. Collin Brooke challenges those in composition studies to move beyond the essay as the unit of analysis, writing that “[b]oth [Kenneth] Burke and [Paul] Miller speak to the kinds of ‘alchemic opportunit[ies]’ made possible through new media, opportunities that require us to think in terms of interfaces, the central, medial moltenness, rather than the textual objects that we throw forth” (Brooke 25). The interface is the necessary move beyond the literate practices that rely on paper analogies, and mobile device screen sizes

and capabilities (seen as limitations by some) can catapult us into this area. An interrogation into how we can use the small real estate of a screen and avoid seeing the space as a modern version of paper will be increasingly important into embracing the potential of the devices. Even Jacques Derrida noted the importance of moving away from paper-based starting points for screens in this quote from *Paper Machine*:

[W]hile we do have to recognize the ‘multimedia’ resources or possibilities of paper, we should avoid that most tempting but also most serious of mistakes: reducing the technological event, the invention of apparatus that are multimedia in the strict sense of the word – in their external objectality, in the time and space of their electro-mechanicity, in their numerical or digital logic – to being merely a *development* of paper, its virtual or implicit *possibilities*. (47)

Derrida identifies an ongoing struggle among composition scholars. We attempt to fit all forms of communication into the same framework as print-based literacy, especially the interface, by reducing its possibilities – which he intimates that we limit what do with paper as well.

While Brooke argues for the unit of analysis in our field to be the interface rather than paper, he agrees that we should not simply abandon practices of literacy as we move into the digital economy. In *Lingua Fracta*, he uses the rhetorical canons to discuss his argument concerning a full integration of new media into composition studies. New media composition and its relation to mobile learning are discussed in chapter three in terms of opportunities and challenges, but an overview of Brooke’s appropriation of the

rhetorical canons as it applies to mobile composition provides an opportunity to connect the move to mobile composition to multimodal composition theory.

The canon of invention presents the most immediate challenge in the attempt to find a corollary for new media. The field's dominant pedagogical framework conflicts then with seeing interfaces as a unit of analysis as long as the essay is the result of the invention process. Although there is much research in the area of invention, hermeneutic invention seems dominant in most courses. The problem with the traditional understanding of invention in the composition classroom also raises an issue with the notion of genre. Brooke suggests that even when composition scholars and teachers try to create new assignments that utilize technology, we may just be re-inventing the wheel by simply imitating the use of journals, notebooks, and notecards in an electronic space, which is a point of caution when integrating mobile devices into composition courses.

Further, Brooke's undoing of our understanding canon of invention involves a question of authorship, which was identified earlier in this chapter as one of the challenges regarding the mobile ecology. The complexity of invention makes room for a new understanding of authorship in new media. There is messiness in new media composition that resists closure. The networked aspect of invention is largely the cause of this as sharing, curating, and remixing are all frequent in new media, and especially mobile composition processes. The next section of this chapter explores a way to make

use of Brooke's proairetic⁴, open-ended process that occurs in the heavily networked interface of a mobile device.

Brooke also offers ways in understanding new media through the canon of arrangement by emphasizing patterns instead of focusing on sequences. As he does with invention, he must refute arguments that arrangement (or rhetoric) has no place in the analysis of new media, further solidifying his contention that the traditional can help us understand the new by juxtaposing instead of forcing antiquated frameworks. Our traditional understanding of printed text in terms of prioritizing metaphors of space presents the problem of containerism when attempting to explore new media.

Containerism holds much power over new media as commerce, academia, and the like continue employing understandings of print culture to new media. It may be tempting for many to view the mobile devices as a container, but because of its networked capabilities and the potential of the interface, it is akin to how David Weinberger describes the web: "explosive, outbound, digressive" (qtd. in Brooke 95). Weinberger suggests that objects of new media create a "sense of place that creates its own space," and for mobile devices, this also has implications (qtd. in Brooke 95). The creative, inventive use of mobile devices epitomizes Brooke's understanding of arrangement, or patterns, in allowing users to transcend space and place.

Too, the notion of pattern-seeking as a shift in our understanding of arrangement speaks to the use of proliferation of mobile devices, such as wearables and the amount of

⁴ Proairetic is a term used in contrast with hermeneutic as used in Roland Barthes' *work in S/Z* of identifying codes in discourse. Proairetic is action-based where hermeneutic is answer-based.

data that is being collected on our devices. When composing using mobile devices, we can make use of Brooke's patterns by making connections among the various databases – databases that collect information about us and relational databases that connect us with others. As discussed below, a cohesive and comprehensible presentation of all of this raw data that is being gathered by mobile devices is important, but a key element is recognizing all of the data being collected by devices and curating it for our own purposes as mobile composers.

At the instructional level, we must jettison notions of containerism with academia and its surrounding. When I had students use Twitter in the classroom as part of my mobile learning experiments, one student commented that there is an academic world and a social world and they shouldn't collide; the use of new media forced opening a container she didn't want to be opened. The vestiges of linear, print-based arrangement created confusion for this student regarding how composing really happens in new media, and mobile especially creates tension in this canon that we must address with students. Another way we must dispel of containerism is by remembering that mobile composition does not just mean it happens on a mobile device. Shipka reminds us that “in an attempt to free students from the limits of the page, we institute another, limiting them to texts that can be composed, received, and reviewed onscreen. In doing so, we risk missing or undervaluing the meaning-making and learning potentials associated with the uptake and transformation of still other representational systems and technologies” (11). Thus, investigating ways that mobile society has impacted our off-screen work is important, too, in developing mobile composition frameworks. Having students investigate mobile

composition outside of devices can offer a more comprehensive understanding of the mobile aspect over the digital one.

Making use of the patterns that are part of mobile media is a way to incorporate the off-screen aspect of mobile. As referenced earlier, Walter Benjamin embodied a lot of digital composing practices even during the peak of paper-based economies. Similar to how we capture quick thoughts on our devices and the devices capture bits of data, Benjamin was famous for walking the streets of Paris and Berlin and chronicling the experiences, even developing much writing around the French term *flâneur*, or city stroller. Although mobile, Benjamin's *flâneur* was a reminder to slow down and notice what is happening. Using Benjamin's concepts of the *flâneur* along with Brooke's notion of pattern finding not only allows us to critically evaluate what's happening in the constantly-changing mobile environments –as well as take time to appreciate what is going on – but it helps in moving toward a larger body of work that is interconnected.

In exploring the rhetorical canon of style, Brooke discusses how this canon has been the “most productive canon for explorations of new media” (103). For Brooke, perspective is style operationalized in new media. Building on Richard Lanham's notions of *looking at* instead of just *looking through*, Brooke adds *looking from*. Lanham's *looking through* is an experiencing of the text that does not notice the style. In contrast, *looking at* emphasizes a self-awareness concerning the interface. Brooke's *looking from* adds the perspective of the user. When incorporating mobile devices into our composing processes, these perspectives become even more dynamic given the variety of locations and perspectives from which a user may be using a mobile device and how the mobile

interface influences meaning given the size and adjustments made as compared to larger screens. Similar to the discussion of the off-screen aspects of mobile, the *looking from* experience should be incorporated into mobile composition. Strategies discussed in the previous section concerning grounding students in the places around them can assist with having students “look from” the mobile device perspective by temporarily grounding and connecting themselves with a place.

Space once again becomes an issue in our discussion of mobile multimodal composition. In particular, it presents a problem in using new media in its fullest potential in Brooke’s re-working of the canon of memory. Memory is often viewed in the Platonic sense of spatial memory—that of presence and absence. In that framework, our exploration and analysis of new media are stalled because mobile transcends space and place. N. Katherine Hayles’ concept of pattern and randomness helps us move beyond the Platonic spatial sense of memory as we move from a fixed notion of memory to one that is weaved across many different parts of our various networks and interfaces. This new concept leads to Brooke’s discussion of the persistence of cognition as a way to reframe the canon of memory when working with new media. He describes persistence as “a practice of retaining particular ideas, keywords, or concepts across multiple texts, be they websites, journal articles, or chapters of the same book” (Brooke 157). This principle is important in mobile composition as we always have access to our work through various interfaces similar to the idea of Brooke’s concept of patterns in the work that we do. Part of mobile composition is identifying these patterns and making use of them, from data collected intentionally and unintentionally.

Another binary opposition that must be avoided occurs in the canon of delivery regarding transitive and performance aspects. Brooke suggests that the traditional emphasis on just the transitive nature of delivery in print culture has been keeping new media exploration from its full potential. As well, the problem of credibility is one way that delivery in the context of new media has stalled further advances in new media in the academy. For example, as Brooke suggests, “Websites have virtue only by some traceable connection the 'real world'” (184). That is, we continue to view new media as an instrument rather than an interface. This becomes even more problematic with the constant, often ephemeral genres of mobile. One way that we can intervene as compositionists is by capturing the fleeting aspects of the process by curating in archive form, which is discussed in more detail as a mobile writing archive in the postprocess section.

Multimodal composition receives a lot of attention, but we must be bold enough to allow students to embrace it fully and invent the future of mobile composition with new media -- and even have them practice mobile composition off-screen. Brooke's reworking of the canons helps us see the interface in a new light to avoid trying to fit the mobile medium into print-based, alphabetic frameworks. Using the capabilities of our mobile devices for new media – from images to voice recognition to data collection from sensors and beyond – gives students a full range of composition outside of print and has them carefully consider the way their mobile multimodal experiences are shaped. The context presented in this section concerning the challenges to conventional composing

processes and the way mobile impacts our field's most treasured pedagogical approach is a topic to which I turn to now.

Composing on the Move: Process-as-Product

While my use of phrases like human-object collective is not meant to imply a technological singularity, the role of mobile devices in our lives would be an argument for such a future. Walter Benjamin referred to his notebooks as “a medium that *connects* author and work. They are stages where thinking and writing take place, quarries, fields for experimentation, on which thoughts can be gathered, structured, discarded, formed anew — creatively and sometimes chaotically” (Marx, et al. 153, emphasis mine). Mobile technology has this same connection to users as the one Benjamin describes for his notebooks. While we are connected to one another in new ways, a mobile device becomes part of who we were, developing a deep connection that reveals much about ourselves. Mobile devices and the ways we use them are incredibly personal, often reflecting the stages of writing and thinking described in the quote concerning Benjamin's use of his notebooks. A mobile society pushes us beyond conventional, generalizable process of communicating that came with print-based publishing into something that is at times creative and chaotic. As such, this section explores the role of postprocess theory in a mobile composition environment that does not fit well with conventional process writing theory.

In paper-based writing, process theory fits very well as there are discrete stages of printed work. Too, the literacy apparatus has a bent toward linearity. Process theory became popular as a method of teaching writing to a growing number of college students

through a fixed method. Scholars began codifying the writing process into prewriting, drafting, and revising with portfolio assessment as a part of many of process writing curricula. This was part of a shift in the study of composition from current-traditional rhetoric (which focused on lower-order concerns and emphasized polished end products) to process writing theory (which reacted against its predecessor by emphasizing the processes involved in getting to the final draft and higher-order concerns).

In electronic writing research, process writing theory is often still used but it involves fewer discrete stages, and thus students begin seeing writing a more of an ongoing activity. Unfortunately, researchers still attempt to fit in all the stages albeit in a recursive fashion (Takayoshi; Yancey; Corbett, et al.). Mobile composition can certainly benefit from this layered approach to composing, but my experience and research causes me to expect more than just remediation of process in electronic form.

Relatedly, a growing number of scholars – although still not accepted as mainstream in composition studies– has been attempting to move us beyond process writing theory altogether as it has become almost as prescriptive as current-traditional rhetoric. Incorporation of mobile devices in the study of composition will require us to expedite the move toward a postprocess composition. Sid Dobrin, Jeff Rice, Cynthia Haynes, and others have written on the topic and how to move beyond process writing theories in collections like *Beyond Postprocess* and *Postcomposition*. These scholars' challenges to process pedagogy are important and fit well with the concept of mobile composition that I lay out in this project. I rely heavily on the challenges against

conventional approaches to process pedagogy in championing my move toward a mobile composition pedagogy.

Central principles to postprocess research that impact the work of mobile composition hold that “(1) writing is public; (2) writing is interpretive; and (3) writing is situated” (Kent). Mobile composition can be viewed through each of these principles in a way that emphasizes the importance of a postprocess framework for those incorporating mobile technology. In the sense of being *public*, mobile writing is a connected writing. Social media posts, a heavily mobile experience, and the text message genre engage others in the user’s composition. Too, mobile composition is unique in the *interpretive* element. Mobile composers must recognize the situation and use the appropriate utterance to communicate with one another. This includes abbreviations, emojis, gifs, memes, and more in the mobile composition realm. The variety of these choices and ability to discern aptness is a key difference in conventional alphabetic writing processes. Finally, mobile composition is *situated* in ways that other forms of writing are typically not. Because a prime reason mobile users compose on their devices is that they can be anywhere, attempting to generalize a process is impossible based on ubiquitous element of mobile composing. The public, situated, new genres that are part of composing on mobile devices supports the adaptation of postprocess approaches to the conceptualization of mobile composition.

As evidenced in the description of Benjamin’s writing and the discussion of mobile composition in the above section, there is messiness in mobile composition. This presents a tension when discussing the dominance of process pedagogy. I did not always

understand that forcing process pedagogy onto mobile composition was limiting students' capabilities and creativity. As I mentioned in the opening of this chapter, an error that I've fallen into in previous research was asserting that the writing process as even more integrated given the anytime, anywhere capabilities. Process-based research in our field makes use of the distinction between paper and electronic writing processes, but their attempts simply remediate the codification of writing stages and emphasize a portfolio system that I critique later in this section. While new media certainly remediates older conventions, we must move beyond just seeing mobile composition in light of process writing theory and allow the devices to alter the expectation of writing stages altogether. Mobile pushes us out of our literacy safety nets that even tethered devices offered and moves us beyond a conventional sense of the writing process to an even more fluid and contextualized experience.

Building on the discussion of writing ecologies, a postprocess mobile composition emphasizes context. Situatedness is one of the three key elements of postprocess research (Kent). As the editors of *Beyond Postprocess* note regarding the onset of new media in our field, the scene of writing "is never about writing, but is the ubiquitous, permeable condition that exceeds, describes, and reflexively affects the relationship between invention and logic: it is a contingent and inscriptive affair where time and knowledge are indubitably entwined" (8). With new media in general but especially with mobile composition, the scene of writing is a dynamic process that is almost impossible to repeat or even identify. Later in this section, I attempt to offer a way to move forward with this

recognition that there is always a process – a dynamic, unrepeatable one – yet there is a need to capture it for educational purposes without compromising by codifying.

Postprocess takes into account intertwined, multitasking composition experiences of students on mobile devices. Olin Bjork and Pedro Schwartz suggest that composing on mobile devices in the ecologies described above present a “new paradigm [that] offers an alternative to the homework-fieldwork binary that dominates student writing today. . . . Mobile composition relocates writing and even publication in the place of the object and embraces process-as-product genres” (235). This process-as-product description informs the rest of this section. The writers find common ground by noting that they “are not calling for the abandonment of all traditional writing experiences but for supplementing them with a new paradigm that draws attention to the materiality of writing” (235). As is detailed below, Kyle Jensen’s online writing archives may present a path forward for recognizing the materiality of mobile composition and yet satisfying the need to capture the scene of writing without limiting the possibilities.

Another key element of postprocess writing is the public element. The public aspect of new media, especially mobile, impacts the process choices by students. Bjork and Schwartz also question traditional composition process pedagogy as based on literate practices and methods: “Similarly, despite efforts by instructors to naturalize a highly conventional process of revision that removes or replaces text, students continue to resist making substantial changes to writing they have already made public. Most students would rather apply what they learn from one writing situation to the next” (230). This is

especially true concerning mobile composition given the limited bursts of time spent on devices and the multitasking nature.

Furthering the consideration of public writing on mobile devices, the notion of stages of writing become obsolete. Nedra Reynolds provokes, “Given today’s writing tools, it has become increasingly silly to ask students for ‘drafts’ that demonstrate the writing process when so much of writing takes place on the screen in a more fluid, spatial medium that doesn’t lend itself to ‘frozen’ representations” (5). The public genres that manifest on mobile devices—from messaging and social media—require a change in composition processes in that we must consider the type of writing we ask students to do and reconsider expectations concerning writing stages, especially as they relate to requirements beyond our individual courses.

While postprocess scholarship generally eschews identifying fixed approaches to assessment or pedagogy, there are relays that can be attempted and molded to fit the various contexts in which we compose. Online writing archives as introduced by Kyle Jensen can be adapted to accommodate the messiness of mobile composition processes. Online writing archives distinguish a how-centered process and a what-centered process to composition. A *how-centered* approach is the conventional, draft-focused process pedagogy. A *what-centered* approach moves away from imagining a fixed process to focusing on the many ways of approaching a writing process based on the “historical, theoretical, and material dimensions of writing” (83). This fits well with mobile in that conventional, fixed approaches to writing do not fit the genres of mobile, and answers the

need identified earlier for more material considerations by scholars and instructors when dealing with mobile composition.

As emphasized throughout this chapter, there is symmetry among humans and mobile technology that impact the composing process, and this requires a critical look by both students and faculty. Fully capturing this networked scene of writing in online writing archives connects with Ann George's reminder that "critical pedagogies are insistently tied to local, material circumstances, which may make curricula difficult, perhaps impossible, to transfer from teacher to teacher and institution to institution" (88). In chapter four, I discuss in more detail the relationship of postprocess to postpedagogy – part of critical pedagogies – but recognizing the move away from empowerment tendencies that undermine critical pedagogies (as in how-centered process writing) helps in promoting a process-as-product approach to mobile composition.

Adapting Jensen's online writing archives to mobile composition is indeed messy – lining up with the messiness of mobile composition processes as identified earlier – but it still captures the work being done and offer an opportunity to reflect on it. The online writing archives are set up in contrast to portfolios, staples in how-centered process writing courses as discussed earlier. The conventional how-centered approach to process typically used as assessment is likened to a "panoptic portfolio," alluding to Michel Foucault's discussion of the control and surveillance of the panopticon (Jensen). Indeed, the portfolio appears to move beyond problematic assessments of prior current-traditional rhetorical pedagogies, but despite the length of time between the writing and its final assessment, there is a sense of controlled efficiency that governs portfolio assessment

(Jensen). While tempting by administrators, mobile composition should not become about efficiency and fitting in with narratives of education that have been around since industrialization. Rather, the mobile version of online writing archives still captures the full *what-process* scene of writing, even if inefficient.

Too, panoptic how-centered process portfolios enact an empowerment approach that undermines critical pedagogies. The move away from student empowerment can seem jarring at first to those of who us who are embedded in conventional, how-centered process writing frameworks. Ann George describes well the problem with empowerment:

First, empowerment suggests an agent who does the empowering and an object whom receives power from another. Here, power travels in one direction only, from the ‘powerful teacher’ to the ‘powerless’ students, replicating the very hierarchies that critical pedagogies hope to dismantle. Second, empowerment rhetoric assumes that power is a property or, as Bruce Horner puts it, a commodity that you either have or don’t have and that can be handed off like a football (87).

George goes on to point out that power is relational, more verb than noun, and shifting within networks; thus, she says, we are “simply incapable of liberating or empowering students” given this definition of power (88). Empowerment is an especially tempting phrase to use when introducing new processes, but it introduces a power element that assumes that students are not teaching us about processes and that we have to stay ahead of them. This is important to remember concerning mobile composition as I have even caught myself suggesting it is about empowering students to use the device.

Empowerment becomes a limiting factor in a fully recognizing the potential of mobile composition in a mobile society.

In order to adopt a critical approach to mobile composition while still capturing what students do, mobile composition can adapt Jensen's principles of what an online writing archive. In his five principles for an online writing archive, Jensen says that they must...

- “display all extant materials making up the stemma of a work’s production and revision history” (89)
- “trace the fluidities of a work’s invention and revision history in a manner that balances the tension between comprehensibility and complexity” (89)
- “maximize the capacities of digital technology so that they are functionally different from a codex” (90)
- “material considerations must play an integral role in the development and study of online writing archives” (92)
- “call attention to the relationship between the materiality of the archive’s contents and its technological reiteration” (93)

While Jensen includes multimodal approaches to composition in his discussion of online writing archives, I connect each of these principles to mobile composition in particular to create mobile composition archives that can be used in place of traditional process-based portfolio assessment in a course that integrates mobile writing.

A mobile composition archive that includes “all extant materials” will look quite different from a print-based writing process. Given the research mentioned earlier,

mobile writing is less about revision and more about supplementing. Thus, while some revision may certainly take place, most of the revision history will be the supplemental texts or posts that are made that correct auto-corrected mistakes or clarify for the receiver since most mobile composition is a reciprocal form of communication. Instead of written or in-line word processor comments on a draft as part of a writing archive, a mobile composition archive might consist of screenshots of messages, notes, and social media posts related to a project to account for the multitasking nature of this form of composition. This extant material would also include data from mobile and wearable devices. Smartphones track a lot of data, but sensors on smartwatches track even more – including location, heartrate, sleep activity, and more. This data completes the full picture of the mobile composing process by allowing for patterns to be identified, which will be important in the presentation aspect of a composition archive.

The inclusion of all of this material makes it difficult to balance the comprehensibility and complexity, which is Jensen’s second principle. A data dump would be useless; it is a matter of making it useful for displaying the what-centered mobile composing process. Thus, the presentation matters. Screenshots, for example, could be annotated and/or time-stamped. Then, data from smartphones or wearable devices would be presented in a visually cohesive manner with information like location included. Even further, if heart rate were being tracked across the timestamps, organizing the archive based on that may present a new perspective that makes sense of the complexity and offer a way for students to demonstrate the aspect of being grounded in a location by the experience of a full range of emotions (if that is the case). The goal would

be for a mobile composition archive to be mobile-friendly. As I've noted before, mobile composition is not setting itself up as the ultimate form of composition, but we seek to embrace the full potential of mobile without "limit[ing] the range of materials and technologies students might take up and alter in competing ways" (Shipka 84). Because the mobile writing archive is a capturing of the experience, it could certainly make use of tools available on tethered devices using the mobile composition material and there is a back-and-forth aspect that will be relevant to the reflection on the materiality of the project.

Building on this notion of a mobile-friendly presentation of the composition archive, Jensen's third principle may seem obvious at first, but too often, instructors simply replicate print-based processes in electronic form. Similarly, a mobile composition archive would want to make use of the unique characteristics of the mobile experience. To make full use of mobile technology, a mobile composition archive could create social media-like experiences throughout the composing process. Jensen promotes screen-recording tools, which are certainly available on mobile devices, but even further, students could make use of online platforms that gather the various pieces of their process to present it in a dynamic fashion, which can include future updates and comments from viewers. Using Snapchat's "story" feature, for example, students could post throughout their composing processes to create the archive while they're working on a project, and it could incorporate fellow student feedback. Too, a mobile composition archive could make use of platforms like Storify, which has a mobile app that allows users to curate

social media posts and more while annotating and promoting engagement from viewers of the “story.”

Emphasizing the materiality of a mobile composition archive ties back to the emphasis mentioned in the last section concerning writing ecologies. Making use of this principle would include documenting of switching back and forth between devices and noting the capabilities and experiences of each. Incorporating activities like a technology travelogue (an assignment described in chapter five as part of the mobile course prototype) would tie students to the material aspects of their writing processes. Even further, having students make a note of the impact of their location will play a role in a mobile composition archive more than it would in a tethered form of online writing archives that Jensen describes. This intersection of place, space, and interface would be weaved into the archive presentation and could be automatically included in some instances as devices are sometimes logged on social media posts as well as location based on mobile sensors. The need to present it in a comprehensible way as described in principle two would be the main consideration.

The final principle of Jensen’s online writing archives is mainly one of reflection on the student’s part. However, it is a different form of reflection that occurs in how-centered writing processes that gives the students a sense of mastery over the process. The reflective element is one that many question when discussing mobile composition given the speed and short bursts of time spent on these devices. While I make the argument in later chapters that mobile media can combine performance and reflection, this form of reflection is one that asks students to connect deeper with the material aspect

of their composing processes and how it is reiterated in the mobile composition archive. Such reflection on the student's production of a mobile writing archive will bring out a fuller understanding of the unique affordances as well as what is missing when working in the mobile medium compared to other media, which points to discussions of opportunities and challenges of mobile learning that will be covered in chapter three.

A mobile composition archive allows a lot of flexibility but still includes a critical and reflective approach in the context of sociomaterialism. The next concern may be the types of assignments that students will produce in a mobile composition course that would become part of the mobile writing archive. Jody Shipka introduces a framework for students in doing this that can satisfy the needs of a lot of academic and student concerns regarding this flexibility and openness. Her framework involves having students "assume responsibility for the purposes, potentials, and contexts of their work" by identifying ...

- The *product(s)* they will formulate and the *purposes*
- "the *operations, processes, or methodologies* that will (or could be) employed in generating the product"
- "the resources, materials, and technologies that will (or could be) employed in the generation of that product"
- "the specific *conditions* in, under, or with which the final product will be experienced" (88).

As part of this dissertation project, I have developed a prototype for a mobile composition course. Using Shipka's framework in the creation of assignments and in

guiding students in the completion of tasks embraces the postprocess approach and fits with the inventive nature of working with mobile devices. Such guidelines are not meant to be a break from or alternative to typical essay writing but should be applied throughout the course for students to “reflect on the meaning potentials of a wide variety of genres, methodologies, and technologies (both old and new)” toward a rhetorical sensitivity (Shipka 89). Even further, then, as part of a mobile composition course or in the integration of mobile technology into a composition course, assignments that make use of these principles offer a way for students to know the full-range of rhetorical possibilities across a variety of media. Too, the goals fit well with those of the above-described mobile composition archive as a way to capture the experiences.

A mobile composition course steps outside of conventional process-based pedagogy while also responding to academic and student concerns that may arise with such an innovative approach. The adaptation of frameworks like those of Shipka and Jensen provide ways for faculty to avoid compromise with postprocess and for students to retain their unique, creative processes that often go without being repeated. Every innovative approach requires translation, and the translation for change provided here is modeled in the course prototype and the integration of mobile composition that I am championing in general.

Moving Composition Forward

To begin this final section, I return to Latour’s collective and Cooper’s set of interconnected systems to remind us that there are other actors in the ecology metaphor, including issues of access, students’ professional needs, and role of institutional policies

and politics. As some composition scholars note, “it is not always easy for writing faculty to develop the relationships necessary for implementing technology-intensive curriculum” due to established practices within disciplines and institutions (Reid 66). It is essential for composition researchers and teachers to be involved at the institutional level, however, precisely because we are so connected with our students and work. Amy Kimme Hea writes, “Perhaps more than any other faculty, those of us teaching composition are acutely aware of the challenges to retain students, support their intellectual growth, and guide them in the development of critical literacy” (“Perpetual Contact” 216). Composition teachers and scholars must position ourselves in the conversation about mobile learning in higher education, and we should seek to ensure that administrators have a socio-cultural perspective on the integration of mobile devices. This section seeks to identify the current challenges as well as respond in a way that can mollify concerns of administrators that take into account mobile writing ecologies, multimodal composition, and postprocess research.

As our writing ecologies change and the collectives that were in continue to shape our communication processes, we need to re-think composition in the university. The practice of composing long-form essays may be supplemented with mobile writing, in the form of hyperlinking, short messaging, or social media. This is not a call to abandon traditional literacy practices but to build upon them by making use of the mobile practices that have always existed in the field of writing and are now afforded to us through mobile and ubiquitous digital technology. For example, some suggest that sustained engagement is missing from short bursts of communication that occur on

mobile devices, but we can point to strategies such as online writing archives that still represent a larger body of work and capture the composing processes without prescribing the process. We can still point to goals relevant to rhetorical awareness and production, too, as noted in the previous section. While much of this chapter has been dedicated to theoretical and academic concerns regarding the shift to mobile composition, there is also a professional exigency regarding mobile composition that deserves attention in the increasing concern for career outcomes of college and university graduates.

As one article in a professional periodical stated, “While educators continue debating the use of mobile devices in the classroom, the tide seems to be shifting in favor of a new mobile paradigm as a way to ease students’ transition into the workplace” (Zarom). There are several reasons that purposeful integration of mobile devices impact students’ professional skills, but one in particular is important to our field: “students who have the opportunity to use video and other technologies to communicate – laptops, tablets, smartphones, etc. – are ahead of the curve and much more comfortable using the latest digital tools and software once they enter the workplace” (Zarom). As the professional world continues to rely on new means of communication, there is the necessity to prepare our students for the practical challenges that they might face. Even further, we are shaping future leaders, thus having the chance to shape expectations regarding mobile device use and expectations, to be discussed in the following chapter in the context of opportunities and challenges as well. Our students are not only inventing in the of their composing, but they are also inventing the burgeoning mobile complex in which we live and communicate with one another.

Although mobile composition research may be able to answer questions related to the academic and professional communication needs of our students, many in traditional English departments see such shifts as existential threats. A few years ago, Marc Bousquet wrote a piece in the *Chronicle of Higher Education* that claims there is a panic occurring in English departments, particularly regarding literary studies. In particular, literary scholars suggest their field is being devalued and that composition scholars want to dismantle their area of study express this anxiety. Unfortunately, this type of backlash is strongest at institutions that have the prestige and rank (like Bousquet's Emory) to continue down a declining path for a longer. English departments that have incorporated areas such as composition or new media aren't just following trends but see the value of production and study of production over traditional hermeneutical analysis, responding to the needs of the information and digital economy, all of which are part of the mobile society.

A rejection of such moves is occurring at all ends of the spectrum in higher education. My first year of teaching was at a community college, and that year, the English department sponsored a college-wide reading on Mark Bauerlein's (a colleague of Bousquet's at Emory) apocalyptic book *The Dumbest Generation* (the author of this book has softened on his stance a bit since the time of his writing it). At the time, my students and I bought into the argument that technology was making us dumber. At the time, my department and I were trying to make our students (and the world around them) fit us rather than attempting to think critically about why and how the environment around us was shifting so drastically. Electracy is the personal and professional exigency

for which I promote mobile composition within a framework that seeks not to limit but expand our field— as stated previously, neither mobile composition nor electracry wants to simply dispose of literacy, and neither do I.

While scholars of composition studies are likely more open to these changes than traditional literature professors, we must be careful of thinking only in terms of the long form essay or paper-based writing processes. This is especially important for writing program administrators or directors of composition programs to recognize as they influence the curricula for first-year writing courses. Many first-year composition instructors are either contingent and/or teach so many courses that it is difficult to experiment or research new approaches, and thus, the first composition courses that students experience can set a skewed impact of the relevance and importance of the course when it comes to issues like mobile communication.

As mentioned in the earlier discussion on multimodal composition, not all compositionists embrace change so well, and when they do, it is usually in an attempt to fit it within already-established frameworks. Doug Hesse, for example, wrote, “at stake are fundamental boundaries of our curricular landscape” in response to Cynthia Selfe’s essay on including aurality in composition studies that began the conversation around multimodality in our field (qtd. in Alexander and Rhodes 2). The editors of *On Multimodality* remind us that there was indeed a clear sense of threat when approaches to composition began including new media and multimodality. They question, “Has it actually left our field, or might it have been transmuted into other impulses, perhaps a desire to contain and control that threat” (Alexander and Rhodes 33). By looking at

various texts related to composition studies and the integration of technology, the editors notice that there are very few articles that treat multimodality in its own right and that there is no indication of proactively seeking out new possibilities or impacting the conversation in ways other than discussions of how students use devices. This is important for us to keep in mind when working with mobile composition as it is an even newer form of new media that many researchers and instructors will feel unable to control. We must not give into attempts to fit it within frameworks of literacy – though we can discuss ways mobile affects that apparatus – and think forwardly about its use in our discipline and thus in other disciplines and professions.

Throughout this chapter, I have explored ways that mobile devices move composition forward in burgeoning areas of research in our field, such as new media writing ecologies, multimodal composition, and postprocess research. Integrating mobile devices requires us to think outside of this conventional framework for composition studies and thrusts us forward as a field, often in uncomfortable ways. This uncertainty leaves us limiting discussions around the ecological impact of our composing processes and the changes required for mobile, such as revisiting the process and portfolio pedagogies that are staples in our courses or redesigning tasks and assessments for mobile media that do not attempt to conform new media to literacy. A holistic approach to mobile composition requires we re-think all of these issues as outlined in this chapter, and as such, begin to embrace the full potential of mobile technology in composition courses while challenging long held assumptions around the where, what, and how of writing studies.

CHAPTER THREE
OPPORTUNITIES AND CHALLENGES OF MOBILE LEARNING IN
COMPOSITION STUDIES

In chapter two, research from the area of composition studies provided context for the move to a mobile composition, including the use of research on the ecological aspects of writing, multimodality, and postprocess. As mentioned there, many English and composition studies academics view these areas of research and mobile composition a threat – or at least a form of composition to be forced into conventional frameworks rather than changing our entire approaches. For example, Mark Bauerlein, a professor of English at Emory as referenced in the last chapter, represents this line of thinking when he states that he regards the communication as used by students on their smartphones is a “regrettable circumstance” (“Interview with Mark Bauerlein on Cell Phones and Digital Technology”).⁵ Thus, relying on research on mobile learning from outside our field will be critical in responding to the legitimate concerns of the opportunities and challenges to move forward in the creation of mobile composition learning environments with the realization that while mobile learning offers numerous benefits to teaching and learning, it is not a panacea or unproblematic.

In this chapter, mobile learning research is introduced and synthesized with composition studies research, ultimately leading to applications of authentic experiences,

⁵ In fairness to Bauerlein, his stance has softened after his (in)famous *The Dumbest Generation* release, but the widespread acceptance of his original arguments are still held in many circles and impact the conversation around digital learning, especially in the humanities.

participatory learning, and new ways of making meaning in mobile composition. While there are many affordances of mobile learning that could be identified, these three are repeated in the literature concerning mobile learning and serve as particularly relevant elements of mobile composition. Specific strategies for responding to the conventional school-based culture of higher education⁶ that juxtaposes many of these aspects of mobile composition are identified throughout as well.

Mobile Learning and Composition Studies

Defining mobile learning has proven to be more of a challenge for researchers than one might initially think. Given the rapid pace of change in mobile technology and that there is no formal academic discipline in which such research resides, the unsettledness in mobile learning research during the first several years is not that surprising. There are numerous frameworks, many of which are referenced in the next sections, and there have been several effectiveness studies regarding mobile learning (Hwang and Tsai). Still, similar to the early days of online learning in higher education, adoption has been slow and those on the front lines of teaching and learning in composition have not taken ownership as we should have and instead been reactive concerning administrative pushes.

⁶ Conventional higher education culture is a phrase frequently used in this chapter, and it stems from James Gee's definition of school-based culture in *The Anti-Education Era: Creating Smarter Students Through Digital Learning*, where he notes that a skill-and-drill and social camp approach to higher education (or any education) is not one that prepares students for the twenty-first century. He also introduces this criticism in *Situated Language and Learning: A Critique of Traditional Schooling*.

Seminal mobile learning researchers like the renowned “professor of Mobile Learning” John Traxler and several others cited in this chapter first noted the unique attributes and affordances of mobile devices in education as a way to set the area of study apart from other forms of technology integration research (“Defining Mobile Learning”). Specifically, in her essay “Mobile Learning: New Approach, New Theory,” Helen Crompton argues for an m-learning theory to account for the differences from what she describes as tethered learning. Crompton compares traditional learning, conventional tethered e-learning, and m-learning using various learning attributes to note the unique characteristics of mobile. I adopt these distinctions as analog, tethered, and mobile learning, and the unique characteristics play a significant part in the dissertation

One of the unique characteristics of mobile learning is that it fits more within the framework of informal learning and formal learning, which raises many questions and challenges to a school-based culture (“Defining, Discussing, and Evaluating Mobile Learning”). Mobile learning researchers note the concern for sustainability in formal schooling based on this characterization of mobile devices as researchers like Peng, Su, Chou, and Tsai note. This challenge to school-based formal learning, then, is addressed with a new form of learning in which composition studies teachers and scholars must take advantage of the affordances of mobile devices and the way they converge with teaching and learning possibilities (Sharples, Taylor, and Vavoula).

In an even wider take on the impact of mobile devices, Traxler notes that devices and wireless connectivity transform our conceptions of discourse and knowledge, which should provoke those of us in composition studies to engage in the investigation of these

devices in our teaching and research as these are particular areas of concern for us (“Defining, Discussing and Evaluating Mobile Learning”). Further, educational researchers have begun identifying ways that mobile technology and practices revolutionize education based on these changes to discourse and knowledge within society. Building on this idea of a mobile society, Sharples, Taylor, and Vavoula noted in “A Theory of Learning for the Mobile Age” that the tools and socio-cultural transformation would impact learning in ways that the field had not seen in centuries. A convergence among the elements of society and the tools would lead to a new form of learning, those of which are key to mobile composition include an emphasis on networks, contexts, and their impact on meaning (Sharples, Taylor, and Vavoula).

Mobile technology was changing drastically during the first several years that devices were introduced. In chapter five, I chronicle my own experience from the Palm Pilot to the iPhone as an example of the drastic changes. Processing speeds, functionality, and other software and hardware capabilities varied greatly across devices, and most of the research actually centered in the area of computer science. However, in the past five years alone, the battery life, computing power, and software capabilities have improved so much that mobile devices may be the only computers some of us need. As such, attention to these aspects dominated the first forays of research on mobile devices but has become of much less importance.

While there are fewer hardware disparities among devices, operating systems are still not all on par with one another. Although the Android and iOS operation systems on mobile devices now support many of the same applications, there are still some gaps. For

example, issues regarding Java still present challenges for some users. Similar to the Mac and PC divide in tethered devices, we must work to bridge the divide across operating system while working to create equity across mobile and desktop platforms. While tethered and mobile devices are becoming closer in terms of capability, educators must remain aware of accessibility issues concerning mobile devices and adjust accordingly until mobile is capable of all comparable functions even while devices still have their own unique affordances.

This initial focus of mobile learning research on the technical capabilities impacted the research even as it made its ways into the field of educational studies. Educational studies then moved to examining mobile learning from the perspective of the impact on the learner, and it was not until Traxler noted early on in his career that mobile learning was not about the device or the learning but about a conception of a mobile society (“Current State of Mobile Learning”). The direction of research shifted to looking at the unique affordances of mobile as compared to study of other computing devices and how that converged with teaching and learning. A number of attributes could define mobile learning depending on the context, and for this dissertation, unique qualities include the shift to a contextualized and networked learning that impacts authentic and collaborative learning, respectively. As well, mobile composition leverages the mobility and ubiquity of devices in the creation and analysis of content as part of new ways of making meaning.

Analog, Tethered, and Mobile Learning

With the onset of mobile society as discussed above, mobile learning became one of three forms of learning, which include analog (or conventional pedagogy) and tethered learning (where desktops/laptops uses). As Sharples, Taylor, and Vavoula noted in their seminal work, a framework for learning outside of the classroom had not been identified before mobile, which is an important distinction to remind us that we cannot simply force mobile composition into the other two forms of learning. Analog learning is a form of learning that makes no intentional use of technology. Importantly, analog and mobile learning have much in common in that both afford anytime, anywhere learning. However, mobile learning in the sense that is being discussed here with digital devices offers an array of capabilities and ubiquity that was not available in pencil and paper.

In analog learning environments, instructors typically do not make use of the anytime, anywhere capabilities despite not being tethered to laptops or desktops. While some instructors may use slide presentations to replicate lecture methods, there is still no need for students to have computing devices during the learning process. Tethered learning includes the intentional use of computers such as laptops or desktops, but this often becomes a substitute for the analog mode of learning. Unfortunately, even online learning is often still a tethered experience due to the design and assignment requirements of the course.

Untethered or mobile learning involves an intentional use of mobile devices, and while there are attempts at substituting mobile devices for tethered or conventional learning, untethered learning affords the opportunity for education that escapes formal

classroom environments and setups. One spurring factor for the creation of mobile learning studies was the realization that mobile technology is unique from stationary devices. There is much potential in online learning for designing for untethered devices, and even in a typical seated course, the untethered learning promotes flexible classroom spaces and the same opportunities that I outline. In fact, a hybrid course that makes use of the untethered characteristics of mobile learning in an online environment combined with some active learning in a flexible classroom space designed for device use could juxtapose and highlight the full range of mobile technology capabilities.

Structures, Agency, and Cultural Practices

Thus, we know that mobile learning is more about a societal shift than it is about the technology. In fact, some describe mobile devices as cultural resources that “emerge within ... a ‘mobile complex,’ which consists of specific *structures*, *agency*, and *cultural practices*” (Pachler, Bachmair, and Cook 35). These three elements guide the rest of this chapter’s discussion of mobile’s affordances of authentic, participatory, and new means of making meaning. The discussion of sociocultural structures by these researchers emphasizes the relationship changes regarding space and place in a mobile society. In fact, they identify “the concept of the ‘learner-generated context’ as an instantiation of a paradigm shift” (Pachler, Bachmair, and Cook 41). This element of a mobile society offers opportunities for the field of composition in how and where students compose and the effects of these choices. The next section on authentic mobile composition explores this further.

The role of agency is second of three characteristics of the mobile complex as identified Pachler, Bachmair, and Cook. They describe this element as “the use of mobile devices for the formation of identity and subjectivity for finding a distinct way of being in the world” (41). As we learn self-representation and the ability to form “technology-mediated relationships with others” in a mobile society, this skill will be important to integrate into composition practices. I discuss this integration in the section concerning participatory mobile composition.

Relatedly, cultural practices, identified as the third node by Pachler, Bachmair, and Cook, is concerned with the “media use in everyday life,” which include “collaborating, exploring new literacies, pursuing enquiry and publishing to audiences, and genres of participation” (42). This aspect of the mobile complex challenges conventional higher education cultural uses of mobile devices in that they are typically print-based and not as collaborative. As one researcher noted, “many of the constraints of [mobile devices’] full potential are imposed by an entrenched culture of conventional higher education, where the locus of learning is controlled by a central authority and outdated pedagogies” (Searson xiii). The two final sections of this chapter on mobile meaning making take up this topic.

Sociomaterialism and Constructivism

Mobile learning has been framed within a variety of educational theories as well as sparking some new or revised theoretical approaches. In the application of mobile learning to composition studies, sociomaterialism and social and cognitive constructivism are guiding frameworks. Sociomaterialism provides an avenue to examine the

convergence of spaces, places, and practices. Social and cognitive constructivism provide insight into the creation of knowledge through social interactions that occur via the mobile devices and contexts.

As evidenced, essential to a theory of mobile learning was defining what made it unique, most obvious of which includes movement across space and time but also management of several learning projects and an in and out engagement with technology. Scholars of digital learning have taken approaches from computer science, educational studies, and sociocultural disciplines to form a hybrid framework around sociomaterialism, which relates to the ecological perspective of composition as discussed in chapter two.

Thus, the use of sociomaterial research methods plays an important role in analyzing the impact that mobile devices have on pedagogy as it is not just about the technology (as classic computer science frameworks suggest) and it not just about the student (as classic humanistic or educational frameworks suggest). A hybridization of these two frameworks exists in sociomaterialism. Sociomaterial studies within education “explore ways that human and non-human materialities combine to produce particular purposes and particular effects in education. They examine the messy textures woven through different kinds of networks – and the resulting ambivalences – that intersect in pedagogical processes” (Fenwick and Landri 3). Laura Fenwick and co-researchers are known for laying out the concept of sociomaterialism as it related to educational research, but many others have used the term in their research, including Norbert Pachler and his fellow researchers. Important in regards to mobile learning, sociomaterialism does not

just focus solely on the devices, which might lead to technological determinism, or only on the student, which might lead to anthropocentrism.

As researchers who have applied elements of sociomaterialism to mobile learning note, our current learning environments are incongruent with mobile devices (Mifsud). Thus, bans on mobile devices are commonplace in the shift to a mobile society because humanities and English classrooms have not changed to reflect this as society, other industries, and even some more early adopting educators. While other disciplines in higher education, such as units of education, are dealing with mobile learning and perhaps still trying to find meaningful use, the research and practice of mobile learning in our field is still limited, nonexistent, or even disparaged in many locations.

This will require us to specifically think about the environments and experiences in which mobile devices work best and where they do not. As discussed in chapter two, John McArthur makes this case in his work *Digital Proxemics*, suggesting that there are significant design implications for how we (re)act in any space in society, but especially in our digital age. There is no need to fully revisit the material from chapter two concerning the ecological aspect of composition and how space and place impact writing, but this sociomaterial approach to mobile learning fits well with our field as emphasized throughout the major sections of this chapter.

Along with research concerning sociomaterialism, mobile learning frameworks often embrace cognitive and social constructivism in identifying unique characteristics of mobile learning as they apply to mobile composition. These theoretical approaches offer a move beyond efficiency that more behavioristic interventions of mobile learning offer.

As Dennen and Hao note, constructivist approaches “encourag[e] learning that takes place in authentic or a reasonable facsimile and that involves real-world problem solving skills. Thus, both take a highly contextualized approach to learning” (26). Cognitive constructivism focuses on providing a proper context for learning in the mobile environment – whether physical or via an app. Social constructivism involves the peer-role and how knowledge is constructed in the mobile learning context. Frameworks that involve social and cognitive constructivism require mobile composition instructors to note specifically the way applications and social contexts are constructed as part of the learning process. They are especially important in discussions of authentic and collaborative learning as discussed in the sections below.

Relatedly, a careful look at the construction of knowledge that is occurring in these spaces is important. Constructivism – cognitive and social – is a helpful framework for mobile learning as it relates to composition. Whereas sociomaterialism has us consider carefully the space and place components of human-device interaction, constructivism draws more attention to the interaction between persons in a learning environment and the generation of knowledge. Because mobile technology changes how we interact with one another and generate knowledge, constructivism offers a way for compositionists to consider the impact of mobile integration on the generation of knowledge in various settings. Process writing theory emphasized that writing is learning as a response to the current-traditional theory that writing is about expressing what is already known. While codification of process writing and its print-based framework limits this idea in mobile composition, constructivism is still important in promoting

writing (in any form) as thinking, or the development of knowledge rather than just its expression, in mobile composition.

Most writing teachers recognize that the didactic approach of current-traditional rhetoric is not effective in making students better writers. They make use of cognitive constructivism by having students practice what they are supposed to be learning. With mobile composition, this entails a situated form of learning that makes use of the space-transcending environments, whether place or interface, in which students compose.

Social constructivism emphasizes the role of peers in learning. Thus, the networked capabilities of mobile technology are key elements of mobile composition. Importantly, social constructivism involves interdependence and not having peers work on pieces alone and then putting them together. In this chapter, the role of constructivism is evident in the discussion around all three main sections, including authentic mobile learning environments, collaboration using devices, and new methods of making meaning.

Defining Mobile Composition

As mobile learning researchers recognize, the path to a strict definition is not easy – or perhaps even desired, and such is the case with mobile composition. In my defining of mobile composition, it is tempting to set strict parameters on the devices or activities that could be considered mobile. However, not only is technology still continually changing despite some similar constants across platforms, but also mobile learning is not just about the technology as has been discussed thus far. Mobile learning is about making full use of place and interface as well as the practice and construction of knowledge that

happen there. Thus, mobile composition is the use of untethered devices to facilitate a transcendence of place and interface through a variety of communicative means.

Both parts of the definition rely upon one another. For example, the first part of the definition may apply to select laptops, but generally these don't have the portability with which one can compose with ease and don't have the ubiquity of mobile devices. Too, the consideration of facilitating composition would not be possible with a laptop. (Compare trying to capture video on a traditional laptop with a smartphone or tablet.) We can also take note of the length of power cords that are sent from the manufacturer with phones and tablets as compared to laptops: the short length (and long battery life) signals that the chargers are really not to be used when the device is in use. Finally, there are many more smartphones and tablets in people's possession, and this ubiquity meets the facilitation of transcending place, a critical element of mobile composition.

Opportunities and Challenges in Mobile Composition

Mobile learning is often described as disruptive even before the term became overused after being adopted by mainstream educational technology conversations. Debates around the possibilities and limitations of digital media have been happening for quite some time. Marshall McLuhan described the onset of digital technology 1964 when he wrote that “electric technology is within the gates, and we are numb, deaf, blind, and mute about its encounter with the Gutenberg technology, on and through which the American way of life was formed” (30). Mobile technology does disrupt much of the way of life, particularly schooling, as discussed in this chapter. McLuhan's take on the digital

age and its application to mobile learning is raised again in the third section of this chapter concerning new ways of making meaning.

Because most takes on new media, especially mobile devices, consists of either lauding or lamenting, it is important that I examine the implications of mobile learning for composition studies in the context of potential and limitations, or opportunities and challenges. Gunther Kress acknowledges that there is a conservative tendency when discussing new media given “the long domination in the West of writing as the culturally most valued form of representation” (5). Kress notes the importance of the wide angle that we must use when discussing new media as it indeed affects conventions, authorship, readership, and meaning itself as values are tied up in all of these elements. The move to mobile media introduces issues of representation and communication, impacting all of these areas he mentions, and call for analysis as well as attention to aptness. Given this discussion of opportunities and challenges, I invoke Greg Ulmer’s concept of electracity throughout this chapter, which he describes as the digital apparatus succeeding and combining literacy and orality. As discussed in other chapters, this framework is central to contextualizing mobile learning, especially the opportunities and challenges, or even perceived gains and losses.

Some specific ways that mobile learning produces opportunities and challenges is in the form of authentic or situated learning and the perceived lack of common experiences; the increased engagement and potential for abuse of constant connectivity; or the perceived lack of depth of critical reflection in new ways of making meaning. Each of these characteristics is different in a mobile environment than it is in a traditional

classroom or even in a tethered classroom, but they are also different because mobile exists more fully in the electrated apparatus. There are certainly ethical considerations for these elements, and there are potential positive and negative consequences for each, but the issues are best understood in the context of the digital apparatus as compared to a print-based one. A holistic analysis of the opportunities and challenges in mobile learning using this type of research gives us a path forward for integrating these issues into a digital literacies course prototype that is discussed in the final chapter of the dissertation.

These disruptions and unique challenges and opportunities are discussed in the forms of mobile composition in the sections below, which include the authentic composition environments and experiences, participatory and collaborative composition, and new ways of meaning making.

Authentic Mobile Composition

One of the main strengths of mobile learning is that it affords opportunities for authentic and contextualized learning, attributes often described as essentials to sound teaching and learning. Several mobile learning frameworks highlight authenticity as an element afforded by devices and necessary to incorporate in mobile learning design. Emphasis is placed on students simulating the context of an authentic environment to learn or practice skills. In one of the earliest frameworks of mobile learning, researchers noted that “a theory of mobile learning must therefore embrace the considerable learning that occurs outside classrooms and lecture halls as people initiate and structure their activities to enable educational processes and outcomes” (Sharples, Taylor, and Vavoula). For composition studies, mobile devices present the chance to not only conduct

research and deliverables in an authentic environment, but it challenges composition instructors to meet students where they do most of their writing – on their devices. The two key elements of authentic mobile learning as it relates to mobile composition involve *how* students compose and *where* students compose. Authentic learning enables the transcendence of place and interface of mobile composition.

Of course, the introduction of mobile devices was not the first time teachers and researchers have thought to conduct writing in different place or consider its impact. Composition research has long recognized that writing is as much an ecological act as a cognitive one. As discussed in chapter two, Marilyn Cooper began this conversation in our field decades ago when she reminded us that writing is engagement with a set of social systems. Thus, our composition practices are shaped by these inter-connected systems, but mobile devices have the chance to shape the systems and thus our practices even further by allowing a completely untethered approach to writing in various places while also connected to and even disrupting some of these systems.

Professional fields have been using this type of learning for a quite a while, and many have begun incorporating mobile devices for such purposes. Ge, et al.'s 2013 “Three-Dimension Design for Mobile Learning” recounts the experience of the Oklahoma University College of Nursing’s implementation of a mobile learning initiative. The faculty and staff used traditional instructional design methods at first, including ADDIE, but also developed a new framework. The three dimensions of their framework include the pedagogical dimension, design dimension, and technological dimension. The pedagogical dimension is considered the most essential. In it, one

considers how to create an authentic learning environment that makes use of social constructivism. Researchers noted that when learning is not isolated from reality and would therefore increase student attainment. In composition studies, however, the isolation still often exists with students writing in genres and on topics that are separated from their personal or professional experiences. Mobile devices can help overcome this barrier because the devices are how and where students do most of their writing and multimedia production, from texting, taking selfies, posting social media updates, and using emoticons. This is part of the authentic use of interface while also being situated in a specific environment. Those outside of composition studies can take this into consideration as well when having students compose on a mobile device – the use of the interface and the use of space and place all matter. It could serve professional fields well to consider how writing in a mobile environment might make the best use of the interface since they are already transcending the place and interface of school culture and literacy.

Mathew Kearney, et al. developed a framework for mobile learning that emphasizes personalization, authenticity, and collaboration as distinctive features of a mobile learning. As noted in Figure 3.1, the use of time-space is the foundation for their model since these are often the constraints for analog learning that mobile learning has a chance to transcend. The notion of personalization makes use of motivational and socio-cultural theories to emphasize the possibility of increased customization (or choice) and agency for learners. This personalized, flexible aspect of mobile learning then creates opportunities to choose the issue and context of their composition but also encourages creativity in how it is expressed. The idea of a customized approach reinforces similar

discussions from chapter two on postprocess research that emphasized an un-fixed approach to composition, and it allows a transcendence of the interface of conventional composition processes, meeting students where they do most of their writing already.

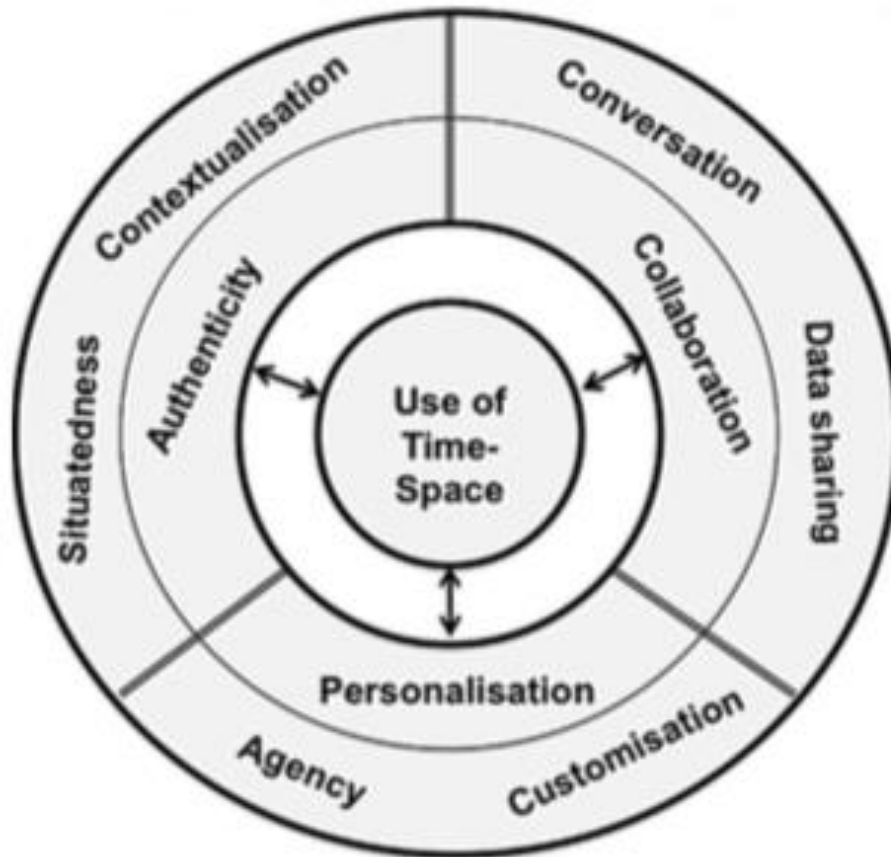


Figure 3.1 Matthew Kearney et al.'s mobile learning framework

Along with the ability to transcend the boundaries of interface, composing in any space and place is also one of the largest opportunities of mobile learning as it leads to more authentic learning, or situated learning. Sharples, Taylor, and Vavoula noted the convergence of the mobile device capabilities as affording a situated form of learning,

requiring us to pay even more attention to context and meaning as learning and communication can take place anywhere not that it is not bound to a classroom. As it relates to space, authentic learning is often referred to as situated learning, or “here and now” learning, as it presents a chance to embed learning in whatever context the learner will use it. Florence Martin and Jeffrey Ertzberger developed a mobile learning framework based on “here and now learning” or situated learning, an educational theory introduced in 1991 by Jean Lave and Etienne Wenger in their book *Situated Learning*. Martin and Ertzberger’s three-part framework incorporates the mobile dimension and its capabilities, including geospatial technologies, mobile search, use of a camera, and social networking (77). The three parts consist of engaging students in the context, authentic activities, and informal learning. In a study where these principles were applied, the researchers found that mobile learning allows for engaged, authentic, and informal learning opportunities. This opens the channels through which composition researchers and teachers have explored composition. Conventional approaches to composition have often been a one-way process that has been formal, inauthentic, and not engaging. Mobile composition must flip these characteristics in order to make use of the mobile society and skills.

Mobile devices, then, can move composition forward by allowing even more of a place-based, social writing to occur. One may still be wondering how this is any different than taking a paper notebook with pen or pencil to a locale and declaring it “place-based, social writing.” Indeed, the use of place and space in composition are not unique to mobile devices. However, the pervasiveness of mobile devices emphasizes the mobility

of our writing and allow for a more spontaneous type of place-based, social writing. In noting how mobile devices emphasize our place-based, social writing, consider geofilters on social media. All of the major social media sites allow users to tag their location. In fact, Snapchat is known for its intricate geofilters as a way for users to mark the location of their experience down to a home or business as the geofilter tag. Our wearables even track much of this geo-information when we don't even realize it, and it becomes part of the data that we have in our collection to use and to compose.

The geo-technology on mobile devices could be used in the development of just-in-time teaching when students are in various settings. My mobile device offers app suggestions based on location and time, and when I'm at a restaurant or recognizable place, Facebook asks me if I want to check in based on its geo-awareness technology. Using the same capabilities could enhance writing and communication courses when students are composing in authentic environments. For example, in a professional communications course, mobile technology could identify when a student is at her place of business and then determine the type of profession using mapping software and other databases to offer students resources, reminders, or strategies for the various forms of writing and communication that would be used in that environment.

As noted, the transcendence of space in mobile learning extends to the idea of the interface, too. Specifically, the idea of capturing multimedia or creating multimodal place-based assignments would not have been possible with a pen and notebook, and publishing for anyone would have taken much longer than a few minutes or seconds. Now, some of the best photos can be taken on a smartphone, which also has video and

audio capabilities. Even further, with increasingly accurate and important role of voice recognition software of mobile devices, especially wearables like smart glasses or watches, capturing audio on the go takes almost no effort on the part of the user. Devices can start taking notes based on voice prompts alone, which is worthwhile to consider as part of what it means to *write* in a mobile composition environment.

As I alluded, most mobile devices even have the capability to edit and publish on the go, which has even been used by major media networks in the increased urgency to be the first to report. This same capability includes the ability to remix or appropriate content in a manner that authentically expresses culture and identity while giving students a sense of agency (Jenkins 55). The remix culture of which mobile composition is part is much more permissive and sees productive the rearranging, editing, or mixing of content, fitting with the descriptions of mobile composition in chapter two.

These experiences using on-the-go editing, publishing, and remixing doubly create a sense of authentic learning are examples of the transcendence of both place and interface afforded by mobile devices in composition and communication pedagogies. As well, the heightened awareness and spontaneity of writing anywhere, anytime presents a sense of continually supplementing or revising as discussed in postprocess process research in chapter two.

Mobile composition allows students the chance to compose authentically on the interface in ways that they are already doing. For example, text messaging is a genre unique to mobile devices. Incorporating text messaging or text message-like composition would present a chance to practice a skill in which students are already using.

Composition scholar Stacy Pigg and fellow researchers examine among college students in “Ubiquitous Writing, Technologies, and the Social Practice of Literacies of Coordination.” Text messaging is a highly valued form of writing for students, and while they occur in shorter form, it presents a coordinated, reciprocal form of writing that ultimately develops into a larger body of work that spans across audiences and purposes, an important skill to navigate. The text message genre has even spurred emoticons, which many researchers consider not just paralinguistic but a vocabulary of their own that can be used effectively in writing instruction (Garrison, et al.; Haas; Sweeny). Incorporating text-message-like practices into our field does not fit within process theory authentically, however, so we must look at ways to move beyond our expectations of process-based products and pedagogies, including the embracing of authentic learning frameworks that encourage such composition practices while also having students examine the effect of text messaging on their communication as juxtaposed with other forms.

The type of writing that students do on their mobile devices also encourages a different approach to drafting and revision as discussed in chapter two. Authentic learning encourages us to look at the unique processes of composing that are inherent in mobile writing. Olin Bjork and John Pedro Schwartz argue that mobile causes us to reimagine publishing from a print-based society and thus the type of writing we do on the move (e.g., text messages, social media status updates) becomes the product instantly and instead of being revised, gets supplemented or deleted. While the capability of outpacing print-based publishing practices existed with desktops and laptops, it often reified print-

based approaches. Mobile devices afford the opportunity for even more instantaneous publishing, and thus, further challenging our perceptions of the processes of composition.

Finally, Nedra Reynolds examines the theme of process as product from that of the screen and how the screen calls for more fluidity rather than fixedness. Although word processing software dominated the introduction of laptops and desktop computers in composition, mobile devices require us to reimagine how we can use the screen to express ourselves considering the available means. She even boldly suggests that asking for drafts seems unnecessary given the fluidity of the screen. Mobile devices can force us beyond the attempt of replicating old media in new media and move us more toward Collin Brooke's call for composition and rhetoric scholars to consider the interface as its starting point instead of paper.

The concept of the interface adds to the challenges already discussed concerning process pedagogy. The size of mobile screens and the short bursts of time we spend on them present a challenge and require us to think anew about digital writing and hopefully transcend the space of the screen, forcing composition to examine the interface more closely and letting go of the bastion of paper and all of its simulated forms. These new ways of making meaning are explored further in the final section of this chapter. As I argue several times throughout the dissertation, this does not mean shunning print but involving students fully in both and juxtaposing them when necessary for learning.

One strategy that can help students compose authentically using mobile devices is Marissa Juarez's "spontaneous composition." She describes a form of writing not too dissimilar from free writing but that involves writing in new media and in place-based.

As well, she takes the idea of spontaneous composition from Jack Kerouac (mentioned as a mobile writer in chapter two) that places writing in the everyday with recognition of visual-spatial intersections. First, Juarez encourages a range of materiality in composing spontaneously and that it must be done within communities. Building on the work of Nedra Reynolds and our relationship with spaces and places as humans and what these relationships reveal, Juarez seeks for spontaneous composers “both as agent and observer, to record their reflections about everyday interactions between people in space.” While she does not mention mobile specifically, spontaneous composing would fit well with the idea of an authentic mobile composition. Juarez not only uses this project for formative assessments in her course but for summative ones as well, which demonstrates the ability to respond to conventional school culture when embracing mobile composition without comprising.

A theme throughout this chapter is the necessity to break from conventional academic culture that is bound up in print culture. Making use of principles of mobile learning in composition studies allows us to do that as this section demonstrates concerning authentic learning through transcendence of space, place, and interface. Still, conventional academic culture changes slowly, and we need to be prepared as mobile composition instructors to answer concerns related to objectives, assessments, and so forth. In addition to the example of Juarez’s spontaneous composition, Kyle Jensen’s online writing archives that were detailed in chapter two are one way forward in that they present all of the student’s stages of work in a dynamic format and can include location elements. This would fit mobile learning well in that there are many stages of a mobile

project and many locations, and capturing it in the form of a final version of a project can prove difficult or impossible. Being able to capture all of the elements of authentic mobile composition projects in a way that is not forced into school culture is possible, especially with rhetoric and composition as we look at audience, purpose, and context. However, going beyond traditional forms of assessment require thought and attention on how not to compromise the principles of mobile learning, postprocess research, and the unfixed and ever-changing ideas inherent in such an endeavor.

While much of this section has focused on the benefits of authentic composition, a fair approach must include potential limitations or challenges as well. One critique may be the lack of common or standard experiences. If authentic composition affords personalized, flexible experiences, some may suggest that a certain level of engagement with fellow humans is lost and that a depth of experience is missing.

Regarding the missing elements of engagement from a lack of common experiences, we are working on differing definitions of engagement. Authentic mobile composition experiences offer students engagement at the same or higher level than traditional approaches. By increasing students' motivation to work on projects of personal interest, it is likely that engagement increases. Too, the networked nature of mobile still offers engagement and shared experiences, but it looks different. The concern of a lack of in-depth reflection or critique is addressed in the third section of this chapter, but it follows a similar line of thinking in that there is a competing definition of engagement and depth.

Mobile devices present many challenges and opportunities for us along the lines of space, place, and the product resulting from our transcendence of space and place. Learners have the opportunity to compose spontaneously and in ways that emphasize our sense of place in order to have a more authentic learning experience. We are challenged in our use of mobile devices when we expect the products to remain full-length essays of multiple drafts because this type of writing is inauthentic in a mobile context and does not fully make use of a mobile interface. As discussed in chapter two, the concept of multiple drafts does not fit well with the practices and interfaces of a mobile composition, and as James Gee and Henry Jenkins note, collective intelligence – humans plus tools – and the affordances of collaborative technologies like mobile devices affords for educational situations emphasizes a more authentic experience. Consider, for example, the back-and-forth on text messages or social media channels to arrive at a meaning rather than the practice of revising messages – which happens, but is arguably a vestige of print-based processes. The role of teams and collaboration impact meaning over individual contributions, and our incorporation of mobile technology should keep this authentic practice in mind.

Incorporating more authentic, contextualized assignments that make use of the place and interface that mobile devices afford as well as allows students to demonstrate and analyze the value of the skills in how they compose on mobile devices will be a step forward. The role of collaboration, an authentic experience in mobile learning, is discussed in more detail in the following section.

Participatory Mobile Composition

High levels of engagement and collaboration are another strength of mobile learning of which we can make use in the development of a mobile composition. In “A Theory of Mobile Learning,” Sharples, Taylor, and Vavoula note that the networked nature of mobile devices converged with the collaborative nature of mobile learning, leading to a more successful learning environment. As discussed in the previous section, there are often concerns over the opportunities and challenges of this increased engagement, and this section seeks to identify first the affordances of increased participation and engagement in mobile learning and then discuss potential challenges and how they might be mitigated or framed differently. While educators recognize that engagement does not equate to attainment, there is a high correlation. Too, engagement and collaboration are skills that our mobile society values and encourages; thus, examining how these elements play out in relation to composition will help us shape the future of mobile composition practices.

Mobile learning researcher Patrick Danaher and his colleagues identify engagement as one of three central principles in the design of mobile learning. All of their three-part representation, which includes engagement, presence, and flexibility, can be applied to mobile composition. The researchers note that the three parts are of equal importance and must each be included. Danaher et al. break down the concepts of presence and flexibility even further. The notion of presence stems from research from Randy Garrison, et al.’s Community of Inquiry framework, which includes interactions by students with the content, with fellow students, and with the instructor in the mobile

learning and teaching environment. The final part of their model of developing a mobile learning environment builds upon research related to increasing flexibility in the educational process to promote access and multiple ways of learning; Danaher, et al. identify flexibility in learning, teaching, and assessment activities and encourage the use of information communication technology tools to afford flexibility. Each of these three characteristics has the potential to introduce an engaging, collaborative approach to composition.

Harkening back to the third component of Kearney framework discussed earlier, the element of collaboration stems from the idea that knowledge is created and negotiated in a social context (social constructivism). Thus, students must have spaces for conversation and interaction with the instructor (including feedback) and one another in mobile learning environments. Too, students are able to share data files, including those created on the devices in the moment. Others build on this by noting the importance of social media engagement in mobile learning and note the collaborative experience, which supports the notion that knowledge is created in social contexts, overlapping with the notion of authentic environments discussed above.

This high participatory characteristic that is inherent in mobile device use presents another challenge and an opportunity for composition studies. The field of composition studies is familiar with the concept of participatory genres and some even push for more student work that takes place in the public sphere, a central tenet of postprocess scholarship. As students compose and think in a more connected world, our discipline must help students navigate the diversity and complexity of communicating in their

various spheres. Mobile devices present an even more unique take on the act of composing in participatory, networked environments as evidenced by the constant connectedness of users and the ubiquity of the devices even across the world.

Experience and research mentioned in the previous section and from organizations like Pew Research note that students' typical writing habits on a device are mainly texting, emailing, or updating social media sites. Perhaps of the reasons that many faculty do not wish to embrace the integration of the mobile device is due to what they see students doing on them already and fear "text language" or distraction will rule the classroom. As Olin Bjork and John Pedro Schwartz note in "Writing in the Wild: A Paradigm for Mobile Composition," "Left to their own wired or wireless devices, students are far more likely to use them to compose email, text, or instant messages and create social networking webpages" (230). Data from Pew Research Center confirms this among not only teens, 90% of whom use social media, but the majority of adults as well as a tripling of those 65 or older using social media from 2010 to 2015 (Perrin). As mentioned elsewhere in this dissertation, the current President of the United States, who at the time of writing is 70 years old, is an avid Twitter user and makes a range of official proclamations and angry criticisms from the outlet quite frequently. This evidence requires us to think critically about how these mobile-first, highly participatory media are shaping our world. As Thomas Mackey and Trudi Jacobson note, "[W]e must consider how emerging trends like social media influence our literacy archetypes," which are all around us in academia. Meeting students in their mobile environments means that we

must address the notion of engagement and collaboration in our composition courses, but we must do so in ways that build upon students' needs and skills.

Composition scholars can even model participation through mobile composition. While scholars traditionally opt for more permanent forms of archiving research, involving ourselves in these authentic mobile media offer us a chance to engage with students in their context. Because of its rarity, Jill Walker Rettberg, a professor of digital culture at the University of Bergen, recently had her research published on mainstream media outlets about her use of Snapchat. Snapchat is a mobile-only medium with its own genre of Snapchat stories as well as other unique features like geofilters that we can use as outreach and to engage students with our research using images and tagging of locations such as conferences or field research locations.

In our field, Sarah Arroyo has written the monograph on *Participatory Composition*. Arroyo particularly discusses the concept of video culture and its being a networked learning site capable of rich discussion. Using the concept of video as not just a learning tool but as a participatory tool is a bold stance that Arroyo proves throughout her work, which is explored in chapter four. However, Arroyo's premise of participation over dissemination is hopefully one most educators already realize as productive pedagogy, but part of her project is to place participatory pedagogy in the context of the digital age, or electracy. Arroyo introduces media environments and participatory culture as "a theory and practice" that serve "as networked site[s] for learning" (Arroyo 9). Using the concept of video and media as not just a passive learning tool but as a prime

participatory site is key to Arroyo's argument, which fits well with the networked, participatory nature of mobile devices as has been discussed so far.

Entertainment and education are on opposite ends of a spectrum since video and new media are often connected to entertainment purposes. As Arroyo suggests, "we become participants in the entertainment enterprise of learning while creating" (19). Thus, *Participatory Pedagogy* is initially correcting two fault binary sets—participation vs. dissemination and entertainment vs. education. Using Ulmer's notion of "video intelligence" in her framework for video culture, educators and students are able to both *disseminate* and *participate* while *learning* in the context of *entertainment*. Given the affordances of mobile learning, mobile composition is ripe to incorporate this idea of participating in the entertainment medium.

Arroyo makes sure to note, however, that "it is not enough to say that, in electracy, 'we learn through entertainment'" (37). She rebuts arguments that the technological shifts have made students "apathetic and disengaged, but [are] exemplars of our digital, YouTube moment" (37). Moreover, she claims students are critically engaging with one another in media environments. These environments foster dissemination of and participation with ideas as education and entertainment work in tandem; students are engaging in the act of performance and critique in digital culture, according to Arroyo. For example, an Internet meme is both a performance and a critique simultaneously. More on this notion of performance and critique is discussed in the upcoming section, but the element of participation is key here for mobile composition environments.

In her combination of theory and practice, Arroyo challenges another false binary in the chapter, “Participatory Pedagogy: Merging Postprocess and Postpedagogy.” Both of these concepts – postprocess and postpedagogy – are key parts of this dissertation. Postprocess was highlighted in chapter two as a way beyond conventional print-based process pedagogy, and postpedagogy appears in chapter four as a way forward for mobile composition within electracy. Theory and practice are presented as inseparable in postpedagogy and participatory culture because we are participating in postpedagogy and participatory culture as they are emerging—modeling the ongoing emergence of electracy. This development is described by Arroyo as paralogic postpedagogy: “a space for innovation, affirm[ing] inventions that do not conform to preestablished conditions or ideologies” (Arroyo 110). As noted, postpedagogy receives more attention in chapter four, but the participatory element offers up mobile devices as a space for new forms of creation and participation.

Postprocess composition, of which participatory composition is a part, has created a unique relationship to pedagogy and involves a new understanding of how we teach, resulting in paralogic postpedagogy that does not conform. Similar to the discussion in chapter two, postprocess is a paralogic pedagogy, rejecting process writing pedagogy as the only method for composition and suggests writing is not as fixed. Greg Ulmer’s concept of choragraphy and heuristics help invent participatory pedagogy. Both of these terms were introduced in chapter two. Arroyo’s description of the chora “is an indeterminable space between being and becoming that, being neither intelligible nor sensible, evades conceptualization” (61). Heuristics is a key component of the

participatory composition and postpedagogy. Postpedagogy is not founded on a complete prior understanding of content, but heuristics does allow for understanding while participating in the invention of it. As Arroyo writes, “Heuristics serves as the methodology for participatory composition” (112). She notes that heuristics “(deriving from the combination of hermeneutics + ethics + heretics + heuristics, diuretics, etc.) is predicated on inventing chorography” (Arroyo 112). A mastery understanding, then, is not the ultimate goal of heuristics. Heuristics involves connections. As Arroyo states, “instead of creating ‘masters’ of heuristics, heuristic pedagogy would create consultants working alongside one another to forge connections. In a mobile composition environment, this relinquishes the notion of a master composition process and creates an opportunity for networked, collaborative, and reciprocal writing that represents the mobile composition of students and professionals. Again, long-form writing certainly has its place – oral communication did not go away just because print was introduced – but a critical understanding and opportunity to make use of the participatory elements of mobile composition matter to our field.

Patterns and connections then, are the building blocks of participatory pedagogy. Collin Brooke raises the idea patterns and connections as important elements of digital rhetoric in *Lingua Fracta*, which was discussed in chapter three. This section reminds us of this characteristic of the digital economy and the potential of mobile composition to make use of these practices. Mobile affords a sense of crowdsourcing that can move knowledge forward if harnessed appropriately. While critics may suggest that there is a challenge in the participatory element of composition because of the nature of things that

get shared or the ethics of constant engagement, there is a development of knowledge that may not have been present without it.

New media scholar Henry Jenkins has done much work on participatory culture, specifically identifying a set of new media literacies. Placing mobile technology in a composition classroom will not just lead to collaboration and participation, but we must address the competencies for students to engage best and navigate participatory culture. Some of the new media literacies include play, performance, simulation, appropriation, multitasking, collective intelligence, and networking, which are all key to collaborative uses for learning with mobile media.

Applying these participatory practices to more serious issues like protein folding creates advancements that solitary ventures would take much longer to happen. (Note the juxtaposition and transfer of principles of play to seriousness – not diametrically opposed.) For example, the online game of Fold It, “a revolutionary crowdsourcing computer game enabling you to contribute to important scientific research,” has led to many breakthroughs that had puzzled scientists for years. Games fit the collaborative sense of participatory pedagogy, but they also fit the general sense of engagement that occurs within participatory pedagogy.

While the gaming industry has taken off in recent years, it has also been a large part of mobile device culture (consider Angry Birds, Words with Friends, or even the game-like qualities of fitness software). A game is a “participatory story,” according to Henry Jenkins, who takes on the topic of games and the literacies involved in games in his work on participatory culture. Play, one of the new media literacies identified by

Jenkins as part of the participatory culture in which we are living, is an element of digital culture that can be addressed in the composition classroom through conversations around coding, the rhetoric of gaming (within/about/and around gaming as Douglas Eyman and Andrea Davis categorize), and the many other communicative and participatory characteristics of gaming. It also demonstrates the importance of students' recognizing they can impact mobile culture and critically examine how it is impacting them.

While mobile composition may not have the newsworthy features of such a game as Fold It, the ability to harness the collective knowledge and insight of students is bound to produce more than a solitarily written essay. Gaming, as Jenkins notes, is related to playing, which I discuss further in chapter four concerning the blurred lines of entertainment and education in electracy. Having students play on their mobile devices actually leads to “greater fluidity in navigating information landscapes, will be better able to multitask and make rapid decisions about the quality of information they are receiving, and will be able to collaborate better with people from diverse cultural backgrounds” (13). Embracing an element of play in mobile composition through the permitted types of writing and creation as well as gaming the curriculum would work well in the move toward a mobile composition that takes advantage of the participatory culture in which digital society thrives.

Small changes matter in the move toward a participatory mobile composition: instead of using the term texts, which derives from textiles, the term *felt* might carry more meaning and better describe the relationship to mobile media. This changes objects of analysis from a reference to a fabric craft to that of “a vehicle for the tenor of imaged

compositions” as described by Ulmer. Felt also has the meaning of something sensed by the body or even embodied, which is tied to heuristics, chorography, and especially mobile devices (including wearables). Viewing mobile composition as a felt highlights the assemblages that take place on our mobile devices, much like Ulmer’s popcycle⁷ and other discourses in which we engage on our mobile devices. This sampling and remixing can represent the work done in a mobile composition course as our students and we work or weave with one another’s felts and note the ways we participate in all of the discourses. A workable example of this might be the technology travelogue discussed as part of the mobile course prototype in chapter five. Having students make connections between the world around them and their devices presents a chance for mobile composition to impact students’ lives and the world around them through participation rather than passivity. Then, in the sharing of these travelogues, students note how their peers’ culture and socioeconomic situation impacts use of mobile technology, offering a chance to weave with one another’s felts.

These principles of students assembling, remixing, and responding to one another applies to other social apps accessible on mobile devices—many of which are now only mobile accessible. While these participatory assignments can take place in online spaces in which students are familiar, just having students compose collaboratively and using the principles of participatory composition would be a step forward. This type of

⁷ Ulmer’s popcycle is heuristic that helps to begin viewing the world, our identities, and the connections among them, including family, entertainment, school, and discipline (profession).

collaborative composing is inherent in the digital age and used often in professional environments.

Participatory composition fits in with the postprocess composition, a model that I previously introduced. Postprocess and participatory composition seek to create a space that allows for student-driven innovation. It's more than just active learning, as it requires us to allow students to actually drive the methodology and even the outcomes. In participatory composition, the method arises out of the practices – as opposed to the typical model of method driving practices. This concept of the methodology appearing amidst invention is counterintuitive and goes against the “pedagogical imperative” of theory in rhetoric and composition, which presents a challenge to many professionals in our field (including me before I became a researcher in the RCID program). There is an uneasiness and unsettledness in participatory pedagogy, and it will require recognition of the changing landscape of composing in students’ personal and even our professional lives.

One way forward with a mobile participatory composition that I would proffer is the affinity space as described by James Gee. Gee’s work on this topic makes use of the authentic and informal mobile learning environments identified in the previous section as well as the collaborative nature of mobile discussed in this section. As I mentioned in the opening, Pachler, Bachmair, and Cook suggested that one of the three nodes of a mobile society was cultural practices. These researchers noted how the threat of mobile media and its use in everyday life often conflicted with education, thus resulting in the bans of such devices. Relatedly, Gee eschews discussions of school reform, suggesting instead

that “only by talk about what it means to be smart in the twenty-first century” can we improve education (xii). One of the ways that Gee envisions twenty-first-century education is through collaboration with digital tools and with others. He suggests that “[t]he human mind is unique in nature that it works more powerfully when it plugs into a tool” (164). Of course, he reminds us that we have to know how to interact with one another and with the tool in the right way, creating a network that he calls a Mind with a capital M. He also suggests that school “is all about little minds, not big Minds” (165). Thus, he suggests a new approach to this networked, participatory culture called affinity spaces.

The tool for which we can imagine students plugging into and collaborating with one another for an affinity space is the mobile device. Mobile affinity spaces, then, is the challenge I present to composition studies. Gee describes affinity spaces as an “interest-driven, passion-fueled site . . . where people can go to share resources and values and flexibly form and re-form in different groups. The place or space can be an Internet site, a real place, or a combination of the two” (*Anti-Education Era* 174). These spaces vary in size and serve different purposes for different people, even in the same space. Gee continues by listing out eighteen detailed characteristics of these spaces that cover their diversity, democracy, and creativity. Conceiving of our courses as a mobile affinity space around composition would enable a participatory practice of the affordances discussed in this section while moving the field forward and spurring new ways of mobile meaning making and remixing.

However, I must also address a tension that I touched on in passing earlier, which is that of constant engagement. This has been raised as a potential concern of the participatory nature of mobile devices that a few mobile learning researchers raise. The tension resides in that our devices are always available and typically always on, which heretofore has been discussed as a boon. The quote from McLuhan earlier on the changes that are happening in the digital age to a society built on a print-based medium and logic is key here as he also adds that “[p]rint created individualism” (33). This shift from individualism to collectivism, then, is being felt with a sense of always being connected, which is part of Gee’s affinity spaces, too.

There is certainly an ethics involved when considering an always-on connectivity. Laurel Dyson et al.’s 2013 “Toward a Holistic Framework for Ethical Mobile Learning” is unique in that it emphasizes an aspect of mobile learning that they suggest others have not. Although one component of Dennen and Hao’s M-COPE framework includes ethics, Dyson, et al. offer a full treatment of that aspect. Many of the considerations regarding an ethical approach to mobile learning that Dyson, et al. raise would be found in tethered learning environments, but since mobile learning often occurs outside the classroom, there are more ethical issues and situations to consider, which points to the “always on” issue. Too, we are often being manipulated to engage further and always remain on our devices. In 2017, a popular 60 Minutes episode titled “Brain Hacking” revealed programmers’ personalized approaches to keeping users engaged. Thus, while we gain participatory capabilities, we lose rights to the data in the process. This presents personal concerns for students as well concerns for educators in the choices and monopolies of the

platforms on which we teach and learn. In the educational technology realm, concerns have been raised over issues regarding funding and the socio-economic implications of large learning management platforms, described as platform capitalism (Williamson). As active players in the development of mobile learning in our discipline and unique contexts, we must be aware and raise concerns when we see these potential challenges.

While many educators seek to ban devices to minimize the risk of such issues, Dyson et al. note that educators are held to a higher standard than “harm minimization” and that bans on the use of devices are actually unethical considering the benefits that could be afforded to all types of students and the lack of critical awareness into the role that such technology plays in students’ personal lives. Thus, they incorporate these aspects into their framework. The important principles laid out in the “Holistic Framework for Ethical M-Learning” include Enhanced Learner Agency, Responsibility, Involvement of All Stakeholders, and a Focus on Ethical Behavior (413). This ethical framework adds items to consider that other frameworks do not and supports a positive view on the move to mobile learning environments amidst recognition of the potential ethical concerns that students would not only face in education but in their personal and professional lives.

Along with having an ethical framework as educators regarding this issue, there have been some practical solutions, for example, Apple’s “Do not disturb” feature, but we must treat the issue with our students in broader terms even when embracing such helpful hacks to our lives. Composition professionals have the ability impact the discussion of constant engagement expectations. While I recognize that the speed of

society requires an after-hours standard availability (and even redefines standard hours), the practice of halting communication on devices must be considered. We have the ability to develop a critical awareness and model that in our courses by our and our students' response times for when they go on to experience and respond to the "always on" expectations in their professional realms. We must model an equitable but flexible response to the demands of constant engagement that still allows for the benefits of moving knowledge and society forward through the collaborative, engaging aspects of mobile devices.

Mobile Meaning Making

Mobile learning challenges our notions of discourse and knowledge as we know it (Traxler, "Defining, Discussing, and Evaluating Mobile Learning"). As evidenced by the sections above, mobile devices are indeed changing the how and where we compose and interact while revealing much in the process. Gunther Kress noted the importance of aptness regarding medium and its impact on representation and communication. This is certainly an important consideration as there are times and contexts in which mobile communication is not the best means to relay a message. However, composition teachers and researchers need to embrace the potential of mobile media and its affordances in new ways of meaning making. Chapter two of the dissertation touched on multimodal composition research as a way to support mobile media in the composition classroom. Mobile learning research introduces ideas concerning the use of mobile technology in changing our pedagogical approaches, and apparatus theory offers a chance to understand

that making meaning using mobile devices is not necessarily lesser or greater than other apparatuses but different.

James Muncie and Simon Hooper introduce the concept of the *information model* and *information space* as way to consider issues of mobile learning. While some have argued that mobile learning is education to be focused on lower-order cognitive skills such as consumption of information, Muncie and Hooper argue that a connectivist approach to the information space – the “total information available” – can help create information models, or “collections of information, made meaningful through interconnections, and relevant to the problem at hand” (14). Recall Walter Benjamin’s collection of quotes and what I likened to hyperlinking in chapter two. This is a similar version for mobile technology but in a much more powerful way, and it emphasizes that mobile is not about efficiency but about a new way of making meaning with all of the information available in a relevant, connected way.

Unfortunately, mobile devices are often solely seen as a means of efficiency or speed to respond to the information overload around us in a mobile society. While these are qualities that serve us well, they are often viewed within an outdated framework. Still, some may consider efficiency as an element of mobile learning because of the amount of time we spend on a small mobile screen is limited. This presents a challenge in the form of losing in-depth reflection or critique that is supposedly typical of paper-based composition processes. However, the larger issue is situating mobile within a media framework that best fits and describes its capabilities rather than attempting to fit mobile multimedia into frameworks of literacy, which also includes principles of

industrialization and loaded words like efficiency. Of course, this type of response to a new medium reaches back to Plato's critique of writing in *Phaedrus* concerning the fact that if we wrote things down, we wouldn't use as much of our memory as we did in an oral society. Still, the claim must be fully addressed so that we can appreciate and allow for new forms of mobile meaning making in the composition classroom.

Even Walter Ong, one of the scholars dedicated to the study of apparatus theory, suggested television and radio (and today's new media by extension), which were in their infancy during his time, were not capable of a higher-level of engagement as print-based media and would only be mimetic. Not only is Ong's argument concerning in-depth reflection and engagement a luxury that we no longer have because the speed of our communication requires a faster response, but it goes against his own claims that we cannot make old media fit the framework of new media. Ong was operating along the lines of Plato when he claimed poets as simply repeaters and not creators in suggesting that new media was mimetic. Plato was not able to envision the meaning making that would result from literature and creative writing. Ong, too, then was unable to see how the digital age would lead to new forms of meaning making, and many still fall along these lines of thinking.

Thankfully, other researchers have countered these arguments or at least presented material that could be helpful in making a counterargument. Marshall McLuhan famously summarized that "the medium is the message." In the case of mobile media, instead of observing only the manifested content, we must recognize how new media – though certainly having elements of old media in them—change the message and

meaning. Using McLuhan's concept of the medium as the message means we must take seriously the differences in the media and how they impact the message. If we try to force the meanings from old media onto mobile media, we are going to be missing the unique impact.

As discussed in the introduction, digital technology disrupts the way of life that we have developed around the Gutenberg Press, and the mobile medium is affording an interactive element that is not afforded by other media even while more in-depth or slowed-down features of print media are lessened. McLuhan himself noted fifty years ago that a "speedup of exchange and information" might result in fragmentation but that a "greater speedup . . . may serve to restore a tribal pattern of intense involvement" (41). This "intense involvement" is proving to be true with mobile technology as it fits as part of the "greater speedup" in ways that were not even possible with radio or television of which he was writing during his time. This intense involvement manifests itself in the participatory element above but also in the representation and expression on the mobile interface.

One way to think about the interactive nature of the mobile medium is to consider in McLuhan's hot and cold media framework, which puts the levels of user involvement of a medium on a spectrum with hot having little participation and cold having much. In other words, hot media fill one with information and data in high definition while cold media leave some space for filling in by participants. For example, McLuhan describes telephones as a cold medium and a photograph as a hot medium. Using this framework and McLuhan's example, rather than situating mobile as permanently hot or cold, it

shakes up this binary. While devices are certainly in the participation realm of cold media as evidenced in the previous section, the participatory element has the potential to make even something like the hot medium of photography into a participatory one through remixing as memes or other forms of sharing. Consider how Instagram is both hot and cold simultaneously. Recognizing the disruptive role of mobile media as part of critical media discussions should have us exploring mobile meaning making with our students and in our own research and practices.

Invoking the concept of apparatus theory as raised by the discussion of McLuhan, or a study of the way that consciousness is impacted by orality, literacy, and now digital media, impinges on chapter four, but a brief mention is needed as it actually informs my entire project. This shift in apparatuses allows us to recognize that meaning-making as we knew it in literacy has indeed shifted, but it is not inferior.

Building on the work of Ong, McLuhan, and others, Greg Ulmer, who coined *electracy* as the apparatus succeeding and combining orality and literacy, claims that it is actually possible for new media objects to combine *mimesis and analysis*. Thus, Ong saw only the *mimesis* but not the *analysis* that was built into the mimetic act. Ulmer called this combination the object of post-criticism. While they were not around when he coined the phrase, Internet memes are an example of this combination of replicating but also critiquing. In fact, typically the memes that we see on social media involve the participatory element described in the previous chapter as well as a productive component that requires identifying the appropriate image while succinctly critiquing some aspect of society. The participatory element is not only the remixing but also the

engaging in entertainment discourse while learning. Mobile devices are especially suited for this form of meaning making given the attention span on mobile devices and the full capabilities to engage spontaneously and creatively using the many capabilities at hand.

Mobile meaning making also has a response to the time component of in-depth reflection and critique. The time constraints that memes can circumvent are just one example of what Ulmer called a quick convergence of image logic and critique: flash reasoning. It is a form of reasoning native to electracy just as argument is to literacy. Flash reason is not formal persuasion and not even opinion, but it operates in the preconceptual and in epiphanic form. This element of speed matches and even enables our current pace of society, offering a level of critique and engagement that fits the digital apparatus but looks different than previous ones. Thus, when students are composing in the authentic, participatory manners described in previous sections, the deliverables will not result in the same long-form essay as is typical if they were working in a paper-based environment. Rather, they will be more succinct and reciprocal to work with the information space that is the mobile device and respond fittingly. However, the length of does not suggest a lack of reflection or critique, just the speed at which it occurs.

To better understand the concept of the meme and memetics, we need to revisit the scientific origins of the terms. Richard Dawkins coined the term *meme* in the 1970s (Killian). According to Dawkins, “a meme is something that spreads from person to person within a culture — like a toy craze or a pop song” (qtd. in Killian). In “Cultural Evolution and Memetics,” Francis Heylighen and Klaas Chielens succinctly describe a meme as “a cultural replicator; a unit of imitation or communication.” Memetics, then, is

the field that studies these imitations. This concept of imitation, replication, and mimesis harken back to the description that Ong uses for the poets of primary orality, the ones that Plato suggested could not provide any benefit to society.⁸

At the same time that memes seem to be repeating one another, creators are engaging in analysis and irony. Sarah Arroyo labels this as a participatory composition, as discussed in chapter two. As discussed there, she champions a notion of participation rather than the typical dissemination and consumption model of education in the age of electracy. This participatory aspect, along with the mimetic aspect described above, points to a resurgence in elements that characterized only primary orality but now combine with the characteristics of literacy and move into the realm described by Ulmer as electracy. Again, I discuss more this shift in apparatuses in chapter four.

Considering the elements of participation and engagement that are part of the mobile medium, “we become participants in the entertainment enterprise of learning while creating,” as Arroyo suggests (*Participatory Composition*). Further, “Tubing the Future,” Sarah Arroyo and Geoffrey Carter specifically discuss the concept of memes as a pedagogical tool. They describe an approach similar to the MEmorial and Mystory⁹ that Ulmer has invented.

⁸ The article by Heylighen and Chielens, “Cultural Evolution and Memetics,” describes a parasitic meme, and Ulmer also discusses the parasitical in “The Object of Post-Criticism,” suggesting that this connection among the unrelated works concerning the parasitical is worth pursuing further.

⁹ Ulmer’s Mystory concept goes undiscussed in this section, but as Michael Jarrett describes, “‘Mystory’ is Gregory Ulmer’s coinage for an emerging, hybrid genre. It dramatizes the shift that occurs when writers foreground invention (heuretics) instead of interpretation (hermeneutics),” and thus would be a good concept to examine when

The MEMEorial

take[s] up with the replicating sensibility of memes introduced by Richard Dawkins in his 1976 study of genes and the re-appropriation of this sensibility by Benjamin Huh, CEO of icanhascheezburger. To enact participatory tubing, MEMorias morph into MEMEorials that-like nematodes, one of the most abundant and diverse life forms on the planet-are the tubes of video culture, open at both ends and capable of all sorts of recombinant interfaces. MEMEorials, we suggest, thrive like nematodes in the “fiery pools” of participatory culture. (Carter and Arroyo 295)

Memes cannot be forced and are usually found by sharing: “Because memes typically begin without a name, they elude search engine capability and become more of a ‘social phenomenon’”(Carter and Arroyo 296). Carter and Arroyo both suggest that the implications are many, and they are correct that the underlying framework of electracy is shifting the intellectual economy and thus, our approaches to teaching and learning a mobile composition.

All disciplines and fields of study must recognize the impact of electracy and begin to formulate (un)methods for creating and interpreting objects related to them. While Walter Ong may not have realized the level of creation and interpretation capable in his concept of secondary-orality as Greg Ulmer does in electracy, both scholars legitimize the need to understand and appropriate elements of the new intellectual

looking for new ways of creating an learning within electracy (Jarrett, “Writing Mystory”).

economy. Arroyo describes a method for this to take place in rhetoric and composition studies, and other (inter/trans)disciplinary efforts should be doing the same. While some may scoff at the idea of looking at memes academically, electracy breaks down binaries that occur in school-culture, such as entertainment vs. education. Electracy suggests that we need to learn from the entertainment industry, which uses electrate principles and concepts, and then we can challenge and change entertainment culture using these skills.

Outside of memes, digital curation projects offer ways for students to engage digital media in meaningful ways that engage elements of analysis and critique in electrate form. Electrate practices like flash reasoning, memes, and digital curation are responses to the information overload we experience in the information age. Digital curation or aggregation is a way for students “to learn about existing digital resources and how best to use them, first by managing them so that they are not overwhelming, and preserving them from the inevitable ephemeral fate that many digital resources suffer” (Nichols and Walwema 197). Particularly with mobile media and the time limitations and space limitations but also the networked capabilities, curating is a strategy that allows students the ability to demonstrate electrate skills in the vein of proaretic invention. The five Cs of curation as outlined by Sue Ann Sharma and Mark Deschaine include collecting, categorizing, critiquing, conceptualizing, and circulating (qtd. in Nichols and Wyma 198). Each of these offers a way for educators to engage students in using mobile media in critical, creative ways.

We should be reminded that while much of the digital projects that have been discussed heretofore are fitting for mobile, we should be careful of trying to replicate

what happens in other formats. As evidenced, mobile is unique from print-based *and* tethered technologies. While we have learned to be critical about fitting mobile into print-based frameworks, we must be just as careful with attempting to fit mobile into desktop and laptop-centric frameworks, though there are more shared qualities in that realm than the former. The examples given above are all mobile-ready in that they “focus away from teacher-generated content delivery to these small-screened devices” as Thomas Cochrane describes in his article on “M-Learning as a Catalyst for Pedagogical Change” (253). The media capabilities of a mobile device do not only augment the sociomaterial and constructivist approaches as has been discussed thus far, but can also move us to a heutagogical stage. At this point, students are directing, negotiating, and generating their own content through memes, digital curation projects, videos, social media, and even yet to be determined genres. While online learning professionals have the stance of “no significant difference” in outcomes, Cochrane and this dissertation would argue that mobile means of making meaning – aptly implemented – have the chance and impetus to create significant change in conventional pedagogical approaches and outcomes.

This section on mobile meaning making has perhaps been the most disruptive for conventional school-based culture, in particular with composition studies. The ideal of the cultured individual can first be traced back to the classical education system based on the trivium and quadrivium and the Greek ideal of cultivated learning which they called *paedeia*. Moreover, Cicero used the term *humanitas* to represent a similar ideal, which referred to a form of classical education that involved a humanistic approach and charge. Petrarch carried on the tradition of Cicero and embraced his ideal that “the accomplished

man should be able to combine literary art, moral philosophy, and civic responsibility in his writing and oratory” (Bizzell and Herzberg 558). Obviously, cultural ideals have changed and shifted—for Plato warned about the act of writing and its detriment to society, yet Cicero and Petrarch include it in their ideal. These changes, however, appear infrequently and point to the perpetual cautioning of new methods and tools. We are even to a point where we have become comfortable with our approach in the area of “computers and writing” in our field that we attempt to fit mobile into these frameworks. We must allow mobile to break out of analog and tethered approaches, recognizing the historical trend as described above while also critically examining the opportunities and challenges.

Throughout this section, we have seen that there is a challenge to conventional approaches to reflection and critique that were part of paper-based processes similar to the changes that have occurred since the development of Plato’s ideals, classical education, and even attempts at fitting mobile learning in tethered learning frameworks. However, there is the opportunity of engaging using new media methods in a way that can entangle students and culture in relevant ways. Some of these concepts regarding electracy are detailed further in the next chapter as a way forward with the concept of a post(e)-pedagogy.

This chapter identified the potential and challenges of mobile learning in the context of analog and tethered learning environments, specifically within the context of composition studies. Recognizing that there are changes in creation and analysis in moving from one apparatus to another, it has detailed how an authentic composition

environment as afforded by mobile technology maintains or increases levels of engagement and depth through personalization and flexibility. Too, the participatory element of mobile learning offers a chance to move knowledge forward and prepare students for a mobile society that relies heavily on collaboration across cultures. Finally, mobile meaning making offers students the chance to make sense of the information overload around them using their own analyses in ways that might look different than critique or reflection in another medium and occur at different speeds. These approaches can be challenging in the face of a conventional school culture that idealizes print-based approaches, but strategies have been shared here and in the mobile course prototype as ways to respond without compromising these principles or disparaging previous apparatuses.

CHAPTER FOUR:

TOWARD A MOBILE POST(E)-PEDAGOGY

In chapters three and four, arguments concerning the integration of mobile technology and practices in composition were made which, combined, presented a multimodal, postprocess approach that leads to an authentic and participatory environment that offers new ways of making meaning. This chapter further explores and conceptualizes the ways that mobile devices challenge conventional print-based composition by situating them fully within electracy and post(e)-pedagogy, the apparatus and approach to pedagogy that combines and succeeds orality and literacy. Mobile composition ultimately needs a framework outside of traditional pedagogy and print-based conventions. Mobile composition offers a chance to fully embrace electracy, and our work with mobile devices is part of the invention of this digital apparatus. This chapter explores this apparatus and pedagogical shift and offers a discourse in which teachers and researchers of composition can place mobile composition.

The ongoing invention and experience of electracy are personal for each person as knowledge can begin within oneself rather than externally as it had been conceived since the Enlightenment. Looking at our use of mobile devices through the lens of electracy actually helps offer an understanding of the apparatus in general, too. For me, the digital age was still on the brink during my time in secondary education. For instance, I remember moving from a literal card catalog in middle school to an online catalog in high school. I also remember learning about the Internet for the first time in fourth grade when one out of thirty students in our homeroom class discussed having a computer that

would connect to the World Wide Web. I even recall discussions about times that websites were open. We certainly had no idea of the anytime, anywhere future that we would be experiencing. Having this experience is helpful, and it is one of which we must remind our students who have probably never experienced the shift so drastically.

Although I was in a rural school system, the digital age was becoming impossible to ignore as it started to penetrate all parts of the United States. Despite the pressures from the digital realm, little time and effort was made (or perhaps available) to innovate or experiment with technology in the curriculum or explore the new methodologies that developed along with this technology. This lack of support would be my first encounter with issues of not prioritizing and funding the integration and invention of digital learning. Not investing in the teaching and learning with emerging technology –even conservatively – can keep or set behind institutions who are not prepared to enter the digital economy.

This lack of investment or understanding had personal consequences for someone like me who was interested in the skills and practices of the digital realm. In interactions with administration and keepers of the curriculum, I experienced punishment when I presented what was perceived to be a threat to my attention and others when I taught myself HTML and could design basic web pages. A classmate and I even began setting up our domains to create and manage our own websites. These sites began to garner attention from fellow students and faculty. At one point, it came to the attention of an administrator that we had been working on our websites during school hours, and we were then suspended for a day because this was considered an unproductive use of time.

This reputation actually remained with us for the rest of our high school experience because it presented a challenge that the faculty and administrators had not faced previously.

This is the unfortunate irony: my classmate and I were making use of new way of learning and creating and our educators were concerned. The consternation of educators should not be normal in such situations, and students' knowledge of new ways of learning and creating should be embraced. Although strange to think, it was once even considered problematic for a child to spend too much time reading books, and now, it seems problematic when a student spends too much time with today's new media. As the intellectual environment—ways of learning and creating—shift, the pedagogical framework must change, and educators must not fear new and popular media or methods but should embrace them.

Even further, I stood out a bit, then, when I had a Palm Pilot in high school in the early 2000s. I later sold it and bought an early Dell Axim (Figure 4.1). I was an early adopter of mobile technology, and these were the tools in which I would compare my future experiences. The Palm pilot did not have web access and was mainly a calendar and note-taking device, but the stylus impacted my and others' future use of mobile devices by relying on that extension over our finger taps and swipes. The Axim introduced email and the web on the mobile device, but it was all based on expectations of larger screens, and the stylus was still key. While there was very little that could be done on these devices, they presented another threat to the keepers of the curriculum and were banned. The same district now uses one-to-one technology integration, but at the

time, they were missing out on the chance to learn from their own students about potential innovations in teaching and learning that could have set them up for even further success in their current endeavors with digital learning. While the focus of this dissertation is on the higher education context where we may think we would not punish students in this way or limit experimentation, we do often undervalue or limit the frameworks in which we use innovative technology like mobile devices.

Of course, my mobile experience grew beyond the Palm Pilot and Dell Axim to more powerful devices and networks. The next major mobile device I owned was the Blackberry. The Blackberry smartphone was a hinge between mobile technology that replicated tethered devices and those that began to emerge as computing devices with unique characteristics and capabilities. The Blackberry device was largely an email machine like the Dell Axim, but it was connected to cellular networks. It was the corporate world's first major foray into mobile way of doing business as email was now able to sync quickly and accurately across many devices. Too, the exclusive Blackberry Messenger (BBM) became a standard for communicating with other professionals as it offered real-time capabilities, security, privacy, that email and SMS text messaging at the time did not have on mobile devices.

When the Apple iPhone came along and truly embraced mobile by doing away with the keyboard of print-based technology, it simultaneously confused and delighted the world. It took a while for me and others, I suppose, to move beyond the comforts and efficiencies that Blackberry offered and make the move to the aesthetically-driven iPhone that required a new way of thinking and operating for smartphones, including the move

away from a browser-based experience. The iPhone is truly an electrated device in its design and use of the digital interface that does away with stylus or keyboards.

This story of my personal mobile history similarly parallels the rapid pace at which intellectual environment has been changing due to the onset of digital media and the Internet. Walter Ong described this change as a secondary orality, but the controversial scholar Gregory Ulmer took Ong's (and others') notion of a shifting noetic economy and described it a bit more thoroughly, coining the era as electracy. While all disciplines must embrace the shift to avoid stories such as my story of fearful educators in the face of new media, English departments must specifically embrace the changing intellectual landscape as traditional scholars are wont to hold tight to a particularly dominant medium, such as print.



Figure 4.1 Palm Pilot and Dell Axim



Figure 4.2 Blackberry and iPhone

For many of us now, our lives are wrapped up in our mobile devices in ways we would not have predicted or may not even realize, which includes wearables like smart watches or fitness bands. This claim applies not only to Americans and first-world countries, but also in greater frequency to citizens of third world countries who have their only access to the Internet on these devices. A 2015 60 Minutes episode recounted how mobile phones were used to transfer money among Kenyans as they purchased from one another and that this phenomenon was spurring other innovations using mobile technology (“Future of Money”). Several times in the segment, locals emphasized the importance of their devices to them and their livelihoods. A mobile society is taking hold, and it is part of the transition to a digital economy that is best understood in the apparatus of electracy.

Electracy, Post(e)-Pedagogy, and Composition Studies

A Digital Discourse for Mobile Composition

In previous chapters of this dissertation, research from within and external to composition studies has been used to support a move to mobile composition. While those discourses push the boundaries of their respective fields to incorporate new forms of technology and media, electracy and post(e)-pedagogy suggest the digital economy operates outside any former framework and requires full treatment in its own right. This section suggests ways that composition studies not just fit itself within the conversation but operate within and create the future of the digital apparatus and its impact on teaching and learning.

Mobile technology and communication is central in the apparatus shift from orality to literacy to electracy, the term coined by Greg Ulmer to describe our digital society and its new ways of making meaning. Marshall McLuhan reminded us of how tools like mobile devices do not necessarily invent the conditions but allow them to scale: “The railway did not introduce movement or transportation or wheel or road into human society, but it accelerated and enlarged the scale of previous human functions, creating totally new kinds of cities and new kinds of work and leisure” (20). Placing mobile devices in the context of this societal shift to the electracy apparatus and its impact on teaching and learning allows us to fully embrace the possibilities of the digital realm and prepare composition students in a relevant, critical way.

Electracy builds upon the works of scholars of intellectual history who noted the shift in apparatuses, or ways of knowing and making meaning, from orality to literacy

and now to digital. In his 1977 *Interfaces of the Word: Studies in the Evolution of Consciousness and Culture*, Ong writes that his “works do not maintain that the evolution from primary orality through writing and print to an electronic culture, which produces secondary orality, causes or explains everything in human culture and consciousness. Rather, [Ong’s] thesis is relationist: major developments, and very likely even all major developments, in culture and consciousness, are related, often in unexpected intimacy, to the evolution of the word from primary orality to its present state” (9). Ong’s investigation of this evolution in the book describes how material conditions and relationships among such developments produce a certain intellectual environment. He suggests, for example, that “The mind does not enter the alphabet or the printed book or the computer so much as the alphabet or print or the computer enters the mind, producing new states of awareness there” (47). New media has the described effect on our understanding of the world and what makes one human; composition scholarship and pedagogy must investigate this shift and its impact on such areas of study. Other researchers, like Marshall McLuhan, have influenced this conversation of how the medium changes the meaning, but it was not until Greg Ulmer that a vocabulary and a school of thought developed around a new understanding and apparatus that succeeds but also incorporates orality and literacy.

Upon this research concerning the impact of media on the intellect, Ulmer developed a new paradigm for our current apparatus that succeeds but also incorporates orality and literacy, the two preceding apparatuses. In *Applied Grammatology* (1985) and *Telethory* (1989), Greg Ulmer began outlining how digital media is integral to the shift to

electracy—a term he coined as the combination and successor of orality and literacy. In *Internet Invention*, Ulmer summarizes that electracy “is to digital media what literacy is to print” (xii). Mobile technology throws us into the middle of electracy. Laptops and desktops are part of the electracy apparatus, too, but unfortunately, the larger screens and setup of some of these tethered devices prevent use beyond the print-based comforts. Through the intentional incorporation of mobile technology in our courses and research, the researchers, teachers, and students of composition studies can shape the future of electracy as an apparatus and the role that mobile devices play in our lives.

To be clear, we should not pit literacy and electracy against one another. Even Ulmer calls for harmony between the apparatuses, suggesting that each of the two apparatuses represent the left and right brain. We must avoid culture wars that have already developed concerning digital vs. print as it would not serve society well and it would only repeat past complications between orality and literacy that began with Plato (who critiqued poets despite his background as a dramatist and who critiqued writing while using the medium himself) and continued for many years as literacy was being invented. To avoid this, we can frame the conversation around past, current, and emerging ways of making meaning with context recognized when dealing with each.

To better understand the cultural consciousness shift involved with electracy and the foundations for Ulmer’s post(e)-pedagogy, exploring the impact of postmodernism and post-structuralism reveals the many related developments that Ong describes as influential in each noetic movement. Postmodernism and post-structuralism brought more questions than answers as opposed to most of its antecedent intellectual movements. A

distrust of meta-narratives and one-size-fits-all theories is often used as a summary of these movements, and this is important to remember as we develop a mobile composition post(e)-pedagogy.

Post-structuralism recognizes that knowledge is not distributable in a clean, organized, logical fashion. The approach to education that had been instilled by thinkers from Aristotle to Ramus would not hold up the notions proposed by post-structuralists. However, many still attempt to hold to the structured, specialized sense of education despite what post-structuralism taught us. Industrialization, optimization, and efficiency have won out over the form of education that Ulmer and others are seeking in many disciplines and institutions. If we use this moment that we have in time to embrace mobile technology on our own terms in this field, we have a chance to keep mobile learning from falling into the same hands. We can use mobile as a force for good instead of just a tool for optimization or efficiency.

Similar to post-structuralism, electracy is not suited to linear, fixed reasoning of literacy. Thus, as with almost anything related to electracy, there is no straightforward application of the concepts since electracy is about invention and heuristics (as opposed to hermeneutics). This includes teaching and learning, which Ulmer labels as post(e)-pedagogy in electracy. Post(e)-pedagogy is both a move beyond conventional pedagogy based on poststructuralist thought and specifically a critical pedagogical approach for an age of electronic media. A key element of post(e)-pedagogy is the relinquishing of master and a personalized approach to pedagogy for both the instructor and student.

These concepts fit well with the notion of a mobile composition in that mastery is now literally in the hands of students as discussed later.

In composition studies and electracy scholar Sarah Arroyo's article, "Playing to the Tune of Electracy: From Post-Process to a Pedagogy Otherwise," she discusses the implications of electracy on our field by calling for attention to invention and potentiality in the classroom. Arroyo describes this space as the chora and expands on the notion of choragraphy as it fits with composition studies. Ulmer describes choragraphy as the opposite of conceptual thinking, and it avoids relying on a single method every time. Choragraphy involves linking, making collages, and remixing – all of which apply to our discussion of a mobile post(e)-pedagogy. Arroyo reminds us that if we move away from the fixedness of print-based literacy, we can embrace the multiple means of communicating with electracy. This move from constant stability to a more fluid writing space also impacts the work toward a mobile post(e)-pedagogy as it leads to the use of hyperlinking, interface design, and even new modes of communicating with mobile technology. The mobile composition course accompanying this dissertation project will incorporate post(e)-pedagogy's choric space in the learning activities and assessments. Making use of this space also requires a negotiation of personal, public, and professional realms in one device, an important consideration in developing a mobile post(e)-pedagogy.

Thinking about electracy and post(e)-pedagogy in juxtaposition to other apparatuses is helpful as we move toward a mobile post(e)-pedagogy, and Ulmer has comparisons across several different aspects of orality, literacy, and electracy. I have

selected a few pertinent ones and added the implications for mobile learning as we move to applying these principles to the development of a mobile composition post(e)-pedagogy in the following sections. Each of the mobile implications identified in Table 5.1 will be discussed in further detail later in this chapter.

Apparatus	Orality	Literacy	Electracy	Mobile Implications
Practice	Religion	Science	Entertainment	<i>Critical mobile media consumption and development</i>
Institution	Church	School	Internet	<i>Knowledge in the hands of students</i>
Behavior	Worship	Experiment	Play	<i>Crossing boundaries of personal, professional, and public</i>
Ontology	Totem	Category	Chora	<i>Unique, creative communicative processes</i>

Table 5.1 Apparatus shift comparison and mobile implications

Beyond Conventional Pedagogy

The term post(e)-pedagogy then almost becomes self-explanatory as its connection to postmodernism and post-structuralism is evident. However, Ulmer specifically adds the (e) to the term. Jacques Derrida saw much potential in digital media, which Ulmer discusses in the first chapter of *Applied Grammatology*. Ulmer, too, sees the development of digital media as an integral to the shift to electracy, so he adds the (e) to represent the inclusion of digital media in exploration of the future forms of scholarship and pedagogy. Post(e)-pedagogy, then, is a move beyond conventional that incorporates the principles and practices of electronic media. This description of post(e)-pedagogy raises the issue of moving beyond conventional pedagogy, then.

Many new to the concept of post(e)-pedagogy may ask, “What does it mean to move beyond conventional pedagogy? No more classrooms? No more teachers?” Others may think they are already beyond conventional pedagogy because they use some form of technology in their classrooms. While both examples incorporate a part of post(e)-pedagogy, they do not describe it fully. In the scenes below, I describe the integration of mobile devices into the composition classroom in both conventional pedagogy and post(e)-pedagogy to help us move toward establishing a *mobile* post(e)-pedagogy.

The move from conventional pedagogy to post(e)-pedagogy might be best described as a scene of an instructor who has a disdain for technology: picturing a professor droning on from lecture notes and losing students’ interest is borderline cliché, but it is a fitting image of the conventional pedagogy that Ulmer is trying to move away from. This method, in fact, is partially a holdover from orality that was carried over into

literacy and remained because it was an *efficient* method of teaching. Instead of allowing books (mobile print) to transform education, educators still relied on strategies from orality to teach. The term lectern used by professors to lecture has roots in the Latin word *to read*, another example of attempting to fit a tool of a new apparatus into an older framework.

More likely than sleeping during such lectures, today's students who are not paying attention to the instructor are engaging with their media devices and perhaps even being disciplined by an instructor for paying more attention to that device than the lesson; this image is even more accurate as it involves the type of teaching that we must resist (the instructor droning on) and the type of learning and creating that more instructors should be engaging in the classroom (mobile, digital media).

A scene from post(e)-pedagogy might involve students in an open, active-learning space reconvening to work on a project that has been going on during the hybrid portion of their course where they have been communicating and working using mobile devices in the field, closest to the problems in which they are trying to solve. The students are making use of digital media to prepare or present their findings in the most appropriate format while the instructor is available to guide and offer insight into the critical and skill-level aspects of their work at either the whole-class or individual basis. In this scenario, students are making use of skills in which they have developed, and they are the center of the action whereas the professor is not.

Most charges against mobile media, such as atrophying of traditional humanities or asserting an absence of critical thinking, are more likely defensive mechanisms by

those refusing to charge ahead. While it's certainly acceptable to be skeptical of the new, an outright rejection and refusal to understand the intellectual shifts and new tools should not be the *modus operandi* of a good educator. Mobile media not only has much potential but is essential in electracy and the post(e)-pedagogical world. From seeing mobile media as double-valued writing—phonetic and ideogrammatic – to the sharing power of social media and the invention of yet-known genres of communication, post(e)-pedagogical principles and mobile media create new opportunities and frameworks to analyze and create in composition studies.

Unfortunately, pedagogy within composition studies has fallen into fixed methods and best practices such as process pedagogy discussed in chapter two. Ulmer describes well some of the current conversations: “Pedagogical discourse has become hieroglyph in the worst sense—that of mystified and fetishized symbol prior to the epistemic break of the historical grammatologists” (*Applied Grammatology* 172). Post(e)-pedagogy is a way for us to still think about teaching and learning without falling into strict methods that limit the power of electracy. A recent book by Paul Lynch entitled *After Pedagogy* recounts the claims of postprocess and postpedagogical scholars of recent decades and attempts to offer a new framework for discussing teaching and learning in this new framework.

Without grounding (or un-grounding) his work in electracy, Lynch does recognize Thomas Kent and Jean-Francois Lyotard as pivotal in this movement. Lynch suggests his own paths forward, but his work is important not because of that. His work reminds us that while some respond to postprocess and postpedagogy as a reason to not focus on

teaching in our scholarship, the role of composition is still heavily intertwined with teaching and deserves our attention in addressing issues that postpedagogy and postprocess raises. This reverberates with my work as I seek not to push a single method or process but broaden our field around our teaching and learning conversations, not to dismiss them as some may think that post(e)-pedagogy seeks to do.

Thus, post(e)-pedagogy does not disparage *all* pedagogical discussions; in fact, the approaches are ways to re-name and re-define pedagogy for this era, bootstrapping the traditional forms of teaching and learning to create something new, again and again. Even further, foregoing all former methods of pedagogy are not part of the call for post(e)-pedagogy just as electracy does not discard orality and literacy. In fact, juxtaposing conventional and post(e)-pedagogy gives faculty and students a chance to note the differences and critically reflect on the apparatus shift.

Electracy and post(e)-pedagogy not only push boundaries but invent outside of any preconceived system. While we are not to ignore former apparatuses or methods, relying on them keeps us from realizing the full potential of mobile media and technology in composition studies and from inventing their role in the future of our burgeoning digital society. The next section orients mobile composition within electracy and post(e)-pedagogy without prescribing specific methods but rather offering relays that can be used to inspire similar approaches.

Toward a Mobile Composition Post(e)-Pedagogy

Similar to discussions around postprocess in chapter two, post(e)-pedagogy offers little guidance on exact implementation than some composition pedagogy scholars – and

especially those who teach writing outside of composition – may like. As identified in chapter two, there have been a few compositionists calling for our field to pay attention to multimodal composition, extracurricular composition, and multiliteracies. While these arguments provide much support for the integration of mobile devices (and thus all of the types of composition just listed), there still seems to be an occasional uneasiness in discussing new media in composition studies, especially in conversations around assessment or specific practices. While researchers recognize that skills in new media are important to students’ professional and personal lives, there is not always a discourse in which they can discuss why they see these changes happening. While the threat of change certainly impacts this move, the lack of a discourse in which to situate these moves that some compositionists are championing seems to play a role. We cannot miss out on the possibilities the way that my initial experience with digital learning and mobile went for me. In this section, I apply some of the principles from electracy to the field of writing and composition studies and work toward a mobile composition post(e)-pedagogy to see how we might invent a new discourse around a mobile composition post(e)-pedagogy.

First, Victor Vitanza’s three countertheses concerning writing theories and pedagogies are helpful in how we incorporate technology such as mobile devices. He calls us to question the categories of how we (a) define composition, (b) consider issues of composer and audience, and (c) approach theory and pedagogy. Although he may not have been responding directly to the onset of the electracy apparatus, he was tuned in to the shift that was going on around him. Many scholars of electracy in our field have taken

these countertheses as a pivotal moment in composition studies and suggest that we are only now beginning to reconcile our work with the countertheses.

Unfortunately, as we look around at academia and even in composition studies, we still limit what composition is, bound discussions around author/audience, and still split theory and practice. Though many do not recognize it, much of this is largely because we still operate using print-based principles in a digital economy. When students come to our classes, they are like fish out of water, which is why they often gravitate to their devices and frustrate instructors who are unaware of a noetic shift happening before their eyes. As I mentioned when citing Marc Bousquet's *Chronicle* article in chapter two, there are still departments holding out on adapting to the digital economy. Many of these institutions have the prestige and endowments to support them, but it is also affecting the most resource-strapped colleges and universities who take their guidance from such more renowned schools.

Electracy's charges for composition actually align with movements in our field like postcomposition and postprocess¹⁰. In chapter two, I invoked postprocess, which is part a move toward postcomposition, but I did not spend much time connecting these movements with electracy or their post-structural heritage. Postcomposition conceives of a form of writing studies outside of disciplinary limits in order to disrupt our established frameworks, part of which postprocess attempts to do (Dobrin). Each of these movements

¹⁰ There is a difference between postpedagogy and post(e)-pedagogy. The former is a more general discussion of the need to abandon prescriptive pedagogy and the latter is Ulmer's discussion of such matters with the focus on the electronic, discussed in the previous section. Along with these two terms, postprocess and postcomposition are distinct well.

exists independently of electracy and one another but come out of the questioning around systems and practices by Derrida, Lyotard, and others in that line of thinking as discussed earlier in this chapter.

Even if unrecognized by its name, electracy is helping drive a lot of the shift in postcomposition and postprocess as we are now at pivotal moments in which these areas of study can be more clearly applied in our digital age. The postprocess and postcomposition movements are strong enough to warrant mention in updated works like *A Guide to Composition Pedagogies*, which in its first edition a decade ago pushed process pedagogy as the darling of pedagogies, and in its second edition recognizes that it must address both postprocess and postcomposition. Still, the writers of the essays in that collection deem those who put off process writing as too easily dismissive of it, putting the blame on the user rather than the theory. Of course, when one's body of work is centered on systematizing pedagogical approaches, it is easy to see how claims against that very act can be brushed off so easily.

Thus, a mobile post(e)-pedagogy requires that we move forward actionably and critically in our teaching and learning without compromising many of the principles concerning postprocess and postcomposition and allowing process pedagogy to dominate the conversation. Similar to Lynch, another approach to discussing teaching and learning in the context of electracy is what Pearce Durst calls *relays* in his dissertation on multimodal composition and electracy. This is actually the same type of provocation that Vitanza sought to have in his countertheses article. Using relays rather than methods creates starting points in the ongoing invention and transition of electracy from literacy.

(It also implies a musical element that Sarah Arroyo, Jeff Rice, and others use in their discussions of electracy and post(e)-pedagogy, creating a play on words with composition.) Electracy offers ways to move forward with a mobile post(e)-pedagogy by shifting from hermeneutics to heuretics, inventing new forms of critique, blurring the lines of education and entertainment, and putting mastery in students' hands – all of which offer applications that can be mixed and remixed for writing on the go.

From Hermeneutics to Heuretics

While leaving our courses to chance is not exactly the way to move forward in post(e)-pedagogy, chance does play a role more than it has in the past. In fact, a starting place for post(e)-pedagogy is in this line from Greg Ulmer: “The philosopher and especially the teacher of applied grammatology must learn like poets and revolutionaries to explore the frivolities of chance” (28). We do this by acknowledging a shift in the noetic economy, foregoing the safety of convention in the classroom, and embracing mobile media as a facilitator for creating and analyzing in this era. This embrace of chance is related to heuretics, and thus leads us to the type of work that we should be doing as part of a mobile post(e)-pedagogy that contrasts with the hermeneutical method that is inherent in our field as based on the dominance of literary studies within our larger discipline for so long.

Both of the terms hermeneutics and heuretics originated in theological studies. As Michael Jarrett aptly summarizes, “Hermeneutics asks, What can be made of the Bible? Heuretics asks, What can be made from the Bible?” (“Heuretics Defined”). While hermeneutics became popular in use outside of theology, heuretics did not have the same

fate—that is, until Greg Ulmer re-introduced it in *Teletheory* and developed it further in *Heuretics*. The practice of hermeneutics was (and, in many places, is still) standard in literary classrooms and in much of the pedagogy and scholarship of the humanities. However, heuristics offers a chance for questioning and creating using the principles of postmodernism and poststructuralism as discussed earlier. As Jarrett writes, “Derrida, Barthes, Deleuze, Serres, Ulmer, et al. have not only changed the look of scholarship, they have altered its goals: hermeneutics has become a means to heuristics” (“Heuristics Defined”). In enacting the full potential of mobile composition as it fits in electracy, we must move beyond strict ideas of writing that is focused on establishing meaning of texts and using research to support ideas, and we must allow our ideas of theses and support to look differently than the analysis-driven methods that are common in composition. While there is a place for this form of reasoning and linear-driven process in print-based apparatus of literacy, mobile composition’s deliverables appear more creative than a traditional essay by remixing or modding what is existing instead of rehashing its meaning.

While many in composition would argue that we are already practicing an active sense of learning, heuristics suggests an even more inventive and creative approach than we have probably imagined due to the influence of scientific approaches that are held in hermeneutics. Using heuristics, however, “We can read as artists. In addition to writing about texts (oral, printed, and electronic), we can write with texts: create inventive or heuristic effects” (Jarrett, “Heuristics Defined”). Too, using heuristics, there is a curating and bootstrapping of popular culture that takes places and combines interpretation and

invention. We must look for ways to do something with the texts around us and move from simply analyzing and critiquing to making something new. As mentioned in chapter three, the art of curating via a mobile device can make us of electracy principles using the digital and analog world in which mobile devices exist, allowing students to view the mobile society holistically.

Ulmer, of course, has his take on what a composition or any humanities course should look like. He describes it as a laboratory where objects and models are introduced to be manipulated and remixed. One of his essays calls this format a textshop. This laboratory is built on the principle of heuristics. Echoing back to discussions in previous chapters, mobile devices are considered objects that impact the social environment but are also impacted by the environment by frameworks like object-oriented ontology, Latour's collective, and sociomaterialism. Thus, electracy and post(e)-pedagogy promotes some of the same principles of these approaches in our use of mobile devices by emphasizing that we can impact technology just as much as it impacts us. Thus, mobile composition post(e)-pedagogy relies on the chance interactions between devices, content, and students.

These chance interactions, or heuristics, involves remixing and reconceptualizing models and objects in new and various ways. It is a paralogical method of inventing something new—something that contains more agency for users by putting the process in their hands (e.g., à la mobile devices)—from what is present rather than attempting to interpret it and rehash it. This process of heuristics and the questioning of the invention of absolute meanings that is inherent in electracy becomes a process of its own to explore

the multiplicities around and within us. Heuristics, then, is a necessary component since it the means of analysis that works best in electracy just as hermeneutics worked as a primary mode of interpretation in print societies. Rather than seeking to find answers already “out there” and interpret them as hermeneutics would have us do, heuristics has us find the connections and invent something ourselves based on need or desire. Thus, the creative use of mobile interfaces by students through mashing-up, remixing, hyperlinking, and the like.

The mystery genre, borne out of electracy by Ulmer, offers a chance to use heuristics on mobile devices. Mystery involves looking for the intersection, or the crossroad, of the reference and the significance of what he calls the popcycle, from which develops a testimonial. In fact, the opening of this chapter is written in mystorical format to find the chance, personal connections between this topic and my experiences with mobile technology and principles across various discourses, or what Ulmer calls the popcycle. The popcycle (family, entertainment, school, and discipline [profession]) as a starting point for making sense of the world around us and exploring the intersections of interpellation. While he has added other discourses to the popcycle (e.g., church and street, or community), these four give a good starting point for students, and they can attempt to identify even more. By having students create a *mobile* mystery that examines the various discourses in which they are part, we shift from a linearly defined deliverable like an essay to one that is driven by the student but still has them critically using and reflecting upon the electracy apparatus. An example and description of this assignment

can be found in the mobile course that accompanies this course as discussed in chapter five.

Relatedly, mobile devices present issues of personal, public, professional space. In particular, there is the crossing over of each of these on one device. The concept of chora from electracy serves us well here. As introduced in chapter two, chora is a term used by Plato to represent the inconceivable space of being and becoming, but Aristotle replaced the term with *topos* as part of the shift to literacy, meaning a more defined place. In electracy, Ulmer has named the chora as the alternative to *topos*. The chora is where heuristics occurs; the *topos* is where hermeneutics occurs. Thus, the device can serve as this personal space for students to create and analyze in unconventional ways. Choragraphy is the use of the choric space, and in it, there is no fixed method; there is connecting, remixing, and experimentation. Many of the examples used below incorporate these elements in ways that we can use in the practice of a mobile composition post(e)-pedagogy.

As mentioned, electracy is a personalized epistemic. There is a particularly personalized element in chora and mystory, and this certainly aligns with mobile device use as it is an intensely personal object. We keep personal data on our phones and tablets across all of the popcycle discourses in which we engage in with it. The mobile device, then, clearly serves as the interface where our students and we navigate our being/becoming across the domains of family, entertainment, school, and discipline (profession) as well as many other discourses. Consider the varied applications on one's phone and the crossover on each. There are very few apps that reside in just one area of

the popcycle. Our mobile devices and activities are at the intersection of our interpellation, which post(e)-pedagogy seeks to help learners uncover. Emphasizing how mobile devices involve these elements and exploring them in a composition classroom seems necessary in fully preparing students for an electrated world.

In summary of the impact of heuristics in the 21st century composition classroom, students should be making new possibilities with the text – and expanding the definition beyond its print-based etymology – instead of just analyzing them for meaning. Using electrated concepts such as heuristics, students and the public can become creators rather than producers, and then the moral panic of conservatives in English departments becomes a thing of the past, for the revived field incorporates elements of both the traditional and the new, bootstrapping one to move to the other. As referenced several times in this paper, embracing the intellectual apparatus evolution does not require ignoring older media; in fact, the shift should allow us to look at content in older media anew and to be able to *make* something new of what is there.

Image Logic and Video Intelligence

While hermeneutics involved interpretation of written texts and was central to literacy, images and image logic (which makes use of heuristics) mark a central part of the electrated apparatus at work in society in critical thinking. The concepts of collage, montage, and punctum as outlined by Roland Barthes in *Camera Lucida* are all ways in which principles of electracity begin to emerge, and we can learn from these uses. The punctum provides a great entry point into electrated meaning making with images. Barthes punctum points to a visceral significance cannot be rationalized. For Ulmer and others,

this represents something personal, a discovery that comes from within rather than externally. In fact, the punctum cannot even be fully understood by anyone other than the one who has the reaction. For example, Barthes discusses a photo of his mother that has a punctum for him, and he does not even include it in the book because he knows others will not have the same reaction. In electracry, the punctum is another starting point in performing heuretics, or conductive logic, by making connections to forge something new and personal rather than just performing rote analysis (which does not fit the concept of the punctum). The punctum works to help students find significant images that help make sense of the world around them, and with mobile device camera and storage capabilities, finding the punctum or wide image is even easier. In fact, the mobile-based social media platform Instagram has people posting their punctums among the hundreds or thousands of images they store on their device. Making use of principles like this in our composition courses allows for a critical and creative use of the role that images play in our communication.

While we all have images that represent the various discourses in our popcycle, there is a wide image that is at the convergence of these discourses. In fact, finding our wide image is a way to delve into the practice of mystory. This concept leads us to the smartphone or tablet camera. There is an intriguing photo of the announcement of Pope Francis that shows throngs of people holding up phones or tablets to capture images or video. It represents how many of us mediate our lives through the camera on our mobile devices. Having the capacity to have so many images in one location and to curate them can help students practice finding intersections, and in particular, find their wide image as

part of projects in composition courses. The features in mobile phone photo storage applications can even help with performing conductive logic as dates, locations, and even faces are automatically sorted for students to search for patterns or eccentricities.

Another approach that we can appropriate in composition studies for this type of conductive logic and making use of images is app smashing. App smashing heavily involves the camera on a mobile device. Mobile devices afford this in a way that no other devices really do. Given that there are numerous applications for editing and remixing photos, students could create something on one and then use the screenshot feature to take the work done in one app and move it to another app. A student could begin with an image from their photo collection and move through a photo editor to a presentation application to add text or other images around it to an audio application to add voiceover. There is no particular method to app smashing, fitting for electracy and post(e)-pedagogy. In fact, elementary school teachers are allowing students freedom to use this practice with creative results, which should tell us something about how behind many of us are in higher education.

Relatedly, video – or moving images-- also receives (and deserves) much attention in the apparatus of electracy. Similar to image logic, there is a video intelligence, which Ulmer has called videocy. Video, then, deserves its own treatment in our composition and communication courses and should not be simply lumped with images. As we see on the social through avenues, video promotes engagement among students in the digital culture, whether in pre-recorded videos on Youtube or live feeds on Facebook.

Video also brings up the blurring of the dichotomy between entertainment and educational discourse in ways that images alone does not. In fact, many shy away from Ulmer's term videoecy as it is closely related to idiocy, but it should be embraced to show video's full and worst potential. As discussed further in an upcoming section on entertainment and education, composition instructors should incorporate elements of video culture into our courses to help invent the future of entertainment and education by using principles from both realms. Students can work together (in consultant capacity, which is an electrated role to be discussed later) to collaboratively (re)mix or (re)create videos.

From Mimesis to Irony: Critical Thinking and Post(e)-Pedagogy

Another issue that arises in the transition between apparatuses is the misunderstanding of the various manifestations of critical thinking and analysis, which I began discussing in chapter three. An assumption often exists that images only repeat something while text can analyze. However, as noted, working in electracy proves that images or video involves a form of intelligence as well as critical thinking not found in literacy. In the work mentioned earlier by Walter Ong, *Interfaces of the Word*, the chapter titled "From Mimesis to Irony" raises this issue across the evolution of consciousness and its effect on engaging with the ideas in the humanities. He argues that there is a distinction between mimesis and irony among the epochs of orality and literacy, respectively, and that we return to mimesis in the period that follows, which he termed secondary-orality and Ulmer calls electracy.

Unlike the fading of mimesis into irony in the era of literacy, Ong claims that irony still exists as a major focus in the age of secondary orality, or electracy, but “it appears in fact impossible for television or even radio ever to support in themselves the multi-leveled irony of printed works” (293). Unfortunately, Ong was unable to see the impact of the digital age or to foresee the role that a new mimesis may play in this environment that would produce the level of irony that he decries as lost. In fact, the more we recognize of secondary-orality, or electracy, the elements of mimesis and irony are actually combined rather than mutually exclusive. This combination develops new ways of analyzing and understanding the electrated culture, for it is neither mimetic nor focused on irony and frameworks designed for those intellectual economies no longer function so well in the digital era.

There are several ways that forms of analysis like irony take place in electracy and the mobile digital culture. As discussed in the previous chapter in relation to new and participatory media, the development of memes in the digital age actually combines the characteristics of mimesis and irony in a way that provides not only Ong's “multi-leveled irony of printed works” but creates new possibilities, which fits the heuristics criteria for post(e)-pedagogy. In “The Object of Post-Criticism,” Ulmer picks up from mimesis as Ong describes as part of primary orality, but Ulmer discusses how a “new mimesis” can be a way to forge new understandings of the cultures around us. Ulmer is working with the notion of the montage and collage as a new critical method, writing that “the most important innovation in Derrida’s practice of montage is a ‘new mimesis in which the next mimes its object of study’” (91). This new mimesis is something that occurs naturally

in electracy, which can be demonstrated in the example of the Internet meme and its popularization that could not occur in another era, a concept that combines both mimesis and analysis (irony). Memes, however, are just the clearest example of this type of thinking. It has the potential to occur in many genres of mobile and digital media in which the miming of something occurs as an act of analysis. Having students take on the miming of mobile genres as an effort to critique it would be a way to have them engage in this form of critical thinking, or ironic mimesis.

A main point concerning post-critical objects are that we must look beyond traditional uses of critique or critical thinking in electracy, which has its roots in creativity and art. Ulmer writes, “‘post-criticism’ (-modernist, -structuralist) constituted precisely by the application of devices of modernist art to critical representations”; he then adds, “collage is the single most revolutionary formal innovation in artistic representation to occur in our century” (“The Object of Post-Criticism,” 106-107). Ulmer takes on the principles of Hayden White in *Tropics of Discourse* to encourage “contemporary” methods in criticism such as collage/montage, in White’s words, “for dramatizing the significance of data”(106). That is to say, Ulmer argues for using the latest methods and tools that popular culture uses to popularize the humanities as a technique in the classroom and beyond it, and it involves paying attention to style and aesthetics (identified in the chart comparing apparatuses above). Composing on mobile interfaces especially requires paying attention to these aspects as content – as we conventionally know it – occurs in various forms that transcend the space and interface in

critical and creative ways. As an example, in “The Object of Post-Criticism,” Ulmer writes,

The immediate lesson for post-criticism, however, is found in this statement in the diary: “Mushrooms. Teaching-machines” (M, 196). In other words, what those who attack post-criticism as “parasitical” have not yet realized is that montage-allegory (the mushroom as teaching-machine) provides the very technique for popularization, for communicating the knowledge of the cultural disciplines to a general public, which the normal, so-called humanistic critics claim to desire.

(106)

Here and elsewhere, Ulmer demonstrates his claims that we should use the methods that the entertainment industry uses in education not only for popularization purposes but invention purposes. There are two points that we can draw from Ulmer’s claim that we should use methods from entertainment. The first is that humanists *can* and *should* attempt to popularize their critiques and ideas just as there are attempts to popularize science using the tools of the entertainment industry—for example, the television show *Cosmos* using methods and tools from the entertainment industry to communicate scientific principles and issues, and the humanities should make similar use of these tools. The second outcome of this is that there should be implications for postpedagogy as we can learn and invent using the methods of entertainment in education. We carry the potential for this type of work on our mobile devices, and should be engaging our students not only in the elements of critique and analysis that accompany electracry but

the popularization of these ideas through public composition forums described in chapter two.

Entertainment and Education

Building on these principles, tools of entertainment and popularization should be methods from which students learn and use. They should be participating and creating in this new intellectual economy of electracy, which the entertainment industry utilizes so well. While we can rebut that use of video and images do not allow for a critical thinking using the arguments above, a concern often raised by faculty is the mixing entertainment and education in the use of these media. A larger issue surrounding videos or even use of memes in education is the false dichotomy of education vs. entertainment, which leads to further rejection by traditional pedagogues as they embrace this false dichotomy.

While some composition teachers and scholars such as Sarah Arroyo and Geoff Carter embrace the entertainment industry as a great tool for learning and creating, most conventional scholars do not typically hold these ideas. The media of popularization (i.e., the entertainment industry) should not be off-limits for educators. This is especially vital in working with mobile devices which are often viewed as distractions due to their entertainment capabilities. One way to challenge the attention that entertainment receives in our courses is by embracing the same principles, but even more importantly, it involves students in the invention of the future of entertainment as well as using means of popularization to disseminate and involve others in critical thinking about the uses of media, especially mobile, in society.

Thus, academia must not try to distance itself from realms such as entertainment but to embrace that realm as it has identified the shift in the intellectual economy better than the academy. While some scholars recognize portions of this argument and attempt to research in areas such as digital humanities, we've only scratched the surface in current attempts, and practicing principles of entertainment discourse and even engaging publicly with it can lead higher education, the humanities, and composition studies forward. Specifically, Ulmer writes in "The Learning Screen," "The institutional practices of electracy, so far, have been developed within the institution of Entertainment. The historical analogy help us appreciate the potential of Entertainment, not to judge it exclusively by its present accomplishments, but to imagine what it might be two millennia into the future."¹¹ As mentioned previously, Sarah Arroyo takes Ulmer's charge and develops it in her work *Participatory Composition: Video Culture, Writing, and Electracy*, where she writes about the value of Youtube and other such media in education, citing that "we become participants in the entertainment enterprise of learning while creating" (19). Ulmer and Arroyo recognize the engaging realm of entertainment and popularization as capable of serving intellectual purposes and not as mutually exclusive.

Academics and students should make use of electracy to communicate research and findings to the general public in order to inform and counteract the creators of such media who perhaps have more funding and influence. This is another avenue for taking

¹¹ Entertainment is one of the four elements of Ulmer's Popcycle, which includes Family, Entertainment, Education, and Discipline, which he considers elements of invention in *Teletheory* and *Heuretics*.

advantage of phenomena like popularization that occur in electracy. We should have students use these principles to change or spread new messages from the ones already being produced by the entertainment industry. Thus, we should be instructing our students in using the skills involved in electracy as a way to not only learn in a relevant way but also spread accurate information and dispel misinformation and impact the world positively in many other ways.

One current example of an industry being shaped by electrate principles, particularly mobile ones, found in entertainment is the political realm. In fact, the President of the United States has made use of media and especially mobile media in ways never seen. The President often uses Twitter on his Android phone to lash out against opponents or the traditional news media outlets (Waddell). Often, he will send out a barrage of tweets in which the news media will spend hours discussing. While he has certainly responded and re-tweeted others' posts in the past, he has forgone that in his first few months as President. However, during the campaign and before, Trump knew how to make mobile media work for him to create in an engaging, seemingly open format.

Examples like the use of President Trump's Twitter account may be the reason that many teachers and scholars want students to ignore the use of social media or decry its faults. On the contrary, we should be preparing our students to critically engage with such media, examining how it affects us and how we can impact it. There are many new media journalists and activists who respond to the President's tweets with facts concerning information that he has tweeted and quite often with memes to make their points quickly. On any given post, there are around thirty thousand replies. Note in Figure 4.3 the

number of replies and likes that the President receives using this method, but also notice the form of critique that the first (and many others) use. Thus, having students engage in the principles of entertainment to invent the future of it with accurate information rather than misinformation is an avenue we should be pursuing as instructors of mobile composition. On any given post, there are around thirty thousand replies and hundreds of thousands of other forms of engagement, and the replies make use of mobile composition principles.



Figure 4.3 President Trump's tweet with replies

When I was teaching as part of the mobile learning initiative mentioned earlier, students and faculty often joked that the tablets were mostly used for gaming outside and inside class. At the time, I did not recognize that I and others were splitting the practices and discourses of entertainment and education, but now I aim to promote and expand on the potential in the cross-over of activity that happens on mobile devices regarding these two realms. To combat this, many have begun using the term “serious games.” While I understand this, we should not be afraid to have students take a critical look at games and even more in line with electracy, have students build games—even if they are not “serious.” An introduction of gaming can lead to an intentional integration of the entertainment realm into education, which Ulmer declares as a necessity as that industry is currently leading the way in electrate practices.

One emerging area of gaming with mobile devices is the use of augmented reality in applications such as *Pokemon Go*, which allows players to find characters at designated places by having their device’s camera look at a physical location. At the 2017 Worldwide Developers Conference by Apple, they announced an iOS ARKit for use with augmented reality apps (Robertson). This extends what had been a feature on only select Android devices. Augmented reality allows for users to point a device’s camera at something and have a virtual object appear on the screen as if it were there, scaled and all. The demo that Apple will release that makes use of this new hardware and software features will be a game. With this technology now at hand, students can experiment even further with the dichotomies of play and work, education and entertainment to invent the future of communication and think critically about it.

Not only does allowing students to build and experiment with games allow them to better understand the composition of other games, but it also involves an element of play. As I noted with Jenkins in chapter three, play is a key new media skill. In Jan Holmevik's *Inter/Vention: Free Play in the Age of Electracy*, he informs us that play is an important behavior in electracy, which I noted in the table comparing apparatuses in the opening sections of this chapter. In electracy, the dichotomy of serious and playful is broken down.

In free play, there is no method – as is typical in electracy; there are only certain styles as discussed above in the move from content concerns to aesthetics and style. For example, one style might be the hacker style. In mobile contexts, this may look like developing an app as an amateur using Android or iOS development tools. In one form, it may also look like jailbreaking or getting past limitations of a particular operating system. While this may sound trivial, it clearly moves us beyond textuality and also allows us to explore the behind-the-curtain aspects of how our applications and operating systems operate on us and how we can operate on them. Taken further, it might involve a form of “ruggedized hardware and rogue software,” as described by Cynthia Haynes, which she notes would be a form of postconflict pedagogy in response to the games of the unjust. This form postconflict pedagogy moves us beyond persuasive, logical argument and has us communicate in a wholly new manner by breaking out of the system.

Breaking, playing, and remixing systems or games –in all senses of the word – also involve the blurring of the entertainment and education dichotomy as discussed above.

Further, however, students could remix other elements of the entertainment world for educational purposes. Through remix or invention, students could develop their own films, commercials, social media campaigns, or transmedia promotions in a way that demonstrates critical awareness of the electrate apparatus without exploiting new media in unethical ways, as is often the case in the entertainment industry. As discussed, even responding to political campaigns that make unethical use of electrate practices through breaking, playing, or remixing is a way to critically engage using the same principles of popularization. As I mentioned above, we have the opportunity to create the future of the entertainment industry and those who make use of its elements. Having the ubiquitous and easy access to tools of popularization through mobile devices allows anyone to engage in responses of this kind as opposed to more closed systems of entertainment production in the past.

Related to concerns around ethics, there are also assertions of commercialization of mobile devices – even when not used for entertainment purposes. Jean-Francois Lyotard lambasted this direction in his discussion of the miniaturization of knowledge, which was predictive of mobile devices. Electracy and post(e)-pedagogy would acknowledge that the impact of mobile devices does involve commercialization as seen in the realms mentioned earlier, including entertainment and businesses, but that a critical approach to technology and information overload is necessary to meet the needs of students and to change how principles of entertainment and commercialization are being used. As well, we must be careful in how tracking of data, particularly educational data on mobile devices is being used. With the role of educational technology and publishing companies

ever growing, there is the likelihood of unethical use of data that becomes our responsibility for investigating as educators.

The dichotomies of work and play and of education and entertainment are broken down in mobile devices, which is a goal of electracy and thus post(e)-pedagogy. As composition instructors, we have the opportunity to help students find the significance among these intersections and invent within each through the creative use of interfaces, social media, games, and new deliverables even yet to be determined. We need to seize the opportunity to make students critically aware and to move the field of composition forward by teaching students electracy skills for each of these various discourses and their intersections, allowing them to see the ways that they can impact the realm of mobile communication just as entertainment industry does.

Mastery in Students' Hands

As evidenced in the principles and relays described above, the personal nature of knowledge within electracy fits well with the role that mobile devices play in our lives, and the tools now available to us on them give students the same capabilities as large industries and personalities. However, putting so much power in students' hands does not jive with conventional pedagogy in that it puts students in charge – at not just in lip service but in actually having mastery within their hands. Thus, the implementation of a mobile composition post(e)-pedagogy involves the “relinquish[ing] the discourse of mastery. . . . plac[ing] on the aspect of chance and emerging networks. . . .access[ing] a choric space for writing and teaching,” according to Arroyo (111). This relinquishing involves the *practicing* of *theory* as it is emerging and rethinking theory and practice as

required electracy. Not only do students have mastery, but there is also not a master teacher or stable best practices that can be applied with accuracy.

Mobile devices shift the power dynamics of a course, fitting since post(e)-pedagogy is about releasing any sense of mastery and avoiding the concept of empowerment pedagogy. By incorporating mobile devices into our seated or online classes, we are forced to recognize that mastery no longer resides with us as instructors but in the hands of our students. It becomes our role to facilitate the critical awareness around using and communicating with these devices. This form of teaching and learning extends beyond just social constructivism and involves students creating outside of any pre-conceived processes or outcomes. Students may not even need to rely on the instructor as much anymore as they begin to form connections and build upon one another. While this is not to say that the instructor role is not still needed, it just works differently and requires different skills. This all serves the student in the end as they rely on others.

Despite the continual emphasis on the personal, there is a unique form of collaboration and participation happening, too, when instructors release any sense of mastery. The previous chapters mentioned participatory learning, but there is a participatory component innate in our electrated world. While many fear that students are losing social skills or isolating themselves with mobile devices, they are actually becoming more connected and in more meaningful ways that they may have been with

in-person interactions and especially in contrast to the isolation of reading alone, which was a big change from the age of orality to literacy that often goes unnoticed now.¹²

Ulmer appropriates the term *consultant* as a way to describe the type of collaboration that happens in electracy. In *EmerAgency*, he recounts an online consultancy of which he was part and lays this type of work out as the goal of electrate collaboration. Mobile devices afford this type of collaboration by extending what is already available online to not only more people (as access to smartphones and tablets is more than laptops or desktops) but also in more places (especially since smartphones are the only internet devices for people in many third world countries) at more times. Having students work alongside one another as consultants, a goal of post(e)-pedagogy, is even more realized with the intentional use of mobile technology. It also raises questions about the role of the instructor as he or she becomes a consultant alongside the students, each with his or her own background and strengths that are being brought to the experience.

Since there is no sense of mastery for the instructor—as evident for me in the case above when experimenting in a unit using digital media—there follows that there is no formula for teaching or learning as each context is different. Instructors are also operating in consultant capacity. This approach to teaching and learning empowers students and leads to a deeper sense of engagement. Students are participating in the ongoing invention of electracy. In fact, if we view the student as a player in the classroom, we might emphasize their role just as much as the design element of the

¹² As an aside, the dissertation author enjoys books and is in this discipline because of that love for written language. However, he is making a point concerning the praising of reading by some of the same critics who say mobile technology isolates us.

course. When Holmevik discusses that game players can inspire new practices, this can be applied to the classroom in that students can drive the innovation. We must allow them to explore outside the bounds of our designed curricula and spontaneously create new pathways for the teaching and learning of composition. Incorporating mobile devices in our courses affords this as the ubiquity of the devices among students allows for spontaneity to create new paths. A post(e)-pedagogical classroom could function in a game-like sense with the instructor building in multiple opportunities for exploration rather than one fixed route.

Electronic Writing and FunkComp

A final approach or relay among the many from the Florida School and others is the use of musical analogies, particularly blues or jazz, to inform electronic writing. Using the discourse of music is just another way post(e)-pedagogues and their students can practice inventing outside of any fixed system. Ulmer has made similar points and claims that funk set the mood for electronic writing. Building on this, Jeff Rice has developed FunkComp. Rice suggests moving away from topic sentences and other forms of textbook-based writing and have students focus on the mood or the beat of their writing.

Interspersing the concept of funk and electronic writing into our composition involves a type of writing that is not just print-based logic in digital form; it must be clearly distinguishable. A textbook that presents methods for electronic writing represents the opposite of the electronic principle of funk. Rice's FunkComp, for example, would require students to choose an alternate identity from their student one and respond to open-ended prompts without focusing on clarity using digital writing – e.g., HTML or

scripts. Daniel Munday's claim in *Computing as Writing* challenges composition instructors concerning what "counts" as composition in academia and in the professional world, including coding. By adopting this type of writing in our composition courses, students and instructors are able to consider not just digital code but the coding process that happens behind their mobile communication practices.

Incorporating this type of writing into mobile composition might involve students developing a mobile app or even coding on a mobile app. Coding initiatives are taking hold across many areas of education and outside of formal systems. Apple recently launched an *Everyone Can Code* curriculum that can largely be completed on a mobile device as noted in Figure 4.4. Having students code would be an important mobile composition skill in the so that students not only see behind-the-scenes but can also impact it as well. While there is a linear side to coding, it is a digital writing that takes them outside of traditional alphabetic and grammatical logic. While the curriculum spans the spectrum of ages, introducing free tools like *Everyone Can Code* is a starting point as well as incorporating our own experiences as researchers and teachers with this form of digital writing.

The alphabetic and grammatical logic of print-based society informs the organizational approaches in composition classes, too, and framing electrated writing as music like funk can help us envision ways out of this, even in coding. As an example, consider how the phrase "the end of the book" makes sense but "the end of the website" does not. The two media operate in different apparatuses. However, to repeat, this does not mean that this type of writing needs to be forgotten, as it has not stopped being used

in society and even has its role in digital media (text abounds everywhere). Thus, electracy does not leave behind literacy instruction but can incorporate it without having it dominate. Even in coding, there are alphabetic and grammatical symbols, but they operate in drastically different ways. We also want to include approaches to literacy and orality by juxtaposing uses of each apparatus and applying principles of electracy to those modes to make students critically aware of the differences.¹³

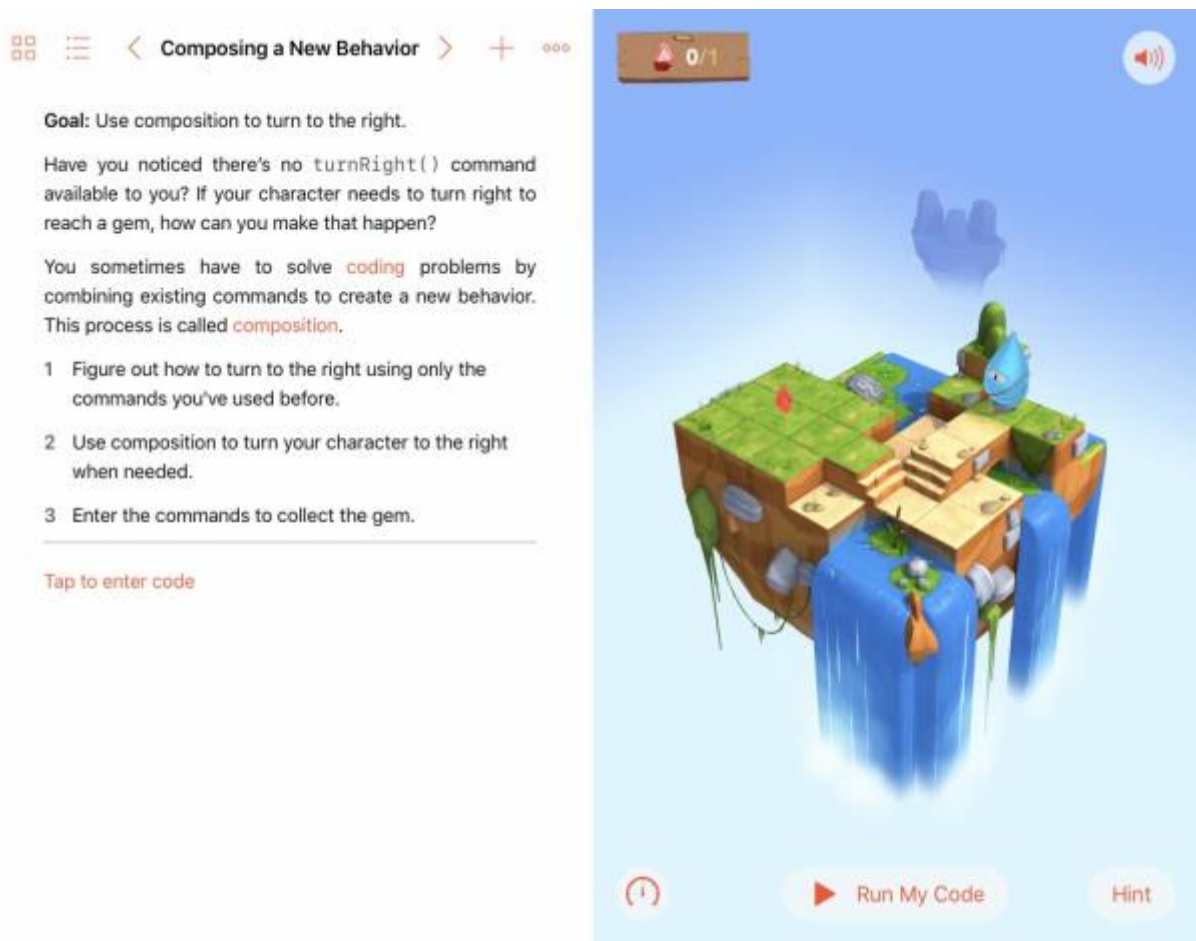


Figure 4.4 Apple's Everyone Can Code screenshot

¹³ Electracy can impact previous media as it is retroactive, but we cannot force literacy or orality principles on electracy.

Just as we can juxtapose apparatuses, a complete move to a post(e)-pedagogical approach is not necessary and can work alongside conventional pedagogy for a purpose. In fact, the juxtaposition of conventional pedagogy and post(e)-pedagogy accentuates the differences for students just as assignments that made use of literacy and electracy would do. As well, allowing students to see the different approaches allows pedagogy itself to become a text to be re-acted upon and becomes even musical in the sense of its arrangement. For example, having students compose written documents on mobile devices actually allows them to appreciate literacy from a different angle. There could also be benefit with having students intersperse use pen and paper to practice composing a mystery, not only to juxtapose apparatuses but give students a wide-ranging sense of shifts in meaning-making and expression in the fields of composition and communication.

Equipping without Empowering

There are critiques, of course, regarding electracy in that it appears reductionist or even confusing due to its averseness to the idea of fixed methods. However, the framework actually responds quite well to calls for action by educators who seek to instill twenty-first-century skills into curricula. For example, the National Education Association's (NEA) Four C's – communication, creativity, critical thinking, and collaboration – are all represented in electracy, albeit at times with definitions of these terms rooted in literacy. Still, there is a recognition that change is on the horizon due to the digital economy, and electracy offers us a discourse for supporting our students and

ensuring the ascendancy of learning and higher education rather than its decline and loss of relevance.

In composition studies, we must respond accordingly to electracy and the 21st century skills of the digital age, and we must prepare students to be critically aware of the impact of this shift; mobile devices provide a way to introduce these concepts in our field by nudging us even further in the shift to electracy. By allowing students to use and embrace principles and tools of electracy, they are better prepared to work in a world that is already operating this way and to create the future of our mobile complex, including teaching and learning. However, we must be careful of using the idea of *empowering* as it goes against the critical digital pedagogy post(e)-pedagogy espoused throughout this dissertation.

A related consideration that usually arises around discussion of integrating mobile devices – or any technology—into education is the issue of access. While access to devices is an important consideration in education, researchers like Stephanie Vie suggest beyond access is another divide: “gaps include knowing how to use technologies, knowing how to understand and use the substantial amounts of information available in our culture, and knowing how to be productive using technologies. This digital divide is more difficult to assess than the material conditions of access” (10). All of these gaps factor in an analysis of the role that devices play in mobile composition pedagogy. While this is not to suggest an empowerment pedagogy as decried in chapter two, it is important to consider equality concerning preparation of students.

Student access and use of mobile devices will become less of a challenge than the laptop initiatives offered by many schools as the lowering costs and likelihood of students having devices continues to increase, our role will be in ensuring that students know how to use, understand, and produce using mobile devices. As one longitudinal survey on mobile devices in higher education found in agreement with Vie’s statement earlier, “Effective use of mobile technology is less about tools and more about students’ digital literacy skills, including the ability to access, manage, and evaluate digital resources. Students might take plenty of pictures using their mobile phone cameras, but rarely do they use the device for meaningful learning experiences. So, even though students recognize mobile devices’ value for academic work, they still look to institutions and instructors for opportunities and encouragement to use them that way” (Chen, et al.). Supporting student learning through mobile composition at the classroom level and the institutional level will be a challenge even more daunting than the material gap, but one that we must take up and experiment with using some of the relays offered in this chapter.

Education from Enlightenment to Electracy

During the Enlightenment, scholars thought that methods of learning and teaching had been fixed. There was an object that was studied and acted upon by a subject, and there was a certain process to investigate these relationships. However, as Walter Ong, Eric Havelock, Greg Ulmer, and other scholars of the evolution of consciousness note, the object is acting upon the subject just as much—if not more at times—than the subject acts upon the object. Recall Ong’s statement that “The mind does not enter the alphabet

or the printed book or the computer so much as the alphabet or print or the computer enters the mind, producing new states of awareness there” (47). Ulmer’s building on these concepts as part of electracy sought for us to invent the future as well as embrace new ways of understanding that can begin within ourselves but ultimately become part of something larger. This should be the goals of scholars and teachers in the humanities: to embrace new frameworks of heuristics and post(e)-pedagogy and make use of means of popularization or play used by entertainment industries. Then, students who are curious about these new ways of learning do not end up isolated (or worse, punished) for their curiosity as I described as part of my story.

The 21st century has brought about technological changes that have revolutionized – not a word used lightly – many industries. To name a sector of society that has not been impacted by the digital revolution is impossible, including that of mobile devices. There have been many failed experiments in this space, too, but that is part of the ongoing invention of a new reality and new apparatus. Academia itself has been slower to adapt to electracy, but recognizing and enacting principles of electracy can help us move forward, discipline-by-discipline. Composition studies can help lead the way in the introduction of these principles and skills in thoughtful ways, and experimenting with mobile devices is indeed one way in which we can immerse ourselves directly into electracy without as much of a safety net of literacy that is found in tethered devices.

CHAPTER FIVE

WRITING IN A MOBILE WORLD COURSE PROTOTYPE

Throughout the dissertation, I have issued a call for action by composition scholars, and the course prototype developed along with this project is an attempt at modeling such a response. It involves the creation of an online course that makes full use of the potential of mobile learning, the electrated apparatus, and the ideas discussed throughout this dissertation. Put another way, this is the attempt at the components of *doing* and *making* that is part of Clemson RCID's emphasis on knowing, doing, and making as derived from Aristotle. This chapter presents an overview of the course as well as a rationale based on the mobile learning research and applications to composition presented throughout this dissertation, specifically the principles of electracy and post(e)-pedagogy.

First, I need to place this in the larger context of instructional design. As I mentioned in the introduction, my work with the mobile learning initiative described throughout this dissertation led to an administrative role in instructional design. Given some of the ideals I have extolled in the previous chapters, those familiar with instructional design models may wonder how I can reconcile the two identities – instructional designer and post(e)-pedagogue. This course and essay, then, is to demonstrate what Paul Lynch attempted to do in his book *After Pedagogy*, and that is to emphasize the necessity for composition professionals not to abandon a focus on teaching and learning. It is also a call not to stall innovation by holding on to outdated methods and apparatuses or those that prioritize efficiency.

The instructional design process actually aligns with some of the principles of electracy and post(e)-pedagogy in that we start with the needs of students, brainstorm ideas, and test them out using prototyping and then revisiting the entire approach. As demonstrated in the design of this course and in chapter three, researched principles of teaching and learning still play a role in designing a mobile composition course. Such principles would be looked at askance when they are based on frameworks of literacy and would limit the course being able to fully take advantage of the digital world, but in general, many of the principles are relevant in designing and articulating this course as noted through this chapter.

It is the fixed methodology of course design that many see not aligning with electracy or post(e)-pedagogy. For many designers, course design is a linear process – for a field that began trying to figure out how to train masses of new personnel in the military, it makes sense that there is this heritage (Reiser).¹⁴ As such, my course design differs in adapting the principles of post (e)-pedagogy over those of efficiency; while my course does include clear objectives, resources, practices, and assessments, they are meant to only be starting points. The course is a dynamic one in that students can approach any of these elements by personalizing them. While this does not mean that a student can opt out of any aspect of the course, he or she can justify tweaking it or finding new paths—and would be encouraged to do so. My role is manifold in that I am at once a designer that has built in multiple paths but I am also a consultant to help the

¹⁴ Instructional design has progressed beyond this as evidenced by conversations that are happening in professional organizations, but the impact of its history is still evident in still-popular instructional design systems.

students achieve their personal, professional, and academic goals by deviating from it when fitting.

Theoretical Rationale

This mobile composition course involves students making critical use of the mobility of space and place and uniqueness of the mobile interface using. In particular, students are introduced to the idea that the material world around them impacts them and that they in turn can impact it. Sociomaterialism, Latour's collective, and object-oriented ontology justify this idea for students. Along with readings related to this, each project involves a reflective aspect for students to consider how the mobile device impacted them in the process, how they work able to work around any issues, and what changes might be needed in device hardware or software in the future to better facilitate the work they were performing. Students are asked to consider the impact of the mobile devices in all environments in which they operate and how their roles are shaped. The general idea is to have students recognize that technology is not value-neutral but that technological determinism nor humanism are the only solutions to framing the impact of mobile devices.

As well, students are not expected to conform to any particular processes as I adopt research from postprocess composition. Students still have their own processes and even identify their processes as part of the development of a mobile writing archive as adapted from Kyle Jensen, but drafts and revisions are not a built-in part of the course despite the fact that students may use those strategies. Too, the course involves the

public, interpretive, and situated principles of postprocess research in the development of assignments (Kent).

Another reason for the lack of a conventional process-based pedagogy is that this course embraces multimodal representations of communication in its delivery by the instructor and the student assignments. In fact, the instructor often models mobile composition as a replacement of conventional reading material similar to the way that Jill Rettberg described scholarly use of Snapchat in chapter three. Students will discern the most apt ways to communicate using mobile media and not rely on text alone, which is difficult given the size and time spent on mobile screens. They will also recognize what is gained or lost noting how value or meaning is tied to their particular choices (Kress).

As outlined in chapter three, there are many unique characteristics to mobile learning, but it also presents many tensions for current approaches to teaching composition. The course prototype to be developed as part of this project empowers students for communicating well and thinking critically regarding mobile devices using principles that have been uncovered as part of mobile learning research. Such principles include opportunities for authentic learning, opportunities for increased engagement and collaboration, and demonstrating new ways of meaning making. The readings, activities, and assignments involve students in all three aspects just identified as are highlighted in the discussion of the course assignments below. Students will work collaboratively in the development of new knowledge and problem-solving at the site where the issue lies and make use of mobile meaning making to intervene in that situation.

As detailed in chapter four, the electrated apparatus in which mobile devices operate requires a different approach than traditional literacy-based courses, which is frequently why there are many tensions when mobile devices are introduced (willfully or not) in composition courses. This course not only introduces students to apparatus theory and the electracy paradigm, but it requires a change in the instructor and student roles. As part of the principles of post(e)-pedagogy, the course models a shift of power to students and away from the instructor. Part of the effort in operating in an electrated paradigm is that it offers a more relevant digital context for the worlds in which they live. However, there are certainly tensions for students just as there are for the instructor(s) of this course. It requires students to carefully examine their mobile communication habits and the implications therein as well as create crossover in the various discourses in which they engage, which can unnerve those who especially like the idea of categorizing their lives. Too, it requires them to operate in an environment that is not as fixed or linear as they are accustomed to, especially in the creation of their projects.

To fully draw attention to the electrated apparatus and the opportunity to invent the future of digital society, the course moves away from just remediating a literacy-based composition course through the type of assignments students have to produce and the way in which they are assessed. Students are assessed on whether the mobile writing skills that they demonstrate simply replicate print-based deliverables or creatively make use of the mobile interface. In addition to fully embedding students in a course that attempts to make full use of the electrated apparatus, students are still presented with examples from literacy to note the differences but also to make use of such material (i.e.,

to do something with it, not just analyze it). In addition, occasionally conventional pedagogical methods are interspersed to contrast methods of teaching and learning for students. Greg Ulmer has suggested both of these forms of interspersing to better help students understand electracy (*Internet Invention*).

Finally, the course also calls for a move away from the text-based resources and textbooks that still dominate the field of writing studies. Although there are still print-based resources, the goal is to make use of models and viewings that make use of the interface rather than just paper. Teaching and learning composition in the framework of electracy does not preclude literacy or orality as it includes those past, emerging, and combined ways of meaning-making. No apparatus (orality, literacy, or electracy) operates in isolation. Thus, we can investigate how electracy—specifically mobile devices—impacts previous modes as part of the course, too, such as reading an article or chapter on a device or composing a written reflection as part of a project.

How This Course Unfolds

The prototype to the online writing course can be accessed at <http://bit.ly/WIAMW>. Students are required to create a Behance profile in order to upload their projects and engage with the community of our course. As shown in the Figure 5.1, there are module overviews and project descriptions in the course landing page. Each of the module overviews and project descriptions is only a landing page for working in the course as students will create outside of Behance, using it for the uploading and commenting features.



Technology Travelogue (Project One)
2017



Example Rubric Criteria
2017



Course Objectives and Questions
2017



Mobile Consultancy Challenge (Project Three)
2017



Get Started Here
2017



Mobile Mystery (Project Two)
2017

Figure 5.1 Course prototype home view

This undergraduate course is designed for sophomores, juniors, and seniors who need an elective and are interested in ways in which mobile communication impacts them, the world around them, and how they can intervene. Students majoring in writing studies or communication programs would certainly benefit from the course, but the audience is generalized. The institutional context for this course is also generalized. However, in colleges or universities with mobile learning initiatives, this course would seek to be a strong part of that program and have students investigate the outcomes of the overall program and its approach as part of the course.

This course is an online, asynchronous undergraduate course consisting of eight modules. Depending on the pace of the semester (e.g., traditional fall or accelerated summer), each module could last one or two weeks. The first module will introduce students to the electrated apparatus and its principles and mobile communication while having students begin critically examining their mobile habits and creating a project using their common communication practices. The course could also work as a hybrid course similar to the experience described in chapter four where students use class time to convene working on the field-placed problems in which they have been undergoing and the instructor is available as a resource.

The second part of the course consists of three modules, and it is there students will be asked to find connections among the various discourses in which they are part on mobile devices and begin looking even further at how this shapes their identity and ways they can intervene. Students will be introduced to the concept of heuristics and

conductive logic as opposed to hermeneutics. They will complete a mobile mystery project as detailed in the following section on assignments.

The third part of the course will consist of three modules around the idea of collaborative mobile work using Ulmer's EmerAgency as a consultative framework. This framework takes up the use of principles of the humanities, including empathy and aesthetics, as a way to solve problems in the digital world through a number of people working on the same problem (*Internet Invention* and *Avatar Emergency*). Students will work with peers across different spaces and places to intervene in a public issue by completing a project that makes full use of the mobile interface in raising awareness or offering a solution. Again, more details are in the assignments section below.

At the end of the course, students will present a compilation of their work as a mobile writing archive. This project juxtaposes conventional writing pedagogy's portfolio and emphasizes the unique processes and tools used by each student. This project is described in more detail below, but students will be aware of this project from the beginning of the course so that they are collecting screenshots and data related to the development of their projects.

At first, this course may seem unlike any other composition course in which a student has been a part in that the focus is different and there is not a set of a long-form essays of which they will be composing. However, I occasionally offer juxtapositions of the type of composition we are doing in this class as compared to other writing courses. We'll even hone some of those skills, too, in the process. There are also times in which the type of communication in which students perform outside of academia—e.g., texting,

posting social media updates –are part of a course project. This form of communication no longer becomes “extracurricular.” Students are challenged to think about and create new ways of expressing and communicating using a mobile interface with these formerly extracurricular genres. While this may sound enticing to students – and it is meant to be motivating – it is not necessarily an easy task as learners have to reconcile their personal, public, professional, and academic selves and face the chance of frustration in attempting new strategies as part of ill-defined projects as discussed in other parts of this dissertation.

Throughout the course, students will investigate the various discourses in which they engage using these devices. The purpose of having students cross between their various discourses is manifold. First, it is based on Gregory Ulmer’s popcycle, which identifies at least four ways of our knowing ourselves: family, entertainment, education, and discipline (profession). Students are tasked with identifying the intersection across these four (or more) areas through the various communication habits we exhibit on our mobile devices. Too, communicating in various discourses helps us identify the various audiences and purposes for which students communicate and seek to impact, a staple of rhetorical awareness across all media. Finally, the various discourses help students with interpellation – asking how the roles they take on in the applications and the form of communication they use cause them to see themselves in each of the areas.

We’ll also delve into our responsibilities to ourselves and to others based on the capabilities and affordances of mobile devices. There are various purposes for this as well. Not only do process-writing scholars see public writing as a way to force us out of

process theory, but it is also a chance for relevant learning and action for students. Thus, while students are examining themselves and how the mobile devices impact them as part of this course, they are looking at how they might impact the future of society through social critique in unconventional ways, which Nicole Brown's metaphor of mobile composition as graffiti suggests. Too, we'll remix and invent where needed as part of shaping the various discourses around us and how they use mobile technology. Since this is a fully online course and there is no one place where students meet, we'll have different responses to these place-based, public composition projects, and as part of the final project, students choose one issue in which they collaboratively address. These elements of the course make use of the affordances of mobile learning such as authentic learning environments and increased opportunities for engagement and collaboration as discussed in chapter three.

Finally, through an inward and outward perspective of mobile communication, we make use of conductive logic. This means that instead of imagining that there is a perfect submission of an assignment, one student's project and another student's might look completely different in form and content but still address the same outcome or even tweak the outcome to meet their needs (with justification). Students make use of trial and error as well as conductive logic, or what Ulmer terms heuristics, to make connections among aspects of their projects that may even seem to be a stretch. While examples of heuristics and various tools are shown, there is no particular method in this course, so the mobile device interface is the student's inventive space, supporting Greg Ulmer's appropriation of the term *chora* as a space of both being and becoming. This element of

the course also makes use of the affordance of mobile learning that allows for new ways of making meaning.

Course Objectives

The course has three main objectives as a way to guide the design and assessment of the course. Students are presented multiple opportunities to demonstrate these objectives. The three course objectives are below:

- Demonstrate awareness concerning the enmeshing of various discourses, identities, and audiences on mobile devices
- Evaluate mobile writing skills within the apparatuses of literacy and electracy
- Create mobile artifacts that intervene in a place-based, public issue or problem

Course Questions

Another way to think about the course objectives is through the notion of course questions. This is helpful in framing a problem-based course rather than assuming there are fixed answers. The course questions would be as follows:

- How does my mobile device and mobile communication practices affect my identity and relationships across various applications and uses?
- What are the affordances of mobile technology that are not available in print and how do they impact meaning?
- How can I intervene in the ways that mobile communication might shape the future?

Methods of Assessment

Assessment is a popular term in higher education and in composition studies. In my experience as an instructional designer, assessment was one of the most important areas around which one would design a course. Typically, objectives and assessments must all align, and they are usually required to be fairly specific. As I mentioned in the introduction, I do not mean to denigrate these areas as I see them all still part of a good course. As well, we need translation for traditional higher education frameworks given that this course will operate there. However, we need to think outside of the box in the way we examine courses that make full use of the electronic apparatus as the linear logic by which many instructional design systems abide do not always fit as neatly. One way that I attempt to address this is by having course objectives fairly broad and assessment criteria that demonstrates students as emerging or by having fully met the requirement rather than having an analytical set of criteria with varying levels of mastery (see example rubric below).

In particular, many of the multimodal composition scholars that I have cited in chapter two (Selfe, Wysocki, et al., Rhodes and Alexander) have attempted to produce new forms of assessment for new media, but many are quickly realizing that the criteria have been influenced too heavily around print-based deliverables. Too, a concern is that in setting up assessments for multimodal composition (and thus mobile composition) is that we will focus too heavily on lower-order concerns because of the unease in assessing deliverables which most have not developed in their own experiences. Especially considering the pervasiveness of current-traditional rhetoric in composition courses even

now, this is a concern about which we need to be vigilant in not approaching new media the same way. Focusing on lower-order concerns should not be on our radar at this point as it can cause us to go back not only to process writing theory but current-traditional rhetoric, which is what we desire to avoid.

We must also be careful not to create a process-based assessment model whereby we assess students on how we arrive at their final products. As I detailed in chapter two, mobile devices instill a practice where the process is the product (Reynolds; Bjork and Schwartz). As such, the requirements of drafts are not part of the course.¹⁵ Thus, there are no assessments based on draft or final versions of course projects (such as a final portfolio) and no criteria for having drafts. One may wonder about the element of peer feedback if there are no drafts, but peers still have the ability to comment on student projects (as discussed in other parts of this essay), and the students can use the feedback for future assignments or future applications of the skills outside of the course.

In sum, assessing competency in a mobile composition course is tricky and looks differently than a composition course that still employs mainly print-based practices and assessments. Along with having multiple opportunities for students to demonstrate the fairly broad course objectives, students compose reflective pieces as a means to assess their own understanding of whether they have met course objectives, which are taken into account by the instructor. Finally, formative assessments include interaction via a social

¹⁵ Although in the student's Behance profiles (the course platform to be discussed later) there is a drafts tab, this will not simply represent "not ready to publish" to avoid students feeling they need to have discrete versions of assignments, a holdover from literacy-based practices.

media channel and the Behance commenting feature on one another's projects which will be based on required amount of posts and expansion of the topic or project at hand.

Course Grading Contract

As will be shown below in a sample rubric, the levels of mastery are limited in the assessment process due to the diversity of project submissions. Students have the ability to submit games, websites, and other creative forms of expression. Students will be measured as unmet, emerging, or met. Grading contracts are not new to composition studies as outlined by Peter Elbow and Jane Danielewicz in "A Unilateral Grading Contract to Improve Learning and Teaching." Although they approach contract grading from a process writing perspective, I have adapted it for this course without their requirements for revision. Importantly, they found that student grading contracts give students more sense of control and "decouple judgments from grades" (3). The criteria of unmet, emerging, and met as part of this course's rubrics move away from such judgments and allow the evaluative feedback from the instructor to be viewed in a different light.

At the beginning of the course, students will be presented with these options:

To earn an A in this course, you will need to

- Complete all projects and have 90% of "Met" in all project rubrics
- Complete all reflection assignments
- Submit 90%+ of the total required commenting and social media posts

To earn an B in this course, you will need to

- Complete all projects with at least 80% "Met" in all project rubrics

- Complete over half of the reflection assignments
- Submit 80%+ of the total required commenting and social media posts

To earn a C in this course, you will need to

- Complete all projects with at least 70% “Met” in all project rubrics
- Complete at least half of the reflection assignments
- Submit 70%+ of the total required commenting and social media posts

D’s will not be awarded, so missing C requirements will earn students an F.

Major Assignments

There are three major projects currently planned for this course with a culminating mobile writing archive. Each major project aligns in some form with the three course objectives. Even though the assignments are meant to be broad, students can adjust each as long as they demonstrate the need for their personal, professional, or academic goals and identify how the assignment would still meet the course objectives. I would consult with the student on the development of their new assignment and identification of how it meets course objectives.

Along with the major projects, students have the opportunity to engage with one another by offering feedback on projects through the Behance platform, which is designed as an informal but professional space for exhibiting one’s work. As well, students communicate via a collectively determined social media platform to ask questions and engage with one another pertaining to the course and its requirements. These minor requirements allow students to use their mobile devices to engage with one

another as part of informal learning, making use of James Gee's affinity spaces as discussed in chapter three.

Harkening back to an assignment that is quite familiar in many composition courses, students perform reflections on each assignment. The assignment challenges students to take a meta-view of the creation process and the applications for their personal, professional, and academic lives. Though this may sound too similar to exercises based on process theory, it is a way to make use of a helpful practice and intersperse conventional pedagogy, which students may be able to note. As a tweak to reflections, however, students will be making note of the impact of the tools and processes they used as compared with other forms of expression that they have used (e.g., an essay in a previous composition course). This is also where students will start collecting data from their own unique development processes to be used for the mobile writing archive.

While the course design is mobile-first, students are not required to solely operate on a mobile device, though students are encouraged to attempt completing as much as possible on a phone or tablet. However, just as not allowing students to use mobile devices in any other composition course would be an inauthentic experience, not allowing students to switch between their various devices would result in the same inauthenticity. Importantly, all deliverables need to be completely accessible on a mobile interface; thus, students need to keep this in mind during the production process.

Project One: Technology Travelogue

In many composition courses, the first assignment is some form of a literacy narrative. The literacy narrative asks students to reflect on their development as a writer and a student. I have had my students do this in the past, and while it is a unique assignment that generates awareness of students of how the literacy apparatus is shaping them, it ignores a major part of students' development as communicators in a digital age. Considering this, the course takes a new approach regarding this type of assignment. Thus, the first major project is to compose a technology travelogue, a type of activity promoted by mobile composition researcher Amy Kimme Hea.

A technology travelogue requires students to keep track of their activity on their mobile devices for one week's time. Students are asked to include a representation of how they spent their time, the applications most used, and what the implications are for their competence as a communicator considering the time and activity on the mobile devices. Students are challenged to create the project using the communication tools in which they spent much of their time or where they feel they have the strongest skill set, thus requiring them to use communication applications and habits outside of the typical discourse in which they are used. For example, if a student spent most of his mobile communication texting and on social media, he would create a project that took place using text message language and imitating the form of social media updates. This should create a sense of critical awareness around the communication practices and habits as well as invent new ways of approaching academic discourse.

Since this project is uploaded to Behance for other students to comment on concerning similarities and differences in content and form, students not only better evaluate and apply their mobile communication skills but recognize how students from various locations who are completing the course are impacted by their sociocultural setting.

Project Two: Mobile Mystory

The second project involves the creation of a mobile mystory, using Greg Ulmer's concept as a starting point and adapting it for mobile device creation. Mystory projects are actually becoming more common across writing and composition studies departments, but no instructor approaches them the same way. This course introduces its own version as the mobile mystory, which actually builds on the first project. This assignment asks students to begin perusing the images and applications on their phone (and/or more elements) and identifying the various discourses, such as Ulmer's popcyle, to find intersections and patterns. The student then re-presents these patterns using the mobile interface as the choric space for invention.

The mystory is more challenging for students than the first assignment as it requires them to think outside of conventional methods and to effectively make use of the affordances of the mobile interface outside of their normal habits. As mentioned elsewhere, it also challenges them to cross between discourses, which can be more frustrating than first realized. Example mystory projects are shared with students to demonstrate the open-endedness of the task (which students may also find challenging). Students are guided to use various applications and even perform app-smashing to reach

their final deliverable, which may be in the form of a website, game, or other multimedia experience – as long as it is mobile friendly and addresses how their mobile lives are being shaped across and between various discourses.

Project Three: Mobile Consultancy Challenge

Finally, students work together on a mobile consultancy assignment that involves their choosing a particular issue facing a place to which they have access. Students need not be close to the place in which their group chooses, but one group member will be and can facilitate fellow students' experiencing the place via video, images, and conferencing as another opportunity for students to practice engaging using mobile devices. It is important for at least one student to be near the place where the problem exists because solving a problem requires being closest to it. Then, that student can facilitate ways for the other students to be close to the problem via mobile communication. The project gives students an opportunity to critique and act upon a place-based challenge, creating a sense of relevancy that should motivate them. The deliverable is a multimodal, mobile artifact that either raises awareness and/or solves a problem. Similar to the mystery project, this may result in a website, an open multimedia presentation, a game, or other various forms. Students are challenged not to think of this as a typical consulting project but to consider the role of aesthetics and communication practices in the situation and in the creation of a deliverable that can influence change.

A short rubric is provided for each project that allows for multiple ways of meeting the course and assignment objectives. Additional feedback is provided on each assignment publicly and privately on the Behance platform. A sample rubric is shown in

Table 6.1, and while more criteria may be added, these tie closest to the course objectives. As well, there are only two levels of achievement if a student does the assignment as this course prioritizes conductive logic, or heuristics, which may not lead to the ability to measure mastery given the diversity of assignments. Of course, if a student does not do the assignment, it is unmet. The above section on grading contracts connects the rubric’s criteria and levels of evaluation to the plan for overall course grading.

Criteria	Met	Emerging
Awareness of impact of mobile technology across various discourses	Reflection or project demonstrates awareness of how mobile and digital technology impacts identity and relationships	Reflection or project introduces an issue relevant to mobile and digital technology but does not demonstrate awareness of how this impacts identity and relationships
Mobile composing skills	Makes use of available means of communication on the mobile interface in creative ways that do not replicate print-based practices and use multimodal composition	Creates project for mobile interface but replicates paper-based approaches (e.g., composes long-form essay)

Table 6.1 Example criteria and partial rubric for mobile composition project

Culminating Project: Mobile Writing Archive

Typically, composition courses have an end-of-course final collection of material developed throughout the term. As discussed in chapter two, the portfolio is a staple of process writing pedagogy. However, this mobile composition course makes use of postprocess research, and thus, a mobile writing archive is used as a juxtaposition to the portfolio to which many students may be accustomed. The mobile writing archive is an adaptation of postprocess writing researcher Kyle Jensen's online writing archives. This mobile writing archive serves as the traditional summative assessment by capturing the processes across all three major projects. It is evaluated on how well the archive captures the diversity of materials and tools used, the balance between comprehensibility and complexity of the fluidity of each project's stages, the maximization of mobile technology, the consideration of the impact of tools on the development of the archive, and attention to the relationship between the content and remediation on the archive (Jensen).

Throughout the course, students are reminded to capture the ongoing processes and any data collected from their smartphones or wearables while they are composing their three projects. As well, ongoing reflection assignments will have students preparing for this culminating project. This collection of material is used to develop the mobile writing archive. In the mobile writing archive, students put the current versions of their three projects online using tools that allow for commentary and presentation of data related the students' unique composing processes and locations. Students make choices regarding the presentation of the mobile writing archive and should plan for it to be an

ongoing document that can have the instructor, fellow students, or others engage with the content.

Course Resources

The course resources entail selections of readings and viewings (e.g., websites, digital projects, etc.) to be used as ways for students to situate the coursework and also see models of the type of work that they are performing. Selections from scholarly texts are either on open online resources or are presented in password-protected file and comply with the Fair Use copyright guidelines. All course resources are accessible on mobile interfaces.

The first two modules (1-2) in the course involve students recognizing the frameworks around which the course is based, including sociomaterialism and electracy. Readings and viewings for this includes selections from Walter Ong's *Orality and Literacy*, Marshall McLuhan's *Understanding Media: Extensions of Man*, and Greg Ulmer's *Internet Invention* (his textbook for electracy). Selections on the impact of mobile devices include a 60 Minutes segment on mobile devices in Kenya ("Future of Money") and Ben Evans's blog posts on mobile device use in various industries. These readings are meant to move students toward thinking and creating in an electracy framework as well as ways to unravel their connected discourses and activities logged in their technology travelogue projects.

The following three modules (3-5) include an overview of the various discourses in which students might use mobile devices. Students should be able to use these readings as ways to situate the mobile communication practices in which they are currently

investigating as part of their mystery project. From the field of technical communication, Steve Katz and Vicki Rhodes's article "Beyond Ethical Frames of Technical Relations: Digital Being in the Workplace," along with other selections from the same collection are used. Katz and Rhodes's article discusses that technology is not value neutral and provides the context of the professional environment for students to consider mobile communication in this realm. Selections from an open-access business communication resource are used supplementary as a chance for students to identify how the use of technology (particularly mobile) impacts their identities in that realm.

Also in these three modules (3-5), readings include selections from and about analog mobile writers Walter Benjamin, Roland Barthes, and Jack Kerouac. These readings not only demonstrate an example of the personal, inner discourse for the mystery projects but also allow students to juxtapose the apparatus of print and literacy to consider ways in which electracy can make use of mobile practices from literacy. Having students recognize some similarities and the impact of analog mobile writing on the style of these writers is meant to provoke invention using some of the models of literacy (e.g., Benjamin's collecting quotes as hyperlinking or curating in mobile contexts).

Articles are also included to discuss the role of entertainment and mobile devices, including the introduction of wearables at amusement parks and the two-screen phenomena that is happening as part of television viewing. The students will note how media companies are trying to control use of mobile devices without having them serve as distractions from their content (or their advertisers). These are updated as new approaches are developed in industry and entertainment.

Finally, in these same three modules (3-5), students are shown example mystory projects as a way to grasp the variety and creativity that is part of each. Students recognize that none of the mystory deliverables are the same. Mystory examples include those by Ulmer, Byron Hawk, and students who have published them for public use.

In the last three modules (6-8), students explore examples of the type of consultancy projects that they are being asked to create. Selections from Ulmer's *Avatar Emergency* and "The Learning Screen," part of *Networked*, an open online text, are part of the reading. In the first text, Ulmer recounts another experience using EmerAgency, which represents the online consultancy in the format for which I have set the third project. It is not in the form of a typical consultancy but one that involves the element of aesthetics and style. This provides students a model for completing the final project that requires collaboration. Other examples of online consultancies in the vein of Ulmer's EmerAgency such as his own Imaging Florida project. The second Ulmer text is an online resource that challenges the entertainment and education dichotomy. Students are asked to consider ways in which they can cross this divide in their final collaborative project.

As well, there are placeholders for further readings and viewings for students during these last three modules (6-8) for the instructor to add based on the topics students choose for the final project and the approaches they take to solve the problem or raise awareness. This is part of the dynamic nature of the course and the instructor role as consultancy. Readings may be supplemented or revised throughout modules, too, based on student need.

Mobile App Design Document

Platform

The initial landing part of the course is housed on Adobe Behance. Students create a Behance profile and collection, in which they house their course projects. In large part, this is to take full advantage of the openness and expansiveness of the web without being contained in a learning management system (LMS). As well, it presents an authentic experience for digital production, as it is an actual platform for creative professionals to display their work. Finally, Behance works better with mobile than any major LMS at this point, and the entire course should be able to be completed on a mobile device.

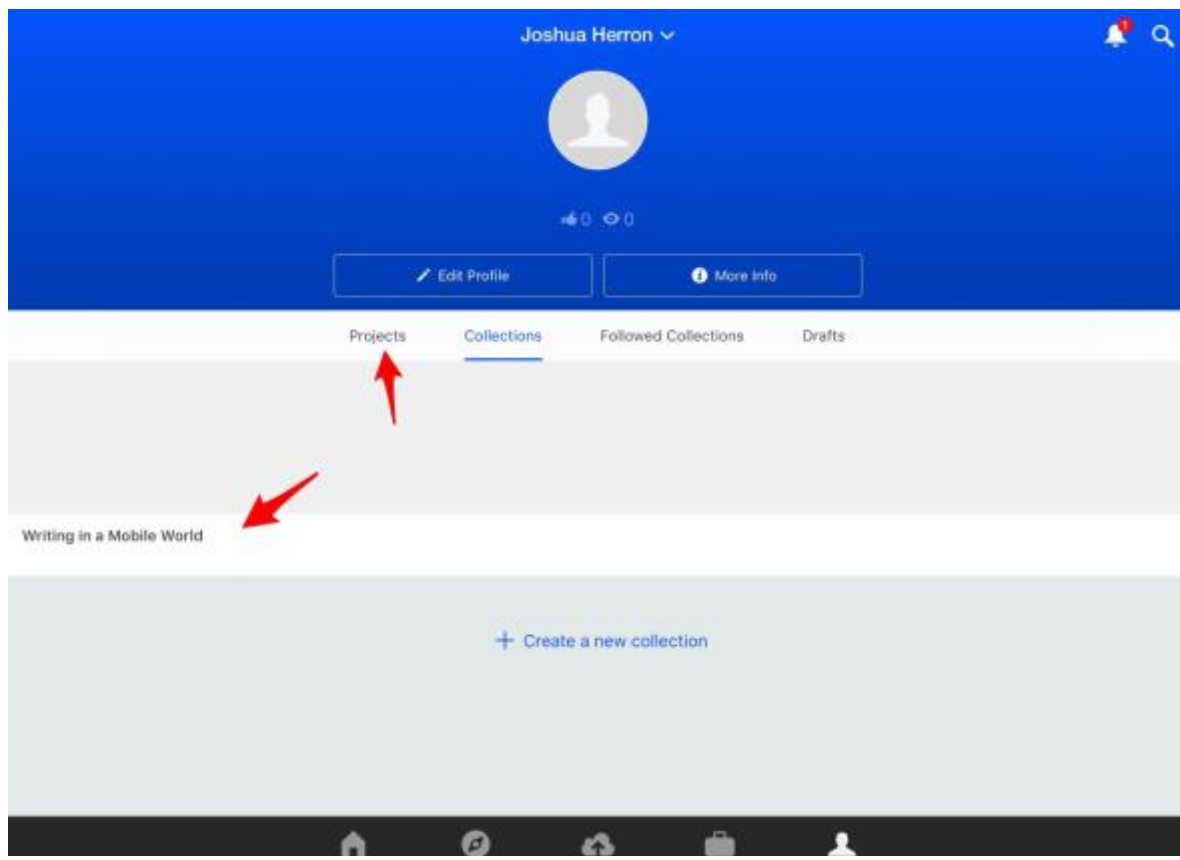


Figure 3.2 Behance projects and collections view

Students enrolled in the course would be notified via an email that the course would be on this platform and that most future messages would even appear on this platform. They are also notified of the social media platform on which we can all post reflections, questions, and supplemental resources.

Using Behance, the instructor creates his own “collection” which houses the materials for our course. In that collection, there are several “projects” that make up the course; these guide students on the completion of the course (e.g., various resources, syllabus) as well as specific project overviews and examples. These are mobile-friendly just as the student projects are expected to be. Figure 5.2 shows the profile page of the Behance mobile interface that shows the collections, projects, and profile features; the space for creating collections and the space for creating projects is noted with an arrow. Just as I use this page to create one collection for the course and then create projects to be part of this collection, students create a collection for the course to which they include their own projects.

Students and the instructor “follow” one another on the platform to see and comment on each other's projects. The instructor provides assessment information for student projects to them via the private messaging system on Behance. Students are reminded to follow one another’s collections (and of course, the course collection where all the materials produced for them are) – as well as any others they desire to follow. As shown in Figure 5.3, the initial home page in the application is an activity feed that alerts students to activity in the collections, including the course collection that I have set up for them.

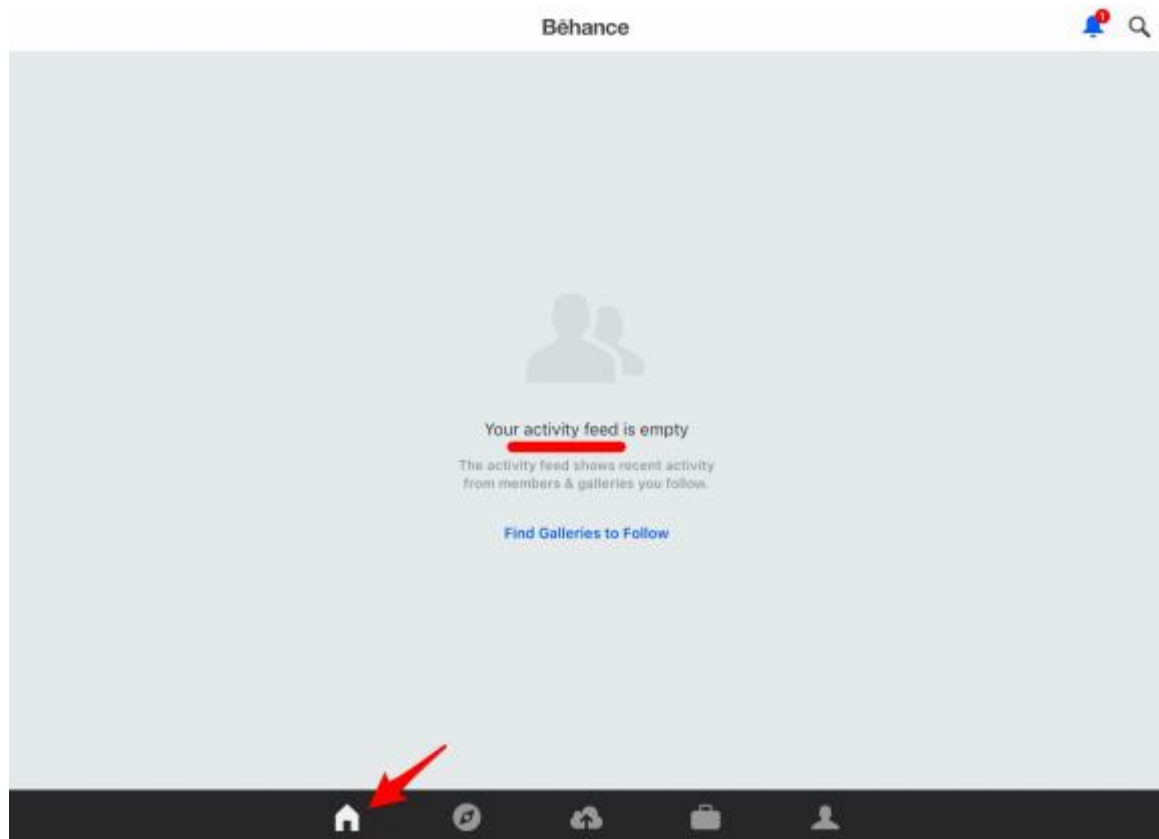


Figure 5.3 Behance activity feed

Theory by Practice: Reflections on Mobile Course Development

One of the methodologies behind the course prototype was to experience a theory by practice, and thus, part of the reflection here meant to give insight into that process. Although I am not able to comment on the delivery of the course, the development of the course as mobile friendly presented its own tensions. While Behance offers a creative and mobile-friendly avenue, it is not designed as a learning management system and thus involves the risk of students not being able to get off to a quick start as they would if they are used to a traditional LMS. Too, concerns over privacy issues could certainly be an administrative concern. I carefully follow the privacy updates to ensure I make ethical choices regarding students' data as discussed in chapter three.

While the theoretical rationale above outlined several ideal features of Behance, no system seems to fully allow students a range of creative possibilities within the mobile environment, yet that would also be sufficient for educational purposes. As well, given the limited time and size of screen use on mobile devices, giving guidance and using creative uses of mobile-first communication required attention to communicative effectiveness within these demands just as I want students to do. Thus, being constrained by systems and processes is a lesson learned in the development and is one that students can also reflect upon during their own experiences navigating the various platforms and effectiveness of communication on mobile devices throughout this course.

Overall, this mobile composition course serves several purposes. It is first an integration of mobile devices into composition studies in a way that students can make full use of the electrated apparatus *and* the affordances of mobile learning. It is also a model of mobile post(e)-pedagogy given the relationship dynamics of the students to instructor and to one another, the media in which the course and its components are produced, and the type of projects and assessment criteria expected of students. Finally, the course reconciles the concerns of those interested in discussing teaching and learning without compromising well-intentioned principles of postprocess and postcomposition movements *or* instructional design.

While this course has its theoretical rationale, the tensions that were part of the design, the development, and the eventual delivery of it extends those theories by thinking outside of them and thus inventing the future of similar courses through remixing. Thus, the course is not meant as a prescriptive approach to teaching mobile

composition – and I do not desire for that – but one of the many relays and starting points that will hopefully be coming alongside and after this dissertation and course project.

Having gone through the design of the course and experiencing many of the tensions that students will face in light of the purposeful lack of fixed methods or best practices in mobile composition sheds light on teaching in the digital age and the electrated apparatus.

Just as teaching in the online modality can impact instructors' approaches to teaching in all modalities, mobile course design and delivery clearly has the potential to carry over into other courses and formats.

CHAPTER SIX:

CONCLUSION

Throughout this dissertation and the accompanying mobile course prototype, I offered a conceptualization of mobile device integration in composition studies, particularly in the teaching and learning of composition, and how it would require major changes in currently established frameworks and theories. While it is often assumed that mobile technology and its genres impact only teenagers, mobile communication impacts all ages and will eventually penetrate even further as digital technology affords even more within the mobile context. Barriers for using mobile technology continue to fall, including poor design, navigation, and other missing capabilities. As this continues, the human desire to trend toward mobility will be on display as more industries and users move toward mobile technology, releasing themselves from tethered devices.

As such, the educational community must respond by preparing students to effectively and critically engage and invent with mobile technology. K-12 education appears to be leading the way, and while this could be that there are strong administrative powers at this level, it still is an attempt to be relevant to student and professions' needs. Of course, relevancy and meeting the needs of employers are not the only reasons to incorporate mobile devices, but those factors along with the higher-order and citizenry skills that colleges and universities seek to instill in students make a case for faculty to embrace mobile learning. There is an ethical imperative to respond to the growing role of mobile communication that does not involve banning devices – which could be construed as unethical in ignoring the need to address the issue.

Even further, forcing mobile communication within embedded frameworks of literacy and other school-based culture practices does not serve students or the future of mobile communication well. Mobile communication opens opportunities to democratize information, solve problems at the site of which they occur, and do so in creative and compelling ways that conventionally written deliverables may no longer be able to do for all audiences. A saying attributed to many people is “The pen is mightier than the sword,” and now it is, “the capabilities of a mobile device are stronger than the pen and mightier than the sword.”

This new phrase packs a lot in that it suggests that the networked, multimodal capabilities have the ability to effect change in ways that writing once was able to do. We see this in the persuasive effects of mobile entertainment when we are on our devices and how we are drawn in. Too, we see how these principles are even used in areas like politics where mobile composition has certainly influenced the direction of our and other nations through grassroots and (semi-)official use. Further, the invoking the power of the sword and keeping that within the new phrase indicates not only of the power of communication but also the security and vulnerability involved, which is even greater with mobile devices and the amount of data we keep. In all of these aspects exists not just opportunities but challenges, often ethical, that must be faced critically, which fits well within our field of composition studies as we have been facing these issues head-on in the search for information literacy, sound decision making, and impacting the world for good through the power of language.

As mentioned, there are of course challenges that occur along with the opportunities of embracing mobile composition, and this dissertation offered a holistic analysis of these. In chapter two, I explored ways that mobile devices move composition forward in burgeoning areas of research in our field, such as new media writing ecologies, multimodal composition, and postprocess research, noting that mobile devices require us to think outside of this conventional framework, which can be uncomfortable. It involves us incorporating discussions around the ecological impact of our composing processes, revisiting the process and portfolio pedagogies that are staples in our courses, and redesigning tasks and assessments for mobile media that do not attempt to conform new media to literacy but allow true multimodal experiences. This challenge to approach mobile composition requires us to re-think the where, what, and how of writing.

I also identified the potential and challenges of mobile learning in the context of analog and tethered learning environments, specifically within the context of composition studies. Recognizing that there are changes in creation and analysis in moving from one apparatus to another, I detailed how an authentic composition environment as afforded by mobile technology maintains or increases levels of engagement and depth through personalization and flexibility. Too, the participatory element of mobile learning offers a chance to move knowledge forward and prepare students for a mobile society. Finally, mobile meaning making offers students the chance to make sense of the information overload around them using their own analyses in ways that might look different than critique or reflection in another medium. These approaches can be challenging in the face of a conventional school culture that idealizes print-based approaches, but can be

achieved without compromise to mobile composition principles or disparaging previous apparatuses.

Finally, a mobile post(e)-pedagogy requires that we move forward actionably and critically in our teaching and learning without compromising many of the principles of electracy, within which mobile technology flourishes. Using relays rather than fixed methods creates starting points in the ongoing invention and transition of electracy from literacy. Electracy offers ways to move forward with a mobile post(e)-pedagogy by shifting from hermeneutics to heuristics, inventing new forms of critique, blurring the lines of education and entertainment, and putting mastery in students' hands.

In addition to the discussion of theoretical and pedagogical concepts through the main chapters, a mobile composition prototype course (found at <http://bit.ly/WIAMW>) enacts these ideas. It is first an integration of mobile devices into composition studies in a way that students can make full use of the electracy apparatus *and* the affordances of mobile learning. It is also a model a mobile post(e)-pedagogy through the relationship dynamics of the students to the instructor and to one another, the media in which the course and its components are produced, and the type of projects and assessment criteria expected of students. Finally, the course reconciles the concerns of those interested in discussing teaching and learning without compromising well-intentioned principles of postprocess and postcomposition movements *or* instructional design.

Future Research

Given the rapid pace of change in mobile technology as well as the principles of electracy, this dissertation is written in a way that the ideas will hopefully not be obsolete

in just a few years. In fact, there are already capabilities on the horizon that are ripe for research in the area of mobile composition using the conceptualization presented here. For example, given that augmented reality appears to soon be part of the widely-used iOS operating system as discussed earlier, this aspect of mobile composition will be important to critically explore and incorporate into research and teaching. The choric space of augmented reality on mobile devices will entail possibilities that may even make alphabetic text even less frequently used in composition one day than is described throughout this dissertation. Language offered the first augmented reality, which composition has taken up as its core. However, the visual and digital shifts in society are changing the what that language looks like, and future research in this nascent area of mobile communication and how it fits within composition studies, mobile learning, and electracy is necessary.

The growing network of humans and mobile devices as well as the expected enhanced capabilities of mobile communication should have us thinking carefully about the power of mobile devices as I noted in the fact that the mobile device is now more powerful than the pen and mightier than the sword. This is true in both the potential for good and bad, and it is incumbent upon us to use and think critically about mobile communication using the research we have available but it also depends on the creativity and inventiveness of ourselves and our students as I have attempted to champion in this dissertation.

GLOSSARY

Actor-Network Theory – Introduced by Bruno Latour, Actor-Network Theory (ANT) puts all of the actors in a situation on the same playing field with all acting in relation to another to create the situation, including human and object symmetry.

Affinity Space – Introduced by James Gee, affinity spaces are “interest-driven, passion-fueled site . . . where people can go to share resources and values and flexibly form and re-form in different groups. The place or space can be an Internet site, a real place, or a combination of the two” (*Anti-Education Era* 174).

Apparatus Theory – Begun by Ong and Havelock, apparatus theory is a study of the way that consciousness is impacted by orality, literacy, and now digital media impact consciousness and society.

Analog Learning – As opposed to mobile or tethered learning, analog learning is a conventional form of teaching and learning that makes no intentional use of technology.

Constructivism – Social and cognitive constructivism are educational theories that provide insight into the creation of knowledge through social interactions that occur via the mobile devices and contexts.

Chora – Used by Plato to represent the inconceivable space of being and becoming, Aristotle replaced the term with *topos* as part of the shift to literacy, meaning a more defined place. Electracy has appropriated chora as the alternative to topos.

Conduction/Conductive Logic – The process of making connections to forge something new and personal rather than just performing rote analysis.

Current-traditional rhetoric – An emphasis by writing instructors on lower-order concerns and polished end products with writing as a means to represent knowledge that already existed externally

Electracy – Coined by new media scholar Gregory Ulmer as the combination and successor of orality and literacy apparatuses, electracy involves proficiency in communicating across digital media comparable to the way literacy was an aptitude for using print-based text. Electrate is its adjective form.

Flash Reasoning – As a way to match the speed and information overload of the digital economy, flash reasoning is a quick convergence of image logic and critique native to electracy just as argument is to literacy. Flash reason is not formal persuasion and not even opinion, but it operates in the preconceptual and in a way that is epiphanic.

Heuretics – As opposed to a hermeneutical approach involving a fixed method or theory, heuretics is a concept rediscovered in electracy and built on knowing by doing, iterative design, and theory borne out of practice.

Heutagogy – A self-determined form of learning where students are directing, negotiating, and generating their own content.

Interface – The interface is the intentional use and personalization of the screen space.
(See also *screen*)

Mobile Composition – The use of untethered devices to facilitate a transcendence of place and interface through a variety of communicative means.

Mobile Learning – A shift to a contextual and networked learning that impacts authentic and collaborative learning, respectively, as well as leveraging the mobility and ubiquity of devices in the creation and analysis of content as part of new ways of making meaning

Place – Place involves the identification of sense of culture and personality to a space.

(See also *Space*)

Popcycle – A heuristic developed by Greg Ulmer that helps to begin viewing the world, our identities, and the connections among them, which include family, entertainment, school, and discipline (profession).

Postcomposition - Introduced by Sid Dobrin, postcomposition conceives of a form of writing studies outside of disciplinary limits in order to disrupt our established frameworks.

Proairetic – A term used in contrast with hermeneutic as used in Roland Barthes' work in *S/Z* of identifying codes in discourse. Proairetic is action-based where hermeneutic is answer-based.

Process Writing Theory – A reaction to current-traditional rhetoric that emphasized the processes involved in getting to the final draft and higher-order concerns. A fixed method of pre-writing, drafting, and revising with portfolio assessment became staples in many writing classrooms as part of this theory of writing instruction.

Screen – A screen is an equivalent to the characteristics of space on a digital device. (See also *Interface*)

Space – Juxtaposed with place, space is the objective sense of an area without the sense of personality or culture. (See also *Place*)

School-based Culture – A phrase that stems from James Gee’s definition of it in *The Anti-Education Era: Creating Smarter Students Through Digital Learning*, where he notes that a skill-and-drill and social camp approach to higher education (or any education) is not one that prepares students for the twenty-first century. He also introduces this criticism in *Situated Language and Learning: A Critique of Traditional Schooling*.

Sociomaterialism – Sociomaterialism provides an avenue to examine the convergence of spaces, places, and practices. It involves not focusing solely on devices, which might lead to technological determinism, or only on the student, which might lead to anthropocentrism.

Tethered Learning – As opposed to analog or mobile learning, tethered learning includes the intentional use of computers such as laptops or desktops, which often become substitutes for the analog mode of learning.

WORKS CITED

- Alexander, Jonathan, and Jacqueline Rhodes. *On Multimodality: New Media in Composition Studies*. Urbana, Illinois: National Council of Teachers of English, 2014. Print.
- Aristotle. *The Nicomachean Ethics*. Book VI. Translated by WD Ross. Internet Classics Archive. Massachusetts Institute of Technology, 2009. Web. 12 Dec 2016.
- Arroyo, Sarah. "The Choric Swipe." YouTube, 18 May 2012, https://youtu.be/gCjTHU_IzSE.
- . *Participatory Composition: Video Culture, Writing, and Electracy*. Carbondale: Southern Illinois University Press, 2013. Print.
- . "Playing to the Tune of Electracy: From Post-Process to a Pedagogy Otherwise." *JAC* 25.4 (2005). Web. 2 October 2016.
- Barthes, Roland. *Camera Lucida: Reflections on Photography*. New York: Hill and Wang, 2010. Print.
- . *Roland Barthes*. New York: Hill and Wang, 1977. Print.
- . *S/Z*. Translated by Richard Miller. New York: Hill and Wang, 1977. Print.
- Bauerlein, Mark. "Interview with Mark Bauerlein on Cell Phones and Digital Technology." YouTube, 2 Nov 2009, https://youtu.be/3qX_LpxNb04.
- . *The Dumbest Generation: The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes Our Future (Or, Don't Trust Anyone Under 30)*. New York: Penguin, 2008.

- Bizzell, Patricia and Bruce Herzberg. "Renaissance Rhetoric." *The Rhetorical Tradition*. 2nd ed. New York: Bedford/St. Martins, 2001. Print.
- Bjork, Olin and John Pedro Schwartz. "Writing in the Wild: A Paradigm for Mobile Composition." *Going Wireless: A Critical Examination of Wireless and Mobile Technologies for Composition Teachers and Researchers*. Ed. Amy C. Kimme Hea. Cresskill, NJ: Hampton P, 2009. Print.
- Bogost, Ian. *Persuasive Games: The Expressive Power of Videogames*. Cambridge, MA: MIT Press, 2007. Print.
- . "What is Object-Oriented Ontology? A Definition for Ordinary Folk." *Bogost.com* 8 December 2009. Web. 27 July 2016.
- Bousquet, Marc. "The Moral Panic in Literary Studies." *The Chronicle of Higher Education*. 7 April 2014. Web.
- "Brain Hacking." *60 Minutes*. CBS News, reported by Anderson Cooper, 9 Apr 2017.
- Brooke, Collin. *Lingua Fracta: Towards a Rhetoric of New Media*. New York: Hampton Press, 2009. Print.
- Brown, Nicole. "Metaphors of Mobility: Emerging Spaces for Rhetorical Reflection and Communication." *Going Wireless: A Critical Examination of Wireless and Mobile Technologies for Composition Teachers and Researchers*. Ed. Amy C. Kimme Hea. Cresskill, NJ: Hampton P, 2009. Print.
- Carter, Geoffrey V., and Sarah J. Arroyo. "Tubing the Future: Participatory Pedagogy and YouTube U in 2020." *Computers and Composition* 28.4 (2011): 292-302. Web. 21 Feb. 2017.

- Chen, Baiyun and Ryan Seilhamer, Luke Bennett and Sue Bauer. "Students' Mobile Learning Practices in Higher Education: A Multi-Year Study." *EDUCAUSE Review*. 2015. Web. 2 Oct. 2016.
- Cochrane, Thomas Donald. "Critical Success Factors for Transforming Pedagogy with Mobile Web 2.0." *British Journal of Educational Technology* 45.1 (2014): 65-82. Web. 12 Nov. 2016.
- Cooper, Marilyn M. "The Ecology of Writing." *College English* 48.4 (1986): 364–375. Web. 4 Feb. 2016.
- Corbett, Steven J., and Michelle LaFrance, Cara Giacomini, and Janice Fournier. (2013). "Mapping Re-Mediating, and Reflecting on Writing Process Realities: Transitioning from Print to Electronic Portfolios in First-Year Composition." *ePortfolio Performance Support Systems: Constructing, Presenting, and Assessing Portfolios*. Ed. Katherine Wills and Rich Rice. Fort Collins, Colorado: The WAC Clearinghouse and Parlor Press. Web. 4 May 2016.
- Crompton, Helen. "Mobile Learning: New Approach, New Theory." *Handbook of Mobile Learning*. Eds. Zane L. Berge and Lin Y. Muilenburg. New York: Routledge, 2013. Print.
- Danaher, Patrick, Raj Gururajan, and Abdul Hafeez-Baig. "Transforming the Practice of Mobile Learning: Promoting Pedagogical Innovation through Educational Principles and Strategies that Work." *Innovative Mobile Learning: Techniques and Strategies*. Hershey, PA: IGA Global, 2009. Web.

- Dennan, Vanessa and Shuan Hao. "Intentionally Mobile Pedagogy: The M-COPE Framework for Mobile Learning in Higher Education." *Technology, Pedagogy, and Education* 23.3 (2014). Web. 2 Feb. 2017.
- DePew, Kevin Eric, and Heather Lettner-Rust. "Mediating Power: Distance Learning Interfaces, Classroom Epistemology, and the Gaze." *Computers and Composition* 26.3 (2009): 174-89. Web. 18 Feb. 2016.
- Derrida, Jacques. *Paper Machine*. Stanford, CA: Stanford UP, 2005. Print.
- Dobrin, Sidney I. *Postcomposition*. SIU Press, 2011. eBook.
- Dobrin, Sidney, Jeffrey A. Rice, and Michael Vastola, eds. *Beyond Postprocess*. Utah State U P, 2011. Print.
- Durst, Pearce. "Multimodal Composition and Electracy: Pedagogical Relays." Diss. Washington State University, 2012. Web. 7 Oct. 2017.
- Dyson, Laurel, Trish Andrews, Robyn Smith, and Ruth Wallace. "Toward a Holistic Framework for Ethical Mobile Learning." *Handbook of Mobile Learning*. Eds. Zane L. Berge and Lin Y. Muilenburg. New York: Routledge, 2013. Print.
- Evans, Benedict. "Mobile Is Eating the World." Ben-Evans.com. 9 Dec 2016. Web. 23 Jan. 2017.
- Eyman, Doug and Andrea Davis. *Play/Write: Digital Rhetoric, Writing, Games*. Anderson, SC: Parlor Press, 2016. Print.
- Fenwick, Tara and Paolo Landri. "Materialities, Textures and Pedagogies: Sociomaterial Assemblages in Education." *Pedagogy, Culture & Society* 20.1 (2012). 1-7. Web. 8 Feb. 2016.

- “Future of Money.” *60 Minutes*. CBS News, reported by Lesley Stahl, 29 May 2016.
- Garrison, Anthony, et al. “Conventional Faces: Emoticons in Instant Messaging Discourse.” *Computers and Composition* 28.2 (2011): 112-25. Web. 7 Feb. 2016.
- Garrison, D. Randy, Terry Anderson, and Walter Archer. “Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education.” *The Internet and Higher Education* 2.2 (1999): 87-105. Web. 2 Nov 2016.
- Ge, Xun, Dingchung Huang, Huimin Zhang, and Beverly Bowers. “Three-Dimension Design for Mobile Learning.” *Handbook of Mobile Learning*. Eds. Zane L. Berge and Lin Y. Muilenburg. New York: Routledge, 2013. Print.
- Gee, James Paul. *The Anti-Education Era: Creating Smarter Students Through Digital Learning*. New York: Macmillan, 2013. Print.
- . *Situated Language and Learning: A Critique of Traditional Schooling*. New York: Routledge, 2004. eBook.
- George, Ann. “Critical Pedagogies: Dreaming of a Democracy.” Eds. Gary Tate, Amy Rupiper Taggart, Kurt Schick, and H. Brooke Hessler. *A Guide to Composition Pedagogies*. 2nd ed. New York: Oxford U P, 2013.
- David Goldman, David. "Steve Jobs on Stylus: 'Over my dead body.' The Apple Pencil and Four Other Things He Would Hate." *CNNMoney*. Cable News Network, 10 Sept. 2015. Web. 10 Mar. 2017.
- Danielewicz, Jane, and Peter Elbow. “A Unilateral Grading Contract to Improve Learning and Teaching.” *College Composition and Communication* (2009): 244-268. Web. 2 May 2017.

- Haas, Christina, et al. "Young People's Everyday Literacies: The Language Features of Instant Messaging." *Research in the Teaching of English* 45.4 (2011): 378-404. Web. 7 Feb. 2016.
- Havelock, E. *Preface to Plato*. Cambridge, MA: Harvard UP, 1963. Print.
- Hayles, N. Katherine. *Writing Machines*. Cambridge, Mass: MIT Press, 2002. E-Book.
- Haynes, Cynthia. "Postconflict Pedagogy: Writing in the stream of hearing." *Beyond Postprocess*. Edited by Sidney Dobrin, Jeffrey A. Rice, and Michael Vastola. Utah State University Press, 2011. Print.
- Kimme Hea, Amy C., editor. *Technologies for Composition Teachers and Researchers*. Cresskill, NJ: Hampton P, 2009. Print.
- Herron, Josh. "Using Mobile Technology to Revitalize Process Writing Instruction." *Mobile Technologies and the Writing Classroom: Resources for Teachers*. Urbana, Illinois: National Council of Teachers of English, 2016. Print.
- Heylighen, Francis & Klaas Chielens. "Cultural Evolution and Memetics." *Encyclopedia of Complexity and System Science*. Web. 21 Feb. 2017.
- Hill, Phil. "Straddling the Chasm." *Plus Ça Change: About that ed tech adoption curve*. e-Literate, 7 Dec. 2015. i2.wp.com/mfeldstein.com/wp-content/uploads/2015/08/Hill-Slides-OTC-20150619-straddling.jpg.
- Holden, Carole. "Three Weeks, Fuelled by Coffee: Jack Kerouac's On The Road Scroll." *American Collections. The British Library Board*. 9 Oct. 2012. Web. 4 Feb. 2016.

- Holmevik, Jan Rune. *Inter/vention: Free Play in the Age of Electracy*.
Cambridge, Mass: MIT Press, 2012. eBook.
- Hwang, Gwo-Jen and Chin-Chung Tsai. "Research Trends in Mobile and Ubiquitous Learning: A Review Of Publications In Selected Journals From 2001 To 2010." *British Journal of Educational Technology* 42.4 (2011). Web. 2 Feb. 2016.
- "Jack Kerouac." Biography.com. A&E Networks, 28 Apr. 2017. Web. 12 May 2017.
- Jarrett, Michael. "Heuretics Defined." *Penn State York*. Web. 2 Nov. 2016.
- . "Writing Mystory." *Penn State York*. Web. 2 Nov. 2016.
- Juarez, Marissa. "A Visual-Spatial Approach to Spontaneous Composing in First-Year Composition." *Kairos: A Journal of Rhetoric, Technology, and Pedagogy*. 16.3 (2012). Web. 7 May 2017.
- Jenkins, Henry, et al. *Confronting the Challenges of Participatory Culture: Media Education for the 21st century*. MIT Press, 2009.
- Jensen, Kyle. *Reimagining Process: Online Writing Archives and the Future of Writing Studies*. SIU Press, 2014.
- Katz, Steven B., and Vicki W. Rhodes. "Beyond Ethical Frames of Technical Relations: Digital Being in the Workplace." *Digital Literacy for Technical Communication: 21st Century Theory and Practice*. Edited by Rachel Spilka. New York: Routledge, 2009. Print.
- Kearney, Matthew, Sandra Schuck, Kevin Burden, and Peter Aubusson. "Viewing Mobile Learning From A Pedagogical Perspective." *Research in Learning Technology*. 20 (2012). Web. 2 Feb. 2016.

- Kirschenbaum, Matthew. *Track Changes: A Literary History of Word Processing*. Cambridge, Massachusetts: Harvard UP, 2016. Print.
- Kent, Thomas. *Post-Process Theory: Beyond the Writing-Process Paradigm*. SIU Press, 1999. Print.
- Killian, Erin. "Do Youz Knowz What I Mean." *All Tech Considered*. NPR.org. 23 Aug. 2010. Web. 21 Feb. 2017.
- Kimme Hea, Amy C. "Perpetual Contact: Articulating the Anywhere, Anytime Pedagogical Model of Mobile Composing." *Going Wireless: A Critical Examination of Wireless and Mobile Technologies for Composition Teachers and Researchers*. Ed. Amy C. Kimme Hea. Cresskill, NJ: Hampton P, 2009. Print.
- Kimme Hea, Amy C., Editor. *Going Wireless: A Critical Examination of Wireless and Mobile Technologies for Composition Teachers and Researchers*. Cresskill, NJ: Hampton P, 2009. Print.
- Kitalong, Karla Saari. "'A Whole New Breed of Student Out There': Wireless Ads and Teacher Identity." *Going Wireless: A Critical Examination of Wireless and Mobile Technologies for Composition Teachers and Researchers*. Ed. Amy C. Kimme Hea. Cresskill, NJ: Hampton P, 2009. Print.
- Kress, Gunther. "Gains and Losses: New Forms of Texts, Knowledge, and Learning." *Computers and Composition* 22.1 (2005): 5-22. Web. 8 Dec. 2016.
- Latour, Bruno. *Reassembling the Social: An Introduction to Actor-Network-Theory*. New York: Oxford UP, 2005. Print.

- Lave, Jean and Etienne Wenger. *Situated Learning: Legitimate Peripheral Participation*. New York: Cambridge University Press, 1991. Print.
- Levene, Jessica and Holli Seabury. "Evaluation of Mobile Learning: Current Research and Implications for Instructional Designers." *TechTrends*. 59.6 (2015). Web. 3 Feb 2016.
- Lutkewitte, Claire. *Mobile Technologies and the Writing Classroom: Resources for Teachers*. Urbana, Illinois: NCTE, 2016. Print.
- Lynch, Paul. *After Pedagogy: The Experience of Teaching*. Conference on College Composition and Communication: National Council of Teachers of English, 2013. Print.
- Lyotard, Jean-François. *The Postmodern Condition: A Report on Knowledge. Theory and History of Literature*. Vol. 10. Ed. Wlad Godzich and Jochen Schulte-Sasse. Manchester: Manchester UP, 1984. Print.
- Mack, Eric. "There Are Now More Gadgets on Earth than People." CNET. 06 Oct. 2014. Web. 7 July 2017.
- Mackey, Thomas and Trudi Jacobson. *Metaliteracy: Reinventing Information Literacy to Empower Learners*. Chicago: Neal-Schuman, 2014. eBook.
- Martin, Florence and Jeffrey Ertzberger. "Here And Now Mobile Learning: An Experimental Study On The Use Of Mobile Technology." *Computers and Education* 68 (2013). 76-85. Web. 12 Feb. 2016.
- Marx, Ursula, et al. *Walter Benjamin's Archive*. New York: Verso, 2007. Print.

- McArthur, John. *Digital Proxemics: How Technology Shapes the Ways We Move*.
New York: Peter Lang Publishing, 2016.
- McLuhan, Marshall. *Understanding Media: The Extensions of Man*. Cambridge, MA:
MIT Press, 1994. Print.
- Mifsud, Louise. "Mobile Learning and The Sociomateriality of Classroom
Practices." *Learning, Media, and Technology* 39.1 (2014). 142-9. Web. 23 Jan.
2016.
- Muncie, James and Simon Hooper. "The Potential of Connected Mobile Learning." *The
New Landscape of Mobile Learning*. Edited by Charles Miller and Aaron
Doering. New York: Routledge, 2014. Print.
- National Education Association (NEA). "Preparing 21st Century Students for a Global
Society: An Educator's Guide to the Four C's." 2012. Web. 2 Oct. 2016.
- Nichols, Randy, and Josephine Walwema. "Untangling the Web Through Digital
Aggregation and Curation." *Mobile Technologies and the Writing Classroom:
Resources for Teachers*. Urbana, Illinois: National Council of Teachers of
English, 2016. Print.
- Nunes, Mark. "Virtual Topographies: Smooth and Striated Cyberspace." *Cyberspace
Textuality*. Ed. Marie-Laure Ryan. Bloomington: Indiana UP, 1999.
- Ong, W. *Interfaces of the Word: Studies in the Evolution of Consciousness and
Culture*. Ithaca: Cornell UP, 1977. Print.

- Pachler, Norbert, Ben Bachmair, and John Cook. "Sociocultural Ecological Framework for M-Learning." *Handbook of Mobile Learning*. Eds. Zane L. Berge and Lin Y. Muilenburg. New York: Routledge, 2013. Print.
- Palmeri, Jason. *Remixing Composition: A History of Multimodal Writing Pedagogy*. Carbondale: Southern Illinois UP, 2012. Print.
- Peng, Hsinyi, Yi-Ju Su, Chien Chou, and Chin-Chung Tsai. "Ubiquitous Knowledge Construction: Mobile Learning Re-Defined and a Conceptual Framework." *Innovations in Education and Teaching International* 46.2 (2009): 171-183.
- Perrin, Andrew. "Social Media Usage: 2005-2015." *Pew Research Center*. 8 Oct 2015. Web. 2 May 2017.
- Pigg, Stacy, et al. "Ubiquitous Writing, Technologies, and the Social Practice of Literacies of Coordination." *Written Communication*, 31.91 (2013): 91-117. Web. 15 Oct. 2016.
- Plato. *Phaedrus*. Translated by B. Jowett. *An Introduction to Classical Rhetoric: Essential Readings*. Edited by James Williams. Malden, MA: Wiley-Blackwell, 2009. Print.
- Punday, Daniel. *Computing as Writing*. Minneapolis: U of Minnesota P, 2015. Print.
- Reid, Alex. "Portable Composition: iTunes University and Networked Pedagogies." *Computers and Composition* 25.1 (2008): 61-78. Web. 4 Feb. 2016.
- Reiser, Robert A. "A History of Instructional Design and Technology: Part I: A History of Instructional Media." *Educational Technology Research and Development* 49.1 (2001): 53-64. Web. 4 April 2017.

Rettberg, Jill Walker. "How Can Scholars Use Snapchat?" *Medium*. 1 Apr. 2016. Web. 10 May 2017.

Reynolds, Nedra. *Geographies of Writing: Inhabiting Places and Encountering a Difference*. Carbondale: Southern Illinois UP, 2004. Print.

Rice, Jeff. "Funkcomp." *New Media/New Methods: The Academic Turn from Literacy to Electracy*. Edited by Jeff Rice and Marcel O'Gorman. Anderson, SC: Parlor Press, 2008. Print.

Robertson, Adi. "Apple is Launching an iOS 'ARKit' for Augmented Reality Apps." *The Verge*. Vox Media, 5 June 2017. Web. 6 June 2017.

Rogers, Everett M. *Diffusion of Innovations*. Simon and Schuster, 2010. eBook.

Selfe, Cynthia L. "The Movement of Air, The Breath of Meaning: Aurality and Multimodal Composing." *College Composition and Communication* (2009): 616-663. Web. 2 November 2016.

Searson, Michael. "Foreword: The Failure of Education's First Mobile Device." *The New Landscape of Mobile Learning*. Edited by Charles Miller and Aaron Doering. New York: Routledge, 2014. Print.

Sharples, Mike, Josie Taylor and Giasemi Vavoula. "A Theory of Learning for the Mobile Age." Eds. R. Andrews and C. Haythornthwaite. *The Sage Handbook of Elearning Research*. London: Sage Publications, 2006. 221-247. Web. 8 Feb. 2017.

Shipka, Jody. *Toward a Composition Made Whole*. Pittsburgh, U of Pittsburgh P, 2011. Print.

- Sontag, Susan. "Introduction." *One Way Street and Other Writings*. By Walter Benjamin. Thetford, Norfolk: Lowe and Brydone Printers Ltd, 1979. Print.
- Sørensen, Estrid. *Materiality of Learning, Technology and Knowledge in Educational Practice*. New York: Cambridge U P, 2009. Print.
- Sweeny, Sheelah M. "Writing for the Instant Messaging and Text Messaging Generation: Using New Literacies To Support Writing Instruction." *Journal of Adolescent & Adult Literacy* 54.2 (2010): 121+. Academic OneFile. Web. 9 Apr. 2016.
- Takayoshi, Pamela. "The Shape of Electronic Writing: Evaluating and Assessing Computer-Assisted Writing Processes and Products." *Computers and Composition* 13.2 (1996): 245-257. Web. 2 Nov 2016.
- Tate, Gary, Amy Rupiper, and Kurt Schick, eds. *A Guide to Composition Pedagogies*. 1st ed. New York: Oxford U P, 2000. Print.
- Tate, Gary, Amy Rupiper Taggart, Kurt Schick, and H. Brooke Hessler, eds. *A Guide to Composition Pedagogies*. 2nd ed. New York: Oxford U P, 2013.
- Traxler, John. "Current State of Mobile Learning." *Mobile Learning Transforming the Delivery of Education and Training*. Ed. Mohamed Ally. Edmonton, Alberta: Athabasca U P, 2009. Print.
- . Traxler, John. "Defining, Discussing and Evaluating Mobile Learning: The Moving Finger Writes and Having Writ...." *The International Review of Research in Open and Distributed Learning* 8.2 (2007). Web. 2 May. 2017.

- Trump, Donald (Realdonaldtrump). “Despite the constant negative press covfefe.” 31 May 2017, 12:06AM. Tweet.
- Trump, Donald (Realdonaldtrump). “The Fake News Media hates when I use what has turned out to be my very powerful Social Media – over 100 million people! I can go around them.” 16 June 2017, 8:23am. Tweet.
- Tuan, Yi-Fu. *Space and Place: The Perspective of Experience*. U of Minnesota P, 1977. Print.
- Ulmer, Gregory. *Applied Grammatology: Post(e)-Pedagogy from Jacques Derrida to Joseph Beuys*. Baltimore: The Johns Hopkins UP, 1985. Print.
- . *Avatar Emergency*. Anderson, SC: Parlor Press, 2012. Print.
- . “The Coming Program.” *EmerAgency: The Virtual Consultancy*. 21 July 2012. Web. 21 Oct. 2016.
- . *Heuretics: The Logic of Invention*. Baltimore: The Johns Hopkins UP, 1994. Print.
- . *Internet Invention: From Literacy to Electracy*. New York: Longman, 2003. Web.
- . “The Learning Screen.” *Networked*. Edited by Matthew Belanger. 2008. Web. 21 Oct. 2016.
- . “The Object of Post-Criticism.” *The Anti-Aesthetic: Essays on Postmodern Culture*. Edited by Hal Foster. New York: The New Press, 1985. Print.
- . “Textshop for Post(e)-Pedagogy.” *Electracy: Gregory L. Ulmer's Textshop Experiments*. Eds. Saper, Craig J., Gregory L. Ulmer, and Victor J. Vitanza. Davies Group, 2015. Print.

---. *Teletheory: Grammatology in the Age of Video*. New York: Routledge, 1989.

Print.

Vie, Stephanie. "Digital Divide 2.0: "Generation M" And Online Social Networking Sites in The Composition Classroom." *Computers and Composition*, 9 (23). 2008.

Web.

Vitanza, Victor. "Three Countertheses: Or, A Critical In(ter)vention." *Contending with Words*. Ed. Patricia Harkin and John Schilb. New York: MLA, 1991. eBook.

Waddell, Kaveh. "Is Trump Still Tweeting from His Unsecured Android Phone?" *The Atlantic*. Atlantic Media Company, 27 Mar. 2017. Web. 10 Apr. 2017.

Wysocki, Anne, Johndan Johnson-Eilola, Cynthia Selfe, and Geoffrey Sirc. *Writing New Media: Theory and Applications for Expanding the Teaching of Composition*. Logan: Utah State University Press, 2004.

Yancey, Kathleen Blake. "Postmodernism, Palimpsest, and Portfolios: Theoretical Issues in The Representation of Student Work." *ePortfolio Performance Support Systems: Constructing, Presenting, and Assessing Portfolios*. Ed. Katherine Wills and Rich Rice. Fort Collins, Colorado: The WAC Clearinghouse and Parlor Press, 2013. Web.

Zarom, Rony. "Mobile Device Use in the Classroom Shapes Success in the Workplace." *University Business*. Professional Media Group, 19 Sep 2014. Web. 2 Nov 2016.