Ethical Frames: A Qualitative Study of Networked Device Use in Two High School ELA Classrooms

by

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Dedication

To teachers and students everywhere, trying to figure things out together

Acknowledgements

This project focuses on the classroom as a complex assemblage of people, social processes, and material resources that interact in interdependent ways. Thinking of the classroom in this way has, naturally, raised my awareness of such networks in my daily life. In the course of completing this PhD, I've gained an entirely new appreciation for my sociomaterial network, each part of which contributed to this dissertation in ways that are difficult to measure, but deeply felt.

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am daily inspired by Merlin's courage, Grace's tenacity, and their devotion to each other. I would be remiss if I failed to mention my dissertation cats, Gigi and Calcifer, who—despite an apparent aversion to reading and writing and an occasional antagonism toward my laptop—have brought a great deal of joy and excitement to these last three years.

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Abstract

This dissertation addresses a gap in empirical research on the way reading and writing on networked devices intervene in the social dynamics of secondary classrooms. Though many studies have investigated how networked devices shape the literacy practices and social norms of online writing spaces, few have investigated the impact of networked devices on the social norms of the classroom. At the same time, the scholarly discourse on the role of networked devices in classrooms is highly polarized, with some scholars suggesting that literacy curriculum must change to meet the demands of the 21st century (Prensky, 2001; Gee, 2017; Jenkins et al., 2009), while others argue that schools have gone too far in accommodating technology, losing something vital to the project of education in the process (Carr, 2010; Bauerlein, 2010; Turkle, 2011). Researchers who attempt a more balanced interpretation have located their studies in extra-curricular spaces (boyd, 2014; Itō, 2010) which are not subject to the peculiar social demands of the classroom (Jackson, 1968; Cuban, 1986).

Drawing on interviews with 24 students and 3 teachers in two small, suburban, public high schools, this qualitative study asks how networked devices matter to students and teachers who use them daily in both personal and academic spaces. The study investigates the ways in which public and policy discourses contribute to the practices and perspectives of students and teachers as they negotiate the role of networked devices in English Language Arts (ELA) classrooms, developing personal norms for what constitutes acceptable uses of cell phones,

tablets, and laptops and making decisions about what aspects of digital literacies belong to the ELA curriculum.

Two findings arose from analysis of the data: 1) Students make deliberate choices in deciding when to read and write on networked devices during class for non-class purposes and 2) The various policy documents meant to guide technology integration and digital literacy instruction represent multiple overlapping activity systems whose goals don't always align. The findings of this study suggest that the current body of research and policies would benefit from attending more closely to important relational dimensions of device use, including how students and use networked devices to maintain their ethical commitments through reading and writing and how policy documents implicitly position students and teachers in relation to different goals for containing or connecting the classroom network.

Building on a recent turn to an examination of the ethical relations implicit in writing and programming (Duffy, 2017; Brown: 2015), this study proposes *ethical frames* as a conceptual vocabulary for how students decide to engage with various audience types: the self, known others, school, and society. Guided by *ethical frames*, students manage and maintain relationships in the coextensive visible and virtual networks in the classroom and teachers implement, reject, or adapt policies that reflect the *ethical frames* they believe most suited to their local contexts.

Chapter 1: "One of the Problems of Our Generation": An Introduction to Discourses about the Role of Networked Devices in Literacy and Learning

"I think that's one of the problems of our generation, is distraction, because of the fact that with technology your mind is constantly moving from one thing to another." So says Nour, an 11th grade student at Sunnydale High School. Her observation—that technology has changed the way students allocate their attention, not just as they learn, but "constantly"—represents a concern held by many of the twenty-four students and three teachers I interviewed during the 2015-16 school year. Whether they were at Neptune High School, a small, suburban public school in the Midwest, with one-to-one computing and a "no cell phone" policy, or at Sunnydale, a small, suburban, public, International Baccalaureate (IB) school in the Midwest, with laissez-faire rules about using laptops and cell phones in class, students and teachers frequently commented on how classrooms had changed in both subtle and not-so-subtle ways because of the presence of technology—and by technology throughout this text, I mean, specifically, networked devices like cell phones, tablets, and laptops—disrupted or re-configured relationships between teachers and students, between time and task, and between school and home.

Their experiences confirm my own observations that while much of the activity in an English language arts (ELA) classroom remains familiar—reading literature, writing essays, collaborating on projects, delivering presentations—networked technologies have altered the interactional space, creating new opportunities for connection that are frequently perceived by

both student and teacher participants as distractions in the classroom. When I started teaching high school in 2005, two years before the introduction of the iPhone, none of my students brought laptops to school, and though many of them had cell phones, those devices often didn't have the kind of media and interactive capabilities that smart phones routinely offer today. Facebook had not yet spread much beyond the college population it was originally designed by and for, and Twitter wouldn't be introduced until the following year (van Dijk, 2013). In 2007, I was still spending a couple of class days the first week of school walking students through the process of creating Yahoo email accounts, and my school district did not issue faculty email accounts until the fall of 2008. The situation has changed dramatically in the ten years since then, in part because "a new infrastructure for online sociality and creativity has emerged, penetrating every fiber of culture today" (van Dijk, 2013, p. 4). Therefore, this dissertation considers how the digital literacy practices fostered by this new infrastructure have both shaped and been shaped by teachers' and teenagers' beliefs and attitudes toward their daily reading and writing practices and how teachers and their students understand and negotiate the ethical demands of overlapping virtual and visible networks in the ELA classroom.

Calls for research on the practice of (Knobel & Lankshear, 2014; Merchant, 2012), instruction for (Hicks & Turner, 2013; Pangrazio, 2014; Ting, 2015), and professional development in (Hutchison, 2012; Hutchison & Reinking, 2011; Stolle, 2008) digital literacies abound, continuing a long-standing tradition of exploring the pedagogical possibilities of technology and media in the literacy classroom (McCorkle & Palmeri, 2016). Studies responding to these calls posit the need to integrate technology into the curriculum for a variety of reasons, including validating students' digital and multiliterate practices (Ting, 2015), capitalizing on students' interests and skills (Gee, 2005), promoting critical engagement with multimedia texts

(Burnett, 2013), and meeting the literacy demands of 21st century society and workplaces (Jenkins, Purushotma, Weigel, Clinton, & Robison, 2009). In spite of this overwhelming push to research digital literacy practices and redesign the curriculum to leverage and support the development of such practices—frequently mandated by national, state, and local policies—empirical studies on technology use in and for secondary classrooms is scarce (Mills, 2016).

Research questions

To gain a clearer and more specific understanding of the presence, provenance, and impact of everyday technologies in the literacy classroom, I designed a qualitative study that draws on policy documents, classroom observations, and interviews with teachers and selected students in two 11th grade ELA classes at two small, suburban public high schools in the Midwest to explore the question: **How do students and teachers perceive the role of networked devices in the ELA classroom?** I divided this broad research question into three sub-questions, which shaped my investigation:

- What beliefs and attitudes shape teachers' and students' uses of networked devices in and out of classroom spaces?
- What informal and formal instructional experiences do teachers and students report when asked about their acquisition of digital literacies and their uses of networked devices for social and academic purposes?
- How do classroom experiences and instruction with networked devices and digital literacy practices connect, reflect, or contradict what teachers and students report?

These questions bring the theoretical frameworks of actor-network theory (Latour, 2007), rhetorical ethics (Duffy, 2017), and ethical programs (Brown, 2015) into conversation with one another to offer a new perspective on the beliefs, attitudes, and values that students and teachers

hold regarding the practice and instruction of digital literacies in classroom spaces. Using concepts from Latour's actor-network theory, I interpret the classroom and the actors within it as an assemblage of overlapping sociomaterial networks—people and objects connected by practices that put them in relation to one another—each of which can be unpacked and traced to better understand issues of identity, agency, and power. Latour (2007) suggests letting the actors within an investigation define the meanings of the elements within it, and in doing so, I found that the virtual networks made accessible by cell phones and laptops mattered to students and teachers in different ways.

As students and teachers described the ways that networked devices mediated their relations to the classroom, to friends and family, to the identity they cultivated in digital spaces, and to the public issues and events they cared about, I began to read their accounts through Duffy's (2017) proposal that the notion of rhetorical virtues gives us a way of thinking about acts of writing as proposing relationships between writers and readers. Writers craft their ethos in writing, establishing their credibility, reliability, and trustworthiness in words. This view of writing synchronized well with my participants' notions that their decisions to read and write on networked devices were manifestations of their relationships. Finally, I draw from Brown's (2015) work on ethical programs to tease out what is different about materializing these relationships on networked devices: the potential for the immediately interactive other. Brown builds his theory on the concept of hospitality, arguing that networked devices are like "dwelling places," where we receive or reject guests who appeal for our attention. Adopting this concept complicates the sociomaterial network of the classroom. Now the ethical relations that writers propose are not restricted to the student writers in the classroom, but include the potential bids

for hospitality from outside the classroom. In this view, students and teachers are constantly handling the ethical dilemma of competing demands for relational action.

I propose a theory of *ethical frames* to account for how students and teachers try to resolve the challenges of these competing demands. Where Brown's work proposes ethical programs that are scripted to answer incoming demands for hospitality in an automatic, consistent, and often opaque way, I suggest *ethical frames* that users consciously construct for each new hospitality dilemma, according to their general ethos as readers and writers and their specific commitments to different imagined relationship partners. Brown defines ethical programs as processes that arise at the convergence of infrastructure and ethics (2015, p. 30); they respond to user behaviors in order to structure user relations. *Ethical frames* reverse this order, arguing that user relationships structure user behaviors. Where ethical programs describe the way responses to ethical dilemmas are coded and encoded to structured interactions, *ethical frames* describe the dynamic and flexible boundaries that people draw around their networked reading and writing opportunities for the purpose of creating or maintaining relationships with a particular ethical character. In short, *ethical frames* is a theoretical lens that reorients our attention from devices as agents of distraction to the ethical relationships that students and teachers wish to propose through digital reading and writing in and for the classroom. It reframes questions of appropriate use of technology as questions of identity, agency, and power because it holds each reading and writing act on a networked device as a potential representation of a relationship with the self, with known others, with school, or with society. In short, when technology mediates the constant movement of Nour's mind "from one thing to another," I suggest we try to understand where and why her mind is moving as part of a complex, ethical decision-making process before we dismiss her behavior as distracted. In Chapter 2, I develop

this framework and relate it to the problem (outlined in this chapter) that my research questions are designed to address.

These questions and the qualitative methods applied to understanding digital literacy practice and instruction in classrooms were designed to address a gap in our understanding of how teens perceive the role of networked devices in their literate practice, which is currently grounded in large-scale survey data and in ethnographic investigations into affinity groups. Survey data reported in the literature suggests that students spend roughly a third of every day (8 hours) "on screens" for entertainment purposes (Common Sense Media, 2015), prompting concerns that young people are using technology in ways that do not contribute to their social and intellectual development (Bauerlein, 2010; Carr, 2010; Turkle, 2011). Qualitative research on extra-curricular uses of technology argues that students gain sophisticated rhetorical skills and deep disciplinary knowledge in the process of reading and writing in digital environments (boyd, 2014; Gee, 2003; Gee, 2005; Itō et al., 2008), prompting researchers to consider the role of literacy education in supporting or developing such skills. These studies, which are treated in greater length in the next section of this chapter, help us understand the scope of technology's presence in teens' lives and the potential learning that reading and writing on screens can foster, but their focus on extra-curricular and self-sponsored digital literacy practices positions them poorly to illuminate the ways technology is intervening in classroom spaces. By identifying the ways networked devices contribute to and operate within the sociomaterial networks of ELA classrooms in two small, suburban, public high schools in the Midwest, this study begins to address this gap in the research on classroom practices and instruction regarding networked technology.

Review of relevant literature

In order to understand teachers' and students' perceptions of the role of networked devices in classrooms, it is necessary to touch briefly on the discourses regarding technology that are shaping common thought and conventional wisdom. This necessity springs from the fact that many of the technologies that intervene in classroom spaces are not designed for educational purposes, but, rather, are part of the social fabric of everyday life. When Nour's mind moves from classroom discussion to Facebook messages from her friends in Paris, marking themselves "safe" after the 2015 terror attacks, she might be considered distracted, but she is also reading and responding in socially appropriate ways to the online context that is part of her everyday life. In this one classroom moment, two contexts are hailing Nour for her attention, and she toggles between them. Networked devices introduce this overlap of virtual and visible networks, with different literacy practices developed to meet the contextual norms of each space of interaction.The increasing prominence of digital literacies in daily life lends a new exigence for examining a familiar problem in literacy instruction: How do teachers mediate "home" and "school" literacies, and how do they value multiple literacies while meeting the disciplinary obligations of their content areas?

There are several reasons that networked technology integration creates a new urgency for this question. In the two classrooms depicted in this study, and in every classroom I have taught in for the last twelve years, the teacher was expected to maintain an online presence for the classroom, and students (and sometimes parents) were expected to access it. These actions involve an investment of time and a certain set of technology skills, which are sometimes explicitly taught and sometimes not. In addition, in the classrooms I have observed for this and other studies and in my capacity supervising student teachers, high school students were frequently collaborating through networked tech and producing technologically-mediated

products such as presentations, videos, websites, and online quizzes. Again, sometimes the skills for these projects were explicitly taught, and sometimes not. Finally, policy documents at the district, state, and national level are increasingly calling for information-literacies and media production skills as part of initiatives to equip students with 21st century skills. In other words, technology is overwhelmingly present in both the structure and content of high school education.

As schools adopt digital tools and digital literacy practices into the curriculum, they must contend with the beliefs, attitudes, and habits of use that teachers and students may already have formed around those tools and practices, a circumstance that adds a layer of complexity to how technology is understood to support, transform, or obstruct classroom goals. Researchers have been approaching this challenge from multiple directions, and some kinds of classroom goals have received extensive attention, including improving engagement with classroom activities by appealing to students' extracurricular digital literacies, supporting language and literacy development in interactive online environments like fan communities (Black, 2005; Chandler-Olcott; Chandler-Olcott & Mahar, 2003) and redesigning or flipping learning spaces to prioritize face-to-face interaction with the teacher and fellow students during class time. While this study focuses on how networked devices complicate students' and teachers' relational goals and the social norms of both digital and classroom environments that inform govern how those relations are addressed and maintained, it is worth sketching what the research addressing other sorts of common classroom goals suggests.

Integrating new media tools to boost engagement with ELA assignments and extracurricular activities that share some affinity to common concerns in ELA curriculum (such as constructing arguments, finding credible sources, creating narratives) has a long history in teaching practice—as McCorkle & Palmeri's (2016) review of the last 100 years of *English*

Journal articles on the topic demonstrates—and research on such practice suggests that the continuous production of new applications and interfaces means that there is ongoing work to be done in aligning policy goals, teacher expertise, and student interests. Richard Beach's (2012) review of digital tools in ELA classrooms argues that "there continues to be a disconnect between students' use of digital tools outside versus inside school, suggesting the need to revise school policies to provide greater use of mobile devices and online textbooks, as well as access to online content" (p. 47). He suggests teachers need to: 1) identify affordances and challenges associated with digital tools in order to create assignments whose goals match the social goals that students pursue when they read and write in online environments; 2) "design engaging, authentic contexts for teachers and students to operate as co-learners;" and 3) reorient assessment to reflect the specific skills implicit in digital literacies instead of applying print literacy assessments (p. 54). Beach's work with Glynda Hull and David O'Brien (2011) argues for the opportunities for authentic engagement with audiences both within and beyond the classroom, noting that the "use of Web 2.0 tools are challenging status quo conceptions of what counts as language arts" as well as "the spatial and temporal boundaries that have defined schooling as occurring in potential locations during set periods of time" (p. 166). These changes are perceived as advances by the authors, but the teachers in this study were not so sanguine about giving up their traditionally contructed disciplinary commitments, and, in fact, advanced some arguments for protecting them from encroaching Web 2.0 innovations—a difference in curricular goals that is reflected in much of the popular discourse.

In fact, in a qualitative study of high school teachers' perceptions of new literacies and ELA curriculum, Elizabeth Lewis and Kelly Chandler-Olcott (2012) found that "with but few exceptions, teachers in this school framed the teaching of literature as the central goal of their

English pedagogy" (p. 209). While teacher did offer opportunities for student to produce multimodal, multimedia, and social-media based projects, these projects remained tied to learning goals that centered around literature—a disciplinary commitment that speaks to how the teacher participants in this study approached networked technology, often by deflecting digital tools that did not yield a substantial return on their investment.

Research that addresses how online communities support English language and literacy development include Rebecca Black's work on English language learners (ELL's) participation in online fan communities (2005, 2009a, 2009b; Thorne, Black, & Sykes, 2009) and Kelly Chandler-Olcott & Donna Mahar's (2003) research on fanfiction as a site of writerly identity and development. Though these studies have implications for classroom spaces, Black carefully defines her work as separate from and building on L2 classroom work (Thorne, Black, & Sykes, 2009), and Chandler-Olcott & Mahar caution that integrating fanfiction into classroom activities may not be the most relevant way for teachers to leverage it (2003, p. 564). Still, they both speak to notions of literacy expertise, and they are especially relevant for this study in their focus on how young people construct ethos as legitimate fans and successful authors (Black, 2005, p. 119). Their research suggests that students have deep experience and a sophisticated understanding of how reading and writing practices demonstrate ethos by materializing ethical relations.

In these online interactional spaces, reading and writing become the social fabric, materializing threads of affinity, interest, and identity and solidifying social bonds. Their ubiquity prompts Kevin Leander (2008) to argue for the need for "an ethnographic approach for studying digital literacies as social practices," taking "Internet practices out of the exotic" and studying them "as lived experiences in the everyday lives of youth" (p. 34). In his review of

research on how mobile devices alter traditional place-based notions of learning with Nathan Phillips and Katherine Headrick Taylor, Leander (2010) argues that we must investigate questions such as "how do people traverse or otherwise connect one environment with another in their everyday lives? And, how is opportunity to learn organized and accomplished through trajectories connecting multiple places?" (p. 331). These questions beat at the heart of this project, but focus on the oppositional flow: if we expect learning to take place outside of school, how do we accommodate pauses in learning when students are place-bound in classrooms? While there has always been homework impinging on parents' time with their children and concerns about home occupying young people's thoughts while they were in class, this question is one that could not have been asked in precisely this way ten years ago because the ability to interact with teachers from home and with parents from class was not so easily managed or expected in 2008 as it is in 2018.

How did this change in attitudes toward connectivity between home and classrooms evolce? The remainder of this section traces the conversation over technology integration back to an origin point that is particularly salient to this study—Marc Prensky's brief 2001 article in *On the Horizon* that launched the idea of the digital native. Though there are other ways to construct the history of technology integration in ELA classrooms (c.f. McCorkle & Palmeri, 2016), this dissertation is primarily interested in the way networked or interactive technologies intervene in the curriculum and social relations of classrooms, and Prensky's work is perhaps the single most cited piece of literature in that conversation because it explicitly addresses classroom teachers while positing a generational divide in experience that reverses the roles of expertise in the classroom. In Prensky's vision, teachers need to catch up with students' extra-curricular learning practices if they want to offer students anything of value. Because so much of the research on the

relationship between schools and technology begins by embracing, rejecting, or complicating this reversal, it is worth revisiting how Prensky oriented the discussion. Though it has been critiqued (Bayne & Ross, 2011), and Prensky (2011) himself has offered elaboration and clarification, the metaphor still holds.

In six short pages that have been cited 20,268 times according to Google Scholar, Prensky established the moves that continue to define the parameters of the debate regarding whether and how technology should be integrated into the curriculum. Prensky argued that young people's brains were *neuroplastically responding to immersion* in media-rich environments, a situation that produced new attention styles and learning habits that represented a complete break from those of the students who came before. As a result, he argued that this new generation of students needed a completely new kind of curricular engagement—one that spoke their digital language. He characterized teachers who did not enthusiastically embrace restructuring their curriculum to leverage digital tools for learning as luddites who needed to get with the program or remove themselves from the teaching profession.

These three elements: the ubiquitous and inescapable presence of technology in daily life, (immersion), the idea that interacting with technology "rewires" learning patterns in the brain, (neuroplasticity), and the charge to adjust the formal curriculum to account for these conditions (responsiveness) are the pillars on which arguments about technology in schools rest, though scholars do not all build on them in precisely the same ways. In the remainder of this chapter, I provide a brief review of the relevant literature, addressing three related controversies connected to these pillars: 1) the contested value of technology in literacy and learning practices (How should people navigate *immersive* media environments?); 2) the complicated status of young people as digital natives (How does *neuroplasticity* alter notions of students and their agency?);

and 3) the uncertainty regarding the role of teachers in technology uptake in schools and in the secondary ELA classroom (How should the institution of school, and teachers in particular, be *responsive* to these conditions?). Taken together, these controversies sketch out the field of engagement for arguments about infrastructural and curricular networked device integration, yet at every turn the conversations lack attention to the meanings that teachers and students attach to their devices—meanings which in this study emerge as concerns about the kinds of relations students maintain and mediate through their networked reading and writing practices. In addition, the research rarely engages with the secondary classroom specifically, thereby sidestepping difficult questions about what could or should be taught to bridge the digital literacies students develop on their own with policy mandates to prepare students for a global, connected society.

The contested value of technology in literacy and learning practices

The popular discourses engaging with technology's impact on literacy and learning practices tend to cluster around two visions of technology: one seeks to mine the affordances of networked connectivity to celebrate students' multiliteracies and promote the development of digital literacies for improved participation in a democratic society; alternatively, the other discourse focuses on digital literacy practices as competing with and sometimes displacing, in-person relationships and in-depth engagement with texts and ideas. Both camps take the ubiquity of technology as their starting point, agreeing that young people (all people, really) in the United States are immersed in a media-rich and technology-saturated society, but they disagree about the effects of that immersion and about what action to take to promote literacy and learning in these conditions.

One side takes an *opportunity-focused view*, seizing on the use of networked devices as an opportunity to cross-pollinate extra-curricular and curricular practices. The other takes an *obstacle-focused view*, arguing for the need for clear boundaries and preserved periods of relief from the distractions of the networked world. In categorizing the research this way, I do not mean to suggest that opportunity-focused scholars see no downsides to networked devices nor that obstacle-focused scholars admit no advantages. Rather, once the pros and cons of networked devices are admitted, they orient themselves to a particular style of response. When Nour says that "with technology your mind is constantly moving from one thing to another," the scholars presented here take that either as an opportunity to follow a young mind in motion or as an invitation to delete the distracting elements. This section explores these two orientations to considering the impact of technology on literacy and learning and argues that what is missing from the research base of each is qualitative studies of how networked devices reconfigure social relations in secondary classrooms.

Opportunity-focused view: While Prensky argued that young people were learning differently because technology had altered the way their brains process information, most researchers who have taken up teenagers' uses of technology as an opportunity to expand literacy repertoires have shied away from insisting on physiological brain differences. Instead, they argue that students engage in sophisticated rhetorical and literacy practices when they compose in networked environments and that the techno-connective opportunities of new media use far outweigh its perceived dangers (boyd, 2014; Gee, 2003; Gee, 2017; Itō, 2010; Jenkins et. al, 2009). Each of the scholars I discuss here has argued that engagement with technology introduces new opportunities for learning and literacy, though they take varying positions regarding what role classroom teachers can or should play in developing those opportunities.

Just two years after Prensky's initial proclamation about digital natives, James Paul Gee, a leading scholar in sociocultural literacy studies, published his first book exploring the potential of video games for learning and the possibility of applying concepts of game design to curriculum design (Gee, 2003). Gee noticed that in playing long and difficult video games, young people were clearly demonstrating their ability to master the vocabulary, critical thinking, and communication skills necessary to individually and collaboratively solve problems—skills that are often valued in educational settings. He argued that "better theories of learning are embedded in the video games many children in elementary and particularly high school play than in the schools they attend" (p. 7), and he outlined a set of game design concepts that offered productive ways for thinking about curriculum redesign. More recently, Gee (2017) has written about the difficulties of making this transfer from game to curriculum, writing about "schools as isolated" from the kinds of motivation structures that affinity groups leverage to inspire a passion for learning (pp. 115-116). He notes that "the people in [public schools] often share few interests, passions, values, and norms that could guide them together in looping journeys between multiple affinity spaces within a larger shared affinity space that composed them all" (p. 115). In other words, schools face a specific structural challenge when taking up digital literacy practices—in both content and concepts—in that digital literacies are built on opt-in structures, and classrooms are frequently composed of involuntary members.

It is, perhaps, this misalignment that accounts for the preponderance of research on digital literacy practices situated in extra-curricular spaces. For example, in a three-year ethnographic study of teens' uses of technology, Itō et al. (2008) drew on 23 case studies focused on young people, aged 12 to 18, to investigate digital literacy practices in "the social and recreational activities of youth rather than in contexts of explicit instruction" (p. 8). Covering a

wide range of young people's digital activities—including video games, fan communities, social media sites—the researchers categorized teens' digital literacy practices into those motivated by friendship and those motivated by interest. "Through trial and error, youth add new media skills to their repertoire," in these extra-curricular contexts, expanding their digital literacy practices when they "share their creations and receive feedback from others online. By its immediacy and breadth of information, the digital world lowers barriers to self-directed learning" (Itō et al., 2008, p. 2). Teachers and classrooms are explicitly left out of the analysis that Itō et al. present, and they maintain that "[a]lthough public institutions do not necessarily need to play a role in instructing or monitoring kids' use of social media, they can be important sites for enabling participation in these activities and enhancing their scope" (p. 36).

This attention to participation, and the possible inequities that might arise in the absence of teacher intervention plays a more central role in Jenkins, et al.'s (2009) report on digital media and learning sponsored by the John D. and Catherine T. MacArthur foundation and published by MIT Press. Jenkins, et al. (2009) details the possible advantages of engaging in online reading and writing activities, "including opportunities for peer-to-peer learning, a changed attitude toward intellectual property, the diversification of cultural expression, the development of skills valued in the modern workplace, and a more empowered conception of citizenship" (p. 3). And Jenkins et al. (2009) insist that "[s]chools and after school programs must devote more attention to fostering what we call the *new media literacies*: a set of cultural competencies and social skills that young people need in the new media landscape" (p. xiii). The report explains that

> Participatory culture is emerging as the culture absorbs and responds to the explosion of new media technologies that make it possible for average consumers to archive, annotate, appropriate, and recirculate media content in powerful new ways. A focus on expanding

> access to new technologies carries us only so far if we do not also foster the skills and cultural knowledge necessary to deploy those tools toward our own ends. (p. 8)

In other words, Jenkins et al. (2009), while sharing an opportunity-focused view, depart from both Gee (2003; 2005) and Itō (2010) in subtle but significant ways. Jenkins is not looking to networked activities for ways to improve the curriculum, but rather is suggesting a framework for curriculum design that prepares students for the writing they will increasingly do in digital environments.

danah boyd (2014) agrees, arguing that "by not doing the work necessary to help youth develop broad digital competency, educators and the public end up reproducing digital inequality because more privileged youth often have more opportunities to develop these skills outside the classroom" (p. 180). boyd, who conducted interviews with 166 teens about their reading and writing on Facebook over a three-year period, suggests that this kind of engagement with technology promotes teens' sense of self-efficacy and agency:

> When [teens] embrace technology, they are imagining new possibilities, asserting control over their lives, and finding ways to be a part of public life. This can be terrifying for those who are intimidated by youth or nervous for them, but it also reveals that, far from being a distraction, social media is providing a vehicle for teens to take ownership over their lives. (2014, p. 212)

Like Jenkins et al., boyd sees this participation as already in process and critically important to young people's individual and civic identity development. Her insistence that teachers have a role to play in helping students navigate these participatory structures draws, in part, on her observation that "[b]eing exposed to information or imagery through the internet and engaging with social media do not make someone a savvy interpreter of the meaning behind these

artifacts" (2014, p. 177). Interpreting information and imagery—considering the purpose, the source, the intended audience, and the logical or associative structure of an image or text—are core skills in the traditional ELA curriculum.

These opportunity-focused researchers connect teenagers' digital literacies in networked environments to the development of community, identity, and agency. Foregrounding the ways young people have acquired and practiced digital literacies in extra-curricular spaces, they suggest that—given the ubiquity of networked devices—teachers have a responsibility to provide instruction in how to navigate these digital literacies and an opportunity to leverage them for academic gain. And yet, as Gee (2017) has noted, applying the lessons from research on extra-curricular practices to classroom activity poses challenges. Communication and organization studies scholars Douglas Thomas and John Seely Brown (2011) go so far as to propose that we are entering a new culture of learning that "is intricately woven into the fabric of our society; indeed, it permeates nearly everything we do" so that "the tools for learning in this new environment make the old way of learning and schooling seem much less effective" (pp. 19-20). In other words, while scholars of digital literacies have looked to extra-curricular practices to divine strategies for the classroom, and many have suggested that teachers have an important role to play in "enabling participation in these activities and enhancing their scope," some of them have come to question whether classrooms are viable competitors as sites of learning—an observation that, paradoxically, connects them to those who take an obstacle-focused view toward technology and classrooms.

Obstacle-focused view: Prensky's argument that exposure to technology has rewired how students think and learn takes on an ominous cast in Nicholas Carr's (2010) Pulitzer-prize finalist book, *The Shallows: What the Internet is Doing to Our Brains*. Like Prensky, Carr argues that

our engagement with technology, especially for reading, is altering the structure of our brains. As a journalist who has written six books and numerous articles about technology and culture, he implies that this alteration is permanently damaging our ability to sustain deep engagement with texts and ideas. I've struggled to come up with an adequate description of what Carr does, precisely. The blurb on the back of the paperback edition advertises it as "part intellectual history, part popular science, and part cultural criticism," and that seems apt. He begins with a personal observation that he feels more distracted when he tries to read long-form journalism and novels, then he attributes this difficulty concentrating to his internet reading habits, and proceeds to outline differences between technologies of print and technologies of screen reading and how habits of each represent different kinds of intellectual engagement and—potentially—form different neural pathways in the brain. This neuroplasticity argument aligns with Prensky's views, but draws different conclusions. Instead of celebrating new ways of engaging with texts, Carr argues that society needs to take action to preserve the habits of print reading imbued by centuries of reading page after page in books that, in his view, support "the intellectual tradition of solitary, singleminded concentration, the ethic that the book bestowed on us" (p. 114). In his afterword to the paperback edition, Carr notes that though he felt as if he were writing against the rising tide of research promoting the value of networked devices, he was pleased that a number of books questioning the value of ubiquitous technologies soon followed, including Sherry Turkle's work, *Alone Together*, which I turn to next.

Turkle, an MIT professor of the Sociology of Science and Technology famous for first championing the affordances of digital connectivity (Turkle, 1995) and then later calling them into question, focuses more intently on the social consequences of choosing the company of machines even when we have access to other humans in the room, arguing that the feedback loop

between the pleasure centers in our brains and the technologies that trigger them is a poor substitute for sustained human relationships. Drawing from personal experience, field research, and clinical studies she has conducted at MIT over the last fifteen years, Turkle argues that young people's uses of technology have, over time, socialized them to prefer digitally-mediated relationships that reduce the risks—of unpredictability, of rejection—involved in spontaneous in-person engagement with people and to consider sociable robots as a viable alternative to human love and friendship. She explains that

> We may begin by thinking that emails, texts, and Facebook messaging are thin gruel but useful if the alternative is sparse communication with the people we care about. Then, we become accustomed to their special pleasures—we can have connection when and where we want or need it, and we can easily make it go away. (p. 148)

Turkle sees this privileging of control and convenience as antithetical to authentic human relations and relationships, and she argues that society is at "a point of inflection, where we can see the costs and start to take action" (p. 265). She concludes, "We now know that our brains are rewired every time we use a phone to search or surf or multitask. As we try to reclaim our concentration, we are literally at war with ourselves" (p. 265). Turkle suggests that we carve out space in our lives protected from the press of networked demands on our attention and think more carefully about how people are making themselves vulnerable to machines that cannot adequately meet human needs.

In perhaps the most offensive treatment of the connection between young people, technology, and education, Mark Bauerlein argues in *The Dumbest Generation: Or, Don't Trust Anyone Under 30*, that young people have lost their intellectual edge, not by virtue of their "natural intelligence"—a problematic concept in itself, which he simply accepts without

comment—but as a result of the "dumbing down" of the curriculum that has taken place to accommodate the short attention spans that he argues are characteristic of people accustomed to getting their information from the internet. Using data collected in national surveys of youth media habits and academic achievement, Bauerlein concludes that

> Most young Americans possess little of the knowledge that makes for an informed citizen, and too few of them master the skills needed to negotiate an information-heavy, communication-based society and economy. Furthermore, they avoid the resources and media that might enlighten them and boost their talents. An anti-intellectual outlook prevails in their leisure lives, squashing the lessons of school and instead producing a knowledgeable and querulous young mind, the youth culture of American society yields an adolescent consumer enmeshed in juvenile matters and secluded from adult realities. (p. 16)

In direct contrast to opportunity-focused scholars who look for the ways extra-curricular activities—what Bauerlein characterizes as "leisure lives"— contribute both to student learning and to an enriched understanding of how and why people learn, Bauerlein argues that the practices encouraged by video games, social media, and other digital literacies prevent students from developing into civic-minded and intellectually capable adults and that attempts to alter the curriculum to accommodate these practices reinforce the damage.

Taken together, these three perspectives reflect an obstacle-focused discourse that positions the presence of technology as introducing a dangerous and debilitating, and very nearly inescapable, dependence. This discourse posits a straightforward solution: remove or seriously limit technologies in the classroom. This advice is disseminated not only in best-selling books, but also in op-eds written for both academic and public audiences. Perhaps the most dramatic of

these was Clay Shirky's 2014 post for the popular website *Medium*—which was subsequently picked up by *The Washington Post*—explaining that he was banning laptops from the classroom because of the distraction they pose to students. Shirky, who teaches the theory and practice of social media at NYU and describes himself as "an advocate and activist for the free culture movement" is best known for his books *Here Comes Everybody: The Power of Organizing Without Organizations* and *Cognitive Surplus: How Technology Makes Consumers into Collaborators*, both of which argue that individual engagement with technology is an important revolutionary force in transforming the traditional power hierarchies of institutions. Shirky's decision seems to mirror Turkle's transformation from proponent of networked society to purveyor of cautionary tales, with one specific twist: the focus on the classroom. What are high school and college instructors to make of opportunity-focused research when even a critical and academic champion of technology struggles with what to do with it in a classroom setting, preferring instead to control the boundaries of the classroom by prohibiting technologies that challenge a teacher's ability to adequately monitor students' device use?

Pieces in *The New York Times* (Dynarski, 2017), *Scientific American* (May, 2017), *Times Higher Education* (Grove, 2017), and *Education Next* (Carter & Walker, 2017) represent the most recent round of college faculty arguing to protect the classroom learning environment from interference by networked devices. These articles point to studies on the threat that laptop use in classrooms poses to student engagement and performance, and they argue that allowing students to bring and use laptops at their own discretion is a recipe for disaster. These op-eds are routinely answered with opposing voices, such as Pryal's (2017) piece that points out the harm to disabled students when laptops are banned and Leiberman's (2017) call for more nuanced discussion of the issue. The continued public debate at the highest levels of academia, where both sides draw

on commitments to student learning and research on student outcomes to arrive at diametrically opposed courses of action represent and reify the polarized discourses regarding technology integration.

Both of these discourses—the opportunity-focused and the obstacle-focused—elide the realities that students and teachers face in everyday classrooms, where avoiding technology is not possible, where people bring both of these viewpoints—and complex mixtures of them—to their reading and writing practices, and where students and teachers continue to struggle with what being a "digital native" actually means. Notions of digital nativity are leveraged in arguments about technology integration by both opportunity- and obstacle-focused adherents. Does "digital native" status mean that students will be able teach themselves to use the programs necessary for classroom projects? Does it mean that students are neurochemically altered or addicted to cell phone use? Does it fail to signal anything about technology expertise and experience? In short, does it mean that students need more or less exposure to networked technology and its associated literacies in the classroom? This is, in part, what my research questions are trying to address by collecting empirical, qualitative data from teachers and students in classroom contexts. In the next section, I briefly review the research regarding the position of young people as "digital natives" to highlight the relationship between material access, extracurricular experiences, and instructional spaces that requires qualitative empirical data on how secondary students and teachers take up technology in classrooms.

The complicated status of young people as digital natives

Sometimes positioned as Millenials or the Net-generation, students currently enrolled in secondary (and post-secondary) schools are the subject of much speculation when it comes to understanding the role of technology in classroom spaces (Bennett, Maton, & Kervin, 2008). At

best, the digital native metaphor aims for a student-centered curriculum that is responsive to current technologically-mediated patterns of communication and calls for a redistribution of power and authority in the classroom (see Prensky, 2001; 2011). At worst, it implies an insurmountable (biological) communication barrier between teachers and students and causes difficulties when teachers plan lessons believing students to have digital skills and access, which many may not possess (Bennett, et al., 2008). This study offers a novel view of the digital native—one that does not take for granted that young people have a natural and almost innate preference for digitally-mediated literacies, but instead asks students when and why they use networked technology to read and write in the classroom and investigates how teachers support, discourage, or negotiate such use.

Since its introduction in 2001, the idea of the digital native has received both critical and empirical attention. A study of undergraduates' uses of technology in e-learning environments in five UK universities concluded that supposed digital natives "engage in a wide range of technology uses with a high frequency," but "do not show a strong impulse towards the kind of participation and generational homogeneity predicted by Net-generation or Digital Native inspired literature" (Jones, Ramanau, Cross, & Healing, 2006). Similarly, a survey of Australian undergraduates found that "there is little empirical support for the stereotypical depiction of the digital native—wired and wireless 24/7" (Waycott, Bennett, Kennedy, Dalgarno, & Gray, 2010, p. 13). In their critical review of research on digital natives, Bennett, et al. (2008) echo the conclusion that there is enough variation in young peoples' experiences with technology to remain skeptical of generational differences that are reliably predictable. They add that "[t]here is no evidence of widespread and universal disaffection, or of a distinctly different learning style the like of which has never been seen before. ... Young people may do things differently, but

there are no grounds to consider them alien to us" (n.p.). In other words, students are not rejecting educational experiences as irrelevant to them just because they are not delivered through digital media. This observation is particularly important because Bennett et al. (2008) argue that the reason the "digital native" idea has such staying power, in spite of research that might unsettle it, is that it "represents an academic form of moral panic. Arguments are often couched in dramatic language, proclaim a profound change in the world and pronounce stark generational differences" (n.p.). In this way, "the language of moral panic and the divides established by commentators serve to close down debate, and in doing so allow unevidenced claims to proliferate" (n.p.). By creating rigidly defined opposing sides, variations in students' and teachers' experiences and attitudes are elided, and members of either camp who resist the argument are labeled enemies of progress. This study seeks to complicate the conversation around digital natives by privileging the voices of students and teachers in particular classrooms who bring their own sensibilities about networked technology, literacy, and learning to the common classroom space. Instead of asking how networked devices have produced digital natives, it asks: how do students' and teachers' beliefs and attitudes shape their digital reading and writing practices?

In spite of the broad research base contesting the validity of the "digital native" concept, young people continue to be positioned as such in both the popular imagination and in research. Consider Ng's (2012) observation supporting the label:

> Digital natives are born in the digital age, which began in the late 1970s with the advent of the personal computer followed by the Internet and information 'explosion' in the 90s. They have grown up in a digital environment where immersion in digitally-related activities is part of their everyday lives. According

> to dictionary.com, 'native' means the place or environment in which a person was born. This by definition, qualifies them to be called 'natives'. The argument that many digital natives do not know how to use technology for learning school/university-based curriculum does not disqualify them from being called digital natives. (Ng, p. 1066)

Martin & Lambert (2015) make an effort to complicate the term, categorizing their study participants—6th to 8th graders—as digital passengers, digital drivers, and digital navigators to describe how students demonstrate different levels of confidence in approaching technology to complete writing activities in a writing-focused summer camp. They explain: "their prior technology experiences and exposure to digital genres mediated their writing processes and instructional needs. To address these profiles, this study highlights the need for differentiated approaches to digital writing instruction in middle school educational settings" (Martin & Lambert, 2015). For these scholars, the idea of the "digital native" continues to be useful in explaining a changed communication environment and the status of the young people who have grown up in it. Even when contesting the term, many scholars implicitly embrace it, using it to signal the need for a pedagogy that explicitly addresses reading and writing in digital environments. The analysis presented in this dissertation suggests that the concepts of digital native and digital immigrant, while durable, are not sufficient for understanding why some teachers and students are deft users of networked technology in some spaces and reluctant users in others. These concepts identify the problem of curricular change in response to new media environments in the wrong place, imagining that generational familiarity is the hurdle to effective technology integration, when empirical data suggests that the situation is more complicated. This dissertation seeks to better understand how students' and teachers'

perceptions of the role of technology contributes to and interacts with the sociomaterial network of contemporary classrooms. It unpacks the entanglement of material resources, education policy, curricular commitments, and classroom culture, which includes not just the routine uses of technology and the presence of digital literacy instruction in the classroom, but also individual virtual networks and the experiences, beliefs and attitudes that students and teachers bring about writing in digital environments to the classroom space.

The role of teachers in technology uptake in schools

Research on teachers' beliefs, attitudes, and uptake of technology draws on both large-scale surveys (Rebora, 2016; Purcell, et al., 2013) and more focused qualitative accounts (Ertmer et al., 2012; Tondeur et al., 2015), as well as mixed-methods approaches (Ruggiero & Mong, 2015). In a survey conducted by the Education Week Research Center in April 2016,

> Twenty four percent of the [700] respondents indicated that they are "risk takers" who are willing to try new technologies even if they may not succeed, while an additional 47 percent said they like working with new digital tools not yet commonly used.
>
> However, when asked to gauge how prepared their students are to use educational technology for particular activities, the teachers gave higher ratings to routine practices like drills, practice exercises, and reading assignments than to more ground-shifting projects, such as creating original content and using social media to collaborate on assignments. (Rebora, n.p.)

What does risk-taking with technology look like in the classroom, and what would teachers need to prepare students to engage in "ground-shifting" projects? The survey results point to an issue—the gap between what students are comfortable doing with technology in the classroom and the transformative technology integration that ed-tech proponents would like to see—but

they lack detailed information on what teachers are doing. The survey suggests that teachers continue to struggle with sufficient access to devices and networks and that "efforts to put instructional-technology plans in place without significant involvement and buy-in from teachers themselves" are unlikely to succeed (Rebora, n.p.).

In a survey of 2,067, Advanced Placement (AP) and National Writing Project (NWP) teachers working at the middle and high school levels, the Pew Research Center found that teachers believe technology has had a "major impact" on multiple aspects of teaching, including "their ability to share ideas with other teachers," "their ability to interact with parents," and "enabling interaction with students" (Purcell, et al., 2013, p. 2). The study found differences, though, in how high-income and low-income schools experienced the impact of digital tools. Most notable for this study are the findings that "49% of teachers of students living in low income households say their school's use of internet filters has a major impact on their teaching, compared with 24% of those who teach better off students," and "33% of teachers of lower income students say their school's rules about classroom cell phone use by students have a major impact on their teaching, compared with 15% of those who teach students from the highest income households" (p. 4). The observational data that I collected in the higher income and the lower income schools in this study reveals what these differences look like in practice in Chapter Five.

The Pew study acknowledges that the pool of teachers responding is not a representative sample, characterizing them as "leading-edge teachers," the majority of whom (56%) were teaching AP or accelerated classes and at least a third of whom had access to National Writing Project training that often takes up the specific challenges of writing in digital environments (p. 8). Still, the findings about teachers' beliefs about their own ability to use online tools and their

students' online research skills is informative, expressing concerns echoed by teacher and student participants in my study. In short, the Pew survey found that more than 70% of participating teachers were worried that " search engines have conditioned students to expect to be able to find information quickly and easily," and that "today's digital technologies discourage students from finding and using a wide range of sources for their research;" yet, more than 95% reported that they (teachers) "use search engines to find information online," "name Google as the search tool they use most often," and "use the internet to do work or research for their job" (p. 6). In my field notes, I documented Mr. Pope finding and uploading readings for the day's lesson while students were engaged in the fifteen-minute warm-up activity, and Mr. Murdock once observed in class that he really only needed his laptop on days that he was improvising. In these ways, teachers seem to communicate a "do as I instruct and not as I do" attitude, relying on Google and Wikipedia for their own work, confident in their ability to access and identify reliable information quickly, but suspicious of students' ability to do so and inclined toward steering students away from those platforms rather than discussing the affordances and limitations of their use.

In longitudinal case studies following six teachers from their pre-service programs to their first teaching jobs in Belgium, Tondeur et al. (2016) found that "beginning teachers used a wide range of technological applications, mainly for structured learning approaches, while few created opportunities for student-centred [sic] technology use" (p. 1). In addition, they found that "While teacher educators modelling [sic] technology use are an important motivator for beginning teachers to use technology in their own teaching, field experiences seem to be the most critical factor influencing their current practice" (p. 1). This research reinforces survey data suggesting that teachers continue to find transformative uses of technology challenging and that

practices regarding technology integration tend to be taken up from teacher to teacher rather than from instruction. In that case, observing what teachers do in classrooms and asking them how they learn to use and evaluate the technologies that they experiment with would be crucial to designing opportunities for pre-service teachers, a challenge that I take up in Chapter Six.

In their interview study with twelve teachers selected from among a group of award-winning teachers "recognized by the International Society for Technology in Education (ISTE), Apple, Edublog, Eduwiki, Disney, Milken, and PBS, among others," Ertmer et al. (2012) found that successful technology integration wasn't simply a matter of exposure to technology's possibilities—through training or exchange— but also a matter of aligning technology uses with pedagogical beliefs (p. 429). While acknowledging that barriers still—and will probably always—exist, teachers who were successful in integrating technology described close alignment between their beliefs about and uses of technology:

> teachers who believed that technology was best used for collaboration purposes, described interesting projects in which students collaborated with local and distant peers. Teachers who believed that technology provided more opportunities for student choice, described examples in which students chose to demonstrate their learning using a variety of technology tools. (p. 432)

In other words, transformative technology integration doesn't' have to look the same in every classroom, but it might require discovering what teachers believe about learning and technology and then marshaling the technologies most appropriate to supporting those beliefs. In Chapter Four, I take up the varying beliefs that teachers and students express about technology and its role in both personal and academic contexts to identify how student beliefs might also play into local technology integration, and in Chapter Five, I explore the way policies at varying levels

align with teachers' beliefs about technology and its uses in the classroom. In other words, there are multiple belief systems regarding technology in the classroom; understanding how these systems interact with one another is an important step in defining and developing transformative practices in the classroom.

A mixed-methods study investigating the relationship between teacher beliefs and technology integration was conducted by Ruggiero & Mong (2015) in the United States. From a brief survey of 1048 teachers in a Midwestern state followed by focal interviews with 111 participants the researchers found that teachers were most interested in technology training that addressed the needs of their classroom specifically, and that "relatively consistent across all participants is the idea that simple exposure to technology would not facilitate 21st century learning skills. Students and teachers need to interact with technology in order to make it worthwhile in the subject specific activities" (p. 175). In other words, teachers' personal experiences, pedagogical beliefs, and classroom practices regarding technology are related, and constant technological innovation coupled with variation across contexts demands locally-situated studies to unpack these relations.

These studies support the idea that technology is becoming more prevalent in classrooms, that material access issues persist, but are declining, and that how teachers feel about technology and what they believe about teaching play a major role in uptake and integration. In his history of US classroom uses of technology, Cuban (1986) argues that teachers' sometime resistance to technology integration is founded in both the structural design of school and in teachers' deeply-held beliefs about teaching and learning. He writes that "[t]he complex relationships between teachers and students become uncertain in the face of microcomputers," arguing that a profession that finds many of its rewards in the strong relationships forged between teachers and students

would naturally be skeptical of "outsourcing" tasks to machines (p. 89). In their recent meta-analysis of studies regarding one-to-one computing, Zheng, Warschauer, Lin, & Chang (2016) argue that a Vygotskian approach to locating tools as mediators of human activity necessitates investigating and understanding their impact and

> that the affordances of computers for learning and knowledge production are radically different from those of radio, television, and film, which explains why computers, unlike those previous technologies, are bound to have a very different educational fate from the one suggested by Cuban (1993a, p. 185), who wrote that "computer meets classroom: classroom wins." (p. 1053)

These questions regarding the role that technology plays in the classroom and how it affects the social dynamic between teachers and students remain pertinent as laptops and mobile devices, one-to-one schooling initiatives, learning management systems, and online programs for managing student writing become more common in public schools. By looking closely at two classes that rely heavily—but differently—on technology as an instructional resource, this project expands the conversation about digital literacy practices and instruction to include the voices of students and teachers working with particular technology commitments and constraints.

Questions of what kind of instruction teachers should provide regarding digital literacy practices continue to surface in the literature, and the focus of how schools will address inequitable access to the internet has shifted over time from infrastructure concerns (that could be, potentially, handled by government funding and grants) to instructional concerns (that have, unfortunately, received less systematic research attention and support). Much of the research conducted at the turn of the 21st century was preoccupied with how uneven material access to new technologies might perpetuate already alarming achievement gaps. These studies focused on

the material aspect, taking shape as research into the "digital divide" between those who had regular access to the Internet and those who did not (National Telecommunications & Information Administration, 1999). In their analysis of fifteen years of data collected by the US Census Bureau and the US Department of Labor Statistics, Warschauer & Matuchniak (2010) concluded that "the reports suggest that steady progress has been made in extending home Internet access to low-income and minority households, but that gaps based on income and race still remain substantial and that there is a long way to go to achieve universal access" (p. 183). They go on to describe more complex issues of access, including how the number of computers per person in a household, the type of connection (broadband or dial-up), and social factors shape the ways people use digital tools for information, education, and entertainment purposes. They argue that "[g]iven the ongoing discrepancies in home access to digital media, achieving equity of access at school takes on greater priority" (p. 189). In other words, schools, and eventually teachers, are responsible for addressing the social inequities introduced by a number of factors that shape access to technology and to information about how to use it. Because teachers worry about—and are often evaluated on—achievement gaps in student outcomes, attention to access and instruction issues around digital literacies has the potential to impact teachers' decision making directly. This responsibility makes ignoring technology (banning laptops and cell phones; outsourcing digital literacy instruction) problematic.

Although computer and internet access has become common in schools, achieving equitable access has been further complicated by considering how this access is leveraged for learning. So, the concern becomes not how many computers per student are available, but whether and how teachers are using those resources to teach students 21st century literacy skills. In a 2002 study that drew on focus group interviews with 136 public middle and high school

students and 200 narratives about technology use in schools submitted by students, the researchers found that "[s]tudents are frustrated and increasingly dissatisfied by the digital disconnect they are experiencing at school. They cannot conceive of doing schoolwork without Internet access and yet they are not being given many opportunities in school to take advantage of the Internet." (Levin, Arafeh, Lenhart, & Rainie, 2002). This "disconnect" points to the ways that schools value and support particular digital literacy practices to the exclusion of others, even when those "others" might be practices used for educational purposes. For example, as teachers make choices about how and when digital literacy practices enter the curriculum, they are often reluctant to assign Internet-dependent homework because of limited access at home (Levin et al., 2002), anxious about spending instructional minutes on digital practices when there are institutional mandates to focus on test scores (Warschauer & Matuchniak, 2010), and distrustful of Wikipedia (and other internet sites) as a reliable source of information (boyd, 2014).

Jenkins et al. (2009) describe a growing concern about the "participation gap," defined as "unequal access to the opportunities, skills, and knowledge that will prepare youths for full participation in the world of tomorrow" (p. xii). Unlike previous studies, which attended to unequal access to hardware, this research report specifies problems of access as an instructional matter. In this framing, material access has been addressed and now the problem is passed along to individual teachers who must make decisions about using the technology made available to them. More recently, van Dijk (2017) has suggested that a second digital divide, involving the use and outcomes related to the practice of digital literacies, emerges once the gap between those who have material access and those who do not closes. She argues that "[m]ore and more research will be expected about a number of digital skills or media literacies and about actual use of digital media and their outcomes" (p. 9). The question becomes: Where do these digital skills

and literacies enter the curriculum? They enter at the point of teacher whim. Without initiatives (and funding) for training, with no actual agreement on what should be taught, teachers must make the call. This study investigates how they make that call.

Technology in the secondary ELA classroom—extensive practice, limited research

Literacy instruction has always been a concern of the ELA classroom. At the elementary level this takes shape as instruction in the fundamental skills of reading and writing. Presumed competence in reading and the disciplinary division of the school day complicate the scene at the secondary level where literacy instruction involves gaining the critical competence to participate in academic discourse. Digital literacies might be thought of as having a similar pattern, one in which young people first master the basic elements of engagement through practice, but then require instruction in the critical components. In her review of current sociocultural research on digital literacy practices, Mills (2016) contends: "While such research [in extra-curricular spaces] has provided important information about self-initiated digital practices of youth, New Literacy scholars have urged researchers to forge investigations of the new literacy practices in institutional settings" (p. 30). Greenhow and Askari (2015) confirm this gap in the literature when they report that they "found few studies that examined learners' perceptions and practices in formal learning environments. This review also found few studies that examined the perceptions and practices of actual classroom teachers (versus preservice teachers) in middle or secondary school settings" (pp. 639-640). McCorkle & Palmeri (2016), in their review of 100 years of *English Journal* articles regarding media integration into the ELA curriculum, note that

> the field has long engaged with types and forms of media beyond the print book. … Yet despite this large body of work on media pedagogy, English teachers too

> often continue to be stereotyped as conservative traditionalists committed solely to musty books and antique inkwells. (p. 19)

As they "challenge these narrow misconceptions about what our field entails," the researchers also reveal the extent to which reading and writing with multiple media—an important strand of digital literacy practice—has always been part of the English teacher's instructional domain (p. 19). Increasingly, scholars are suggesting it is also an instructional responsibility (boyd, 2014, Hicks & Turner, 2013; Jenkins, et al., 2009).

Lankshear and Knobel (2015), however, suggest that "Policy makers should resist the temptation to make curriculum the default setting for providing access to digital literacy" (p. 18). They advocate instead for "Subsidized public and homebased access to digital technologies offering opportunities for wide-ranging exploration and experimentation, as well as access to «insider»[1] expertise and support" (p. 18), and they caution that current conceptualizations of digital literacy that position it as either information-focused strategies or as a set of technical skills to be mastered and applied across unrelated contexts are reductive. They propose that "Most of what participants bring to digital literacy practices are cultural and critical «ways of doing things» rather than «operational» techniques (Lankshear & Snyder 2001)" (p. 16). They conclude that

> The experience of disjuncture on the part of learners who invest informally in «Web 2.0» when faced with «Web 1.0» within formal settings of compulsory learning is debilitating, confusing and, ultimately, destructive. Research has much to contribute to resolving such tensions within pedagogical sites. (p. 19)

[1] The original article uses this method of double carrots to emphasize text.

In other words, what is missing from our current theory and research on digital literacies is not only studies in secondary ELA classrooms where a great deal of reading and writing with new media forms is taking place, but also attention to the beliefs, attitudes, and values of students and teachers. In their comprehensive review of literature on the use of social network sites (SNS) for teaching and learning covering 2004-2014, Greenhow and Askari (2015) found only 24 empirical studies, and only one focused on US high school students—a survey of 690 students regarding their uses of Facebook to support academic collaboration. These kinds of survey-based studies miss fine-grained differences that are more readily apparent in qualitative observational and interview approaches that seek to understand how taken-for-granted and routine uses of technology can mean different things to different people, even within the same context. This dissertation seeks to address this gap in the literature by attending to how teenagers and teachers draw on their own experiences and understandings of digital literacies to negotiate the social meaning of technology in secondary classrooms.

Conclusion

Literacy studies and teacher education have much to gain from research that explores digital literacies from a qualitative and classroom-based vantage point. As this chapter has demonstrated, there is a great deal of contention regarding the impact of technology on learning and literacy practices and regarding the place of digital literacy instruction in secondary ELA classrooms populated by presumed "digital natives." At the same time, there is little research representing the beliefs, attitudes, and practices of teenagers and teachers in US secondary classrooms and, consequently, little theory grounded in data from those contexts. As Burnett (2013) suggests, "If we are to understand better the opportunities and challenges associated with using new technologies, we need to know more about the practices associated with them in

educational contexts" (p. 207). This dissertation's focus on the material resources, the curricular routines and commitments, and the beliefs, attitudes, and experiences of students and teachers as they work together in literacy classrooms is an effort to expand the conversation in digital literacy research to include empirical data on the interaction of institutional and personal uses of networked devices for reading and writing.

This complex interaction between materials, institutional constraints, instruction, and experience is frequently what's lost in survey data that smooths out differences and in extra-curricular studies where access to materials and motivation are less pressing concerns for the instructor. The beliefs, attitudes, and values that students and teachers bring to the classroom are often unpredictable and sometimes contradictory, and the participants in this study report remarkable fluidity in how they think about what technology contributes to their literacy, learning, and lives. In this dissertation, I offer *ethical frames* as a way of understanding how students and teachers define the boundaries of their literacy practices, how they frame their interactive encounters to reflect their ethos and relational commitments to various audiences, when they occupy both visible, physical networks—like that of the classroom—and virtual networks that call for reading and writing responses simultaneously.

These *ethical frames*, taken up in more detail in Chapter Four, provide a conceptual vocabulary for discussing why students may struggle with or resist digital assignments—even when they are presumed digital natives—that don't have to do with their intelligence or instruction, but with their ethical decisions to perform particular identities with different audiences. For example, many students maintain Facebook accounts in order to stay in touch with older and distant relatives. Teachers who plan a political or persuasive writing activity based on using or imitating Facebook may run into resistance from students whose *ethical frame*

for interacting on Facebook discourages engagement with controversial subjects. Teachers who stress the importance of keeping a "professional" digital footprint will find many students in agreement, but there will be a few with an ethical commitment to keeping a complete record of their identity evolution over time—even the embarrassing or childish moments. Teachers who limit or confiscate cell phones may inadvertently cut students off from important relationships. In each of these situations, and countless others like them, the problems of integrating technology and devising digital literacy instruction in the institutional context of school are bound up in an intersection of concerns about the impact of technology on critical thinking and reading, the presumed "good enough" technology competence of "digital natives," and the place of everyday communication in the ELA classroom and curriculum.

Chapter 2: "You're not wasting time, you're just spending it": A Conceptual Framework for *Ethical Frames*

"If the teacher is teaching directly and you're using your phone, you're not paying attention to the notes so you're not learning the information, but *if you're not really doing anything* and you've finished the assignment and decide to text, I think that's fine because you're not losing anything. You're not wasting time you're just spending it." (Idris)

Idris's decision in the epigraph above is not made haphazardly. He points out the difference between times in class when "a teacher is teaching directly" and when "you're not really doing anything," and he qualifies that students should have "finished the assignment." When these three conditions are met—the teacher isn't talking, the student has finished the assignment, and the class is "not really doing anything"—he judges it perfectly reasonable to turn to a cell phone and text, to connect with someone or someplace else. I argue that this decision-making process reflects, at least in part, his ethical commitments to multiple, coextensive audiences and that acknowledging this reality of classroom life and digital reading and writing is an important first step in understanding what role networked devices play in the literacy classroom and what responsibilities literacy teachers might have in developing students' digital literacy skills.

In the visible network of the class, Idris might be seen as distracted or off-task; in the virtual network mediated by his phone, he might be perceived as attentive and engaged. At the same moment, he occupies both relations with respect to different audiences. The moments in

class when students and teachers toggle between these networks and how they develop criteria—like Idris's—to determine which network to give their attention to are the focus of this study. Through analysis of the empirical data I collected for this study, I develop a grounded theory of *ethical frames* to account for the ways teachers and students responded to the demands of coextensive visible and virtual networks. In this chapter, I lay out the conceptual framework that underpins my theory of *ethical frames*, defining the relevant terms and reviewing theorizations of literacy and technology as social processes that informed my approach. As I describe my framework, I will return to Idris as but one—fairly representative—example of how the students and teachers in this study perceived the relationship between networked devices and the social organization of the classroom.

In the sections that follow, I define the terms most necessary to my analysis: networks and ethics. These terms have long histories across multiple disciplines, but I am using them here in very limited and particular ways, drawing on scholarship that specifically addresses how humans and technologies work interdependently to produce relationships through digitally-mediated reading and writing. I began with a conceptualization of the classroom as a socio-material network, with social ties mediated by social norms particular to classroom life and by material resources both provided by the school and brought in by students and teachers. Many of the social norms at each school were ones you might expect at any school and had to do with how materials were used: students sat at desks in small groups; they picked up laptops as they entered the classroom (every day from a cabinet that stored them in the room at Neptune; from the Chromecart when it was checked out to the class at Sunnydale); students were generally quiet and attentive when the teacher was standing at the front of the room to talk; they were silent when taking a test. On both campuses, more detailed social norms were materialized in writing

in each classroom and had been created by each class period at the beginning of the year. These rules invariably included a line about "appropriate use of technology." Both campuses distributed a technology policy along with a page acknowledging receipt of the rules which students were directed to sign and return in order to have access to school computers and the internet. At Neptune, students were not supposed to have their cell phones visible, but in practice it was common for them to have them out. At Sunnydale, students placed their cell phones face down on their tables as a matter of course, though this was not something the rules or the teacher ever talked about. A reliance on social norms to govern the everyday behaviors of the classroom left a gap where networked devices were concerned. All three teachers expressed concern that the social norms around cell phone and especially laptop use did not privilege academic work. When I asked Mr. Pope if he thought it was possible to teach strategies to help students manage the multiple demands on their attention, he explained:

> I assume I've taught about it by expressing my expectation that I only want you to have this open. When that's finished to a high-quality standard, then you can move onto something else. Teaching them how to do that, I guess I've never done that. I wouldn't know how to.

Mr. Pope thought the way to behave should have been obvious to students because he had expressed an expectation for a certain kind of behavior. In other words, the social norms of his classroom should have taken care of this issue rather than requiring explicit instruction. Similarly, Mr. Murdock reported:

> The phones actually haven't been much of an issue. Students just kind of got used to the general vibe of get this out when there is obviously down time. ... The laptops are more of an issue because students they just have multiple windows open, only one of which is

what they're supposed to be doing. That's the thing that on the one hand it's a problem. On the other hand, it's not something that I've really dealt with.

These teachers' reluctance to intervene in behavior that they clearly believed was affecting student performance points to the way networked technology invites multiple, sometimes conflicting, sets of social norms. During independent work time, students felt free to make their own decisions about engaging with multiple networks while teachers expected that they would stay focused on just the tasks set before them.

My research questions had to do with how the role of those material resources and the social norms associated with their use were understood and negotiated by students and teachers. I expected to hear stories of positive or negative transfer—places where participants' beliefs and attitudes about the networked devices and applications available to them for reading and writing caused them to accept or reject their use in classrooms. I did, in fact, find this to be so in limited ways, but what surprised me was the strong sense among my participants that the ways in which they read and wrote on networked devices reflected (or should reflect) their commitments to particular representations of themselves and to particular styles of relational interactions with others. As I considered the ways my participants thought of their devices as tools that aided them in constructing representations of their ethos in multiple contexts, I conceptualized their explanations as ethically grounded approaches to technology use. In short, I didn't begin the study with questions of ethics; rather, ethics emerged as a unifying lens as I listened to and interpreted my participants' reports about their decisions to use networked devices in and for the classroom. At that point, I turned to James Brown, Jr's (2015) work on the ethical programs implicit in software code that mediates human interaction and the underpinning theory of hospitality that informs his work. Following Brown, whose theory I describe in greater detail in a

subsequent section, I am taking up ethics as descriptive and rhetorical—I do not mean "ethical" in the sense of "moral" or "good," but, rather, in the descriptive sense of what participants believed to be the rhetorically desirable relationships to propose/maintain with their audiences/interlocutors. In Chapter Four, I develop a theory of *ethical frames* to account for the varying ways that participants reported networked devices as mediating their relationships with the self, known others, school, and society. In the remainder of this chapter, I describe the sociocultural literacy and actor-network theories that shaped my view of the literacy classroom as a sociomaterial network suffused with relationships between people, tools, and literacy practices, and I explain how I am using concepts of networks and ethics to build a theoretical lens for unpacking uses of networked devices in and for the classroom.

The sociality and materiality of literacy

While early conceptions of literacy treated reading and writing as individual cognitive abilities that underpinned the progress of science and society (cf. Goody & Watt, 1963; Olson, 1977; Ong, 1982), literacy researchers have repeatedly found that rigorous attention to how learners practice their literacies involves producing knowledge in specific contexts. Building on the work of Lev Vygotsky (1978) in cultural-historical psychology, the field of literacy studies underwent a "social turn" that moved the focus from interior cognitive processes to social interaction as the primary site of investigation (Mills, 2010). Ethnographies on the Vai in Liberia (Scribner & Cole, 1981), segregated communities in Appalachia (Heath, 1983), and the villagers of Masheed in Iran (Street, 1984), meticulously documented the interdependence of literacy practices and the contexts in which they took place. Each of these studies suggested the presence of multiple literacies and attempted to explain differences in literacy practices as bound up with the sites of their production.

In their quest to understand whether literacy had a developmental impact on cognitive patterns, Scribner & Cole (1981) conducted ethnographic research in Liberia with the Vai, an indigenous people who primarily relied on agriculture but also had a reputation as skilled craftsmen and traders. Drawing on interviews, observation, and experimental tasks, conducted in the mid-1970s, they developed a comparative case study of the three groups they identified among the Vai—schooled people, Vai script literates, and nonliterates—in order to determine whether literacy had measurable effects on cognition that could be separated from the effects of schooling. Their findings suggest that schooling and literacy produce different effects, literacy effects being more localized to specific tasks and schooling more generalized, and especially effective for developing explanations for why a task is carried out in a specific way (p. 254). With regard to my research questions about the role of networked devices and their associated digital literacies in school, might schooling—while leveraging the affordances of networked technologies for content and communication—offer in return some strategies for developing meta-knowledge or meta-language for the digital literacies associated with such technologies?

As Scribner & Cole point out, an exigence for their study was an implicit assumption that literacy was a necessary precondition for societal progress: "The rationale for massive literacy campaigns reveals a strong affinity to scholarly speculations about the cognitive consequences of literacy, and carries this line of thinking into the realm of economic and political development" (p. 14). Once all people have access to literacy, the argument goes, all people will be able to engage in the kinds of social and economic patterns that promoted progress and prosperity in the west. This assumption—which Harvey Graff (1979) famously identified as "the literacy myth"—motivated global literacy initiatives that struggled to produce the gains promised. In spite of the direct relationship between literacy and prosperity being largely debunked, this line of thinking

will seem familiar to scholars of technology integration in schools, where grants for computer labs, one-to-one devices, and broadband internet access are common and often thought to be the solution to persistent resource and achievement gaps. In Chapter Five, I discuss how policies position technology integration as the key to 21st century skills for all students, proposing solutions such as virtual reality science labs and distance learning for under-staffed schools as solutions without taking up issues of labor, training, and teachers' or students' beliefs and attitudes.

In spite of policy statements and funding initiatives, beliefs and attitudes about technology vary widely. It is common to find arguments both that students today are reading and writing more than ever before because of the material presence of networked devices (particularly the expanded possibilities for immediate audiences) and that academic conventions of writing (capitalization, punctuation, and spelling, especially) are being ruined by the material practice of reading and writing on devices. Notably, these "declines" in convention are parleyed as evidence of impoverished engagement and declining critical thinking skills. In some ways this is an inverted literacy myth—the consequences of literacies practiced on networked devices are negative. Networked access is constructed as a necessity whose impact is more contested. This contested impact is evident in how students and teachers talk about their reliance on technology as sometimes a necessity and sometimes an addiction. As I analyze what participants in this study said, I am particularly interested in how they make distinctions between the device itself, the reading and writing they do on it, and the relations that it mediates.

In Heath's (1983) foundational study of overlap and competition between context-produced literacy practices in three communities in Appalachia, she found that the literacy practices of children from poor rural communities were different from those of the middle-class

mainstream classroom. The ways children learned to read, write, and participate in conversation did not always align with teachers' expectations, causing problems for students when they were considered uncooperative or incapable. For example, Heath explained that children from the poor rural black community "do not expect adults to ask them questions…[and] are not seen as information givers or question answerers. This is especially true of questions for which adults already have the answer" (p. 103). Children from the poor rural white community had experience with being asked such questions in Sunday school, but they struggled with other aspects of classroom literacy. They were resistant to generating stories that strayed too far from real events, and "only if a certain frame for asserting a departure from reality is introduced do the children move into creating fictive stories" (p. 162). When children from these communities entered school with middle-class mainstream peers, their teachers

> indicated that they had found some students had difficulty following a unilinear pattern of development from learning labels and features, to producing running narratives on items and events, and asking and answering questions about these. This seemingly "natural" sequence of habits for them as mainstreamers was "unnatural" for many of their students (p. 270).

Children of both races who grew up in town struggled less with these kinds of implicit cultural differences. They performed better than their rural peers and posed fewer behavior problems—not because they were "smarter" but because they were more familiar with the literacy practices valued in a classroom context, more in tune with the social norms surrounding academic literacy. Heath's work suggested that understanding these different "ways with words" opens new curricular possibilities for bridging literacy practices between home and school contexts.

In the sociomaterial networks of contemporary classrooms, students' habitual uses of networked devices are rarely structured or conditioned by school, instead emerging from their interactions with family and friends. Like the preschoolers in Heath's study, they come to school with a host of reading and writing practices developed outside of school. In researching how students and teachers understand the role of these devices in classrooms, I am wondering if there aren't similar moments of disconnect between digital literacy practices and classroom literacies that on closer examination could yield pedagogical possibilities.

These ethnographic studies of literacy posited that what people read and wrote depended less on the inherent capability of the individual and more on the social norms guiding their reading and writing practices in particular places. Networked technologies introduce a wrinkle. Theorizations of how local contexts support and condition literacy practices have taken the boundaries of the local as somewhat stable, but networked technologies and the material infrastructure they utilize frequently disrupt and destabilize those boundaries. Literacy, education, and composition scholars have tentatively begun to try to account for the opening of local contexts to outside actors through networked connections, drawing on actor-network theory (Brandt & Clinton 2002; Clarke, 2002; Fenwick & Edwards, 2011; Lynch & Rivers, 2015), sociology of scientific knowledge studies (Wenger, 1998), and theories of sociomateriality (Haas, 1995; Micciche, 2014) to theorize how material(s) organize and respond to human communication systems.

In their 2002 piece, "The Limits of the Local," literacy scholars Brandt & Clinton (2002) suggest that the push to advance social constructions of literacy in opposition to autonomous notions left considerations of the material aspects, with their "transcontextualized and transcontextualizing potentials of literacy – particularly its ability to travel, integrate, and

endure," underexplored and undertheorized. (p. 337). Brandt & Clinton make an argument for literacy as an "actant" in the Latourean sense; literacy "participates in social practices in the form of objects and technologies, whose meanings are not usually created nor exhausted by the locales in which they are taken up" (p. 338). As an example, they reinterpret a moment from a study where respected grandmothers can be found wearing t-shirts bearing English language profanities. While the ethnographer suggests that the meaning of the t-shirts has been changed by the local culture – reinterpreted as a sign of status, Brandt & Clinton argue that the shirts still retain something of their original meaning, especially if someone who reads English is on the scene. In other words, the material (and often mobile) realities of literacy practices can mean different things to different people, even when they share a physical context. This is one of the transcontextualizing potentials of literacy that they argue deserves more attention from a networked perspective. They note that

> Bringing objects into play, according to Latour, allows us to understand that society exists nowhere else except in local situations but also to understand that, with the help of objects, lots of different kinds of activities can be going on in and across local situations – including aggregating, globalizing, objectifying, disrupting or dislocating. (Brandt & Clinton, 2002, p. 346)

As literacy artifacts—like the English language t-shirts in Brandt & Clinton's example, or like the policy documents I take up in Chapter Five—move across contexts, they are often transformed by local actors, assigned new associations and multiple meanings, but they also maintain something of their original intent and occasionally serve as mediators between global and local or between geographically distant local contexts. Brandt & Clinton argue for "perspectives that show the various hybrids, alliances, and multiple agents and agencies that

simultaneously occupy acts of reading and writing. Agency is indeed alive and well in reading and writing but it is not a solo performance" (p. 347). As my participants talk about what the networked objects they carry with them mean to them, they introduce new associations to the classroom and to their reading and writing practices.

Composition scholar Micciche (2014) takes an even stronger stance, drawing on science, technology, and society (STS) literature (notably Barad, 2007) to argue that "the 'social turn' has hardened into repressive orthodoxy and failed to keep pace with a changing world" (p. 488). She adds that "we often proceed as teachers and scholars as if writing can be plucked from the everyday and treated as a stand-alone activity, one that reaches outcomes, fills preexisting genres, serves as stable evidence of one kind or another," suggesting that writing practices are inextricably entangled with the tools, technologies, and affective states available to the writer (p. 501). Latour argues that the work of actor-network theory is to trace the associations between such nodes—which are connected moment-to-moment in different configurations as actors communicate or mediate messages—often in writing.

Rhetoric and composition scholars Paul Lynch and Nathaniel Rivers (2015) note that "Latour might not see himself as a 'compositionist,' but his pursuit of truth production always works according to the maxim '*Follow the writing*'" (p. 9). A maxim that employs the oft-maligned principle of symmetry, which Lynch and Rivers describe in this way: "symmetry asks only this: if we see a human actor, acting, look for the nonhuman actors as well" (p. 10). In other words, symmetry is not meant to rob humans of agency nor to suggest that objects have agency that is equal to that of humans (Latour, 2007, p. 76). Rather, it points out that objects are made of associations and acknowledging those associations is critical to understanding how objects "renew the repertoire of social ties" (p. 233).

What associations make up Idris's cell phone? As his example in the epigraph suggests, the addition of networked devices, and the digital literacy practices supported by them, complicates the idea of "sites of production" and expands the potential "social" context, introducing associations which can no longer (if they ever could) be taken for granted, but must be "reassembled" by learning from actors "what the collective existence has become in their hands, which methods they have elaborated to make it fit together, which accounts could best define the new associations that they have been forced to establish" (Latour, 2007, p. 12). Is the text Idris composed during class located in the classroom, in the space/place of his phone, or both? How do his literacy practices have an impact on both the local context in which he produces the text and in contexts beyond the walls of the classroom? Where does the writing lead and what does it bring back to the local context? In thinking through whether and how teachers and students negotiated the role of networked technologies in classrooms, this dissertation asks: how do the literacy practices of coextensive visible and virtual network "contexts" converge in something as simple as Idris's text?

Networks

To understand why Idris sometimes perceives texting in class as not wasting time, but spending it (through an *ethical frames* lens), it is important to understand how I am conceptualizing the idea of *coextensive visible and virtual networks*. It is an expression that I will return to throughout the dissertation because it is the feature that networked devices introduce into the traditional classroom social system: the possibility of participating in both visible and virtual (invisible) social networks with active interlocutors simultaneously. As Figure 1 suggests, the visible network of the classroom includes the people and materials that can be easily monitored be co-present others and is most active between the students and teacher present.

While the school principal or a district administrator may occasionally drop by the classroom to observe or make an announcement, the classroom, as it is traditionally constituted, is a fairly closed environment. Even if we were to add the networked replacements for print—like course readings housed on the LMS or essays submitted through Turnitin.com—the network, as far as the students and teacher experience it, remains closed to outside interference. Students and teachers from other classes do not interact with the materials circulated through the LMS, the Google collaborative suite, or peer and teacher feedback programs like Turnitin unless they are specifically invited to. In this way, networked tools that are designed for education frequently mimic the closed network of the classroom. A graph that illustrates the way an LMS distributes a course reading from the teacher to students, supports a forum where students respond to each other, or manages the submission of work from students to the teacher would increase the density of the connections illustrated in Figure 1, but it would not extend them beyond the visible network of the classroom and the people within it who are subject to the policies and norms—and the power relations implicit in them—of the classroom.

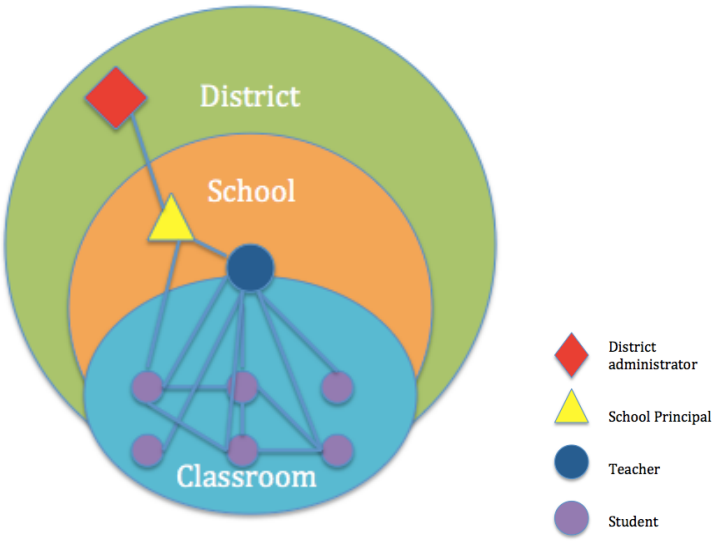

Figure 1: The visible network of the classroom

In *Life in Classrooms*, Philip Jackson (1968) theorizes the members of a classroom as a "crowd." He observes that classroom crowds are special because, unlike the crowds at movie theaters, grocery stores, or other spaces where people congregate, the people in classrooms are compelled to be there; they know each other and are often expected to work together. They are, perhaps just as often, expected to "try to behave as if they were in solitude, when in point of fact, they are not" (p. 17). These aspects—compulsory attendance, social familiarity, and the expectation that members will work well together while also being able to productively ignore each other—characterize the classroom crowd. These characteristics have important implications when thinking about how networked devices intervene in the closed network of the classroom. In other kinds of "crowd" situations, time and task are closely related. Everyone leaves the theater when the movie is over. People circulate through the grocery store individually, coming and going according to the completion of the task. At religious ceremonies and at workplaces, people are organized to do things together or individually, but rarely are they expected to invent things to do while they wait for others, nor do they often access these spaces remotely unless they are doing particular kinds of knowledge or content-creation work. Participation is usually voluntary and collaboration is often optional.

Not so in the classroom. Instead, as Jackson observed, time often drives the action without respect to task. The bell rings and everyone moves to the next subject, whether they are finished with this one or not. Collaborative work has to be completed even when collaborators are absent. Idris finds himself "not really doing anything" in the middle of class while he waits for the teacher to signal a transition. Teachers do what they can to ameliorate this situation by lesson planning with the needs of individual students and the pace of the group in mind. When teachers plan mini-lessons, group activities, and individual work time, they time those activities

to try to balance the needs of the group and the individual. When students find themselves ahead of the group, having "finished the assignment" as Idris put it, they have to make decisions about what to do with the time while they wait for the teacher to signal that the group is ready to move on. Reading a book, turning to other work for the class, or completing work for other classes are common ways that students deal with these moments. Less ideal strategies include putting one's head down, passing notes, or engaging in conversation with peers, and these activities are often interrupted by teachers who suggest instructional activities, collect notes, or point out the disruptive aspects of conversation while others in the room are working. With networked devices in hand, though, students have the option to interact with people in their virtual networks. These interactions cause less disruption to the visible network because they mimic more closely the kinds of desirable reading and working activities teachers would usually suggest, but they introduce an open network into a closed system. They often involve an invisible other, who is outside of the teacher's surveillance and control—outside the closed network of the classroom. Every minute of class that goes by in this fashion presents the student with an ethical dilemma: who do they want to be with respect to the co-extensive visible and virtual networks they are simultaneously participating in?

Figure 2 demonstrates the changed social situation in a classroom where networked devices are present. Some students are connected to some platforms (Facebook, Instagram, Twitter, and Snapchat were the most commonly named among my study participants), which then connect them to other people available for interaction. In addition, many students text directly, most commonly with Mom or another close family member. Teachers, principals, and administrators are also frequently connected to Facebook and Twitter through school-sponsored sites and school-connected hashtags, even if their personal use of social media is limited or

restricts student access and interaction. The figure below is a mock-up of potential social interactions when networked devices are present in the classroom. In reality there are at least four times as many students in a typical classroom (five to nine times as many students present in the two classes I observed), and each student has a specific virtual network configuration, some more open and others more closed. In addition, the individual networks that students bring with them each day are not stable entities, but dynamic assemblages, subject to change as students alter the communities they participate in and the nature of their involvement.

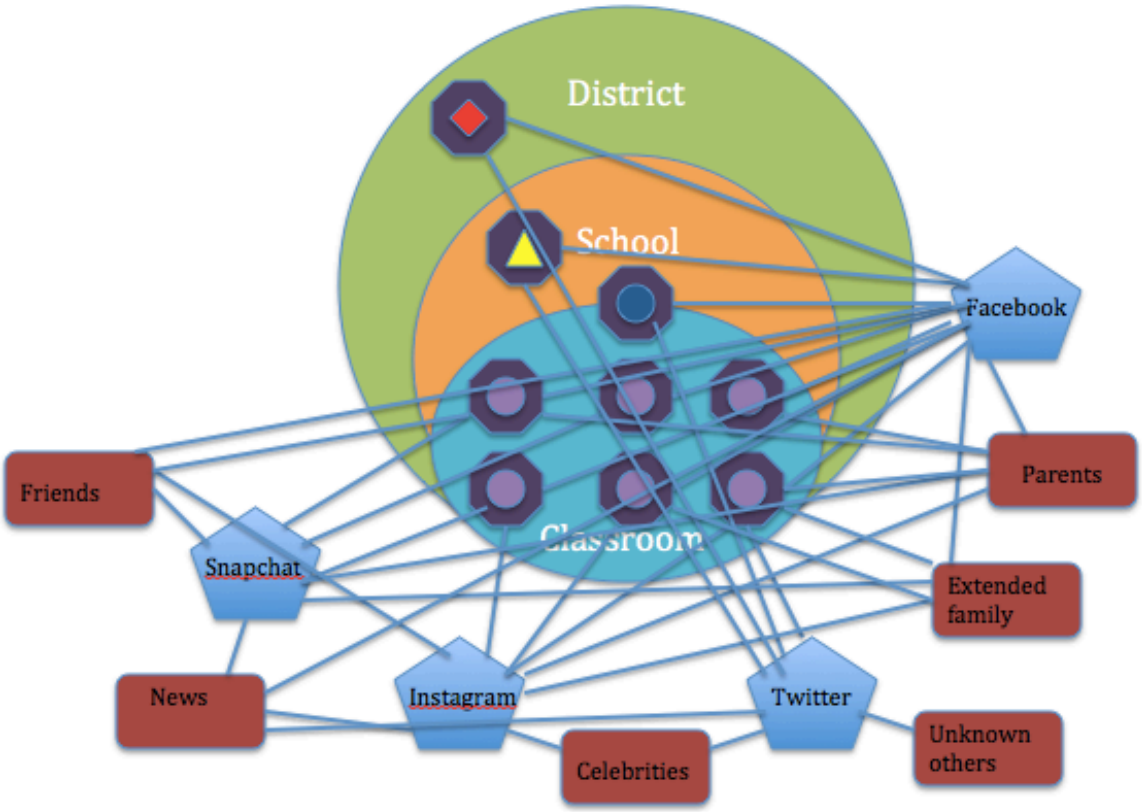

Figure 2: The virtual network of the classroom

Networked devices, represented by dark purple octagons in the figure, connect students to individuals as well as to platforms that branch out to sets of individuals, further networks that are more or less open depending on the structure of the platform and how individual privacy settings

are configured. Students who text Mom, post about school-related people and events, or record and share classroom events on their phones are changing the boundaries of the classroom network in consequential and unpredictable ways. In a Latourean sense, the social network is not a stable, predictable entity, but a fresh assembly every day. In asking students what they use their devices for during class time, this project is making a move to "reassemble" the social space of the classroom context in enough detail to begin conversations about how to address this complexity that move beyond cell-phone bans, uncritical tech use, or resignation.

In-person networks are perpetually overlaid with these possibilities for virtual interaction, prompting Turkle (2011) to claim that teenagers today spend the majority of their time "alone together," deeply engaged in their phones while sitting next to one another. But this observation would come as no surprise to readers of Jackson, who observed 44 years prior that "young people, if they are to become successful students, must learn how to be alone in a crowd" (p.17). Where Jackson argues that ignoring co-present others—being "alone in a crowd"—is a necessary skill for success in school, Turkle worries that young people have become too good at it, preferring an uncomplicated relationship with a device to a potentially messier interaction with a person. Is this simply a disagreement regarding how much of our attention should be invested in those physically present? Is it a difference in the way the social norms and networks of the classroom (the crowd) are structured compared to other kinds of social groups?[2] Or could it be that the way networked devices support this skill (a topic that—reasonably— Jackson did not take up in 1968) introduces new challenges to the traditional social norms of the classroom? Idris's example is instructive here: like the majority of study participants, he believes his

[2] Turkle seems to be most concerned about family and friend groups in the studies where she emphasizes the threat of preferring technologies to people. Teachers, on the other hand, are often focused on keeping things running smoothly, which sometimes means asking students to ignore one another.

attention should be on the teacher when the teacher is talking; he also acknowledges that there are times in class where he is waiting; when these times occur, he treats them just as he does any other time he finds himself waiting—he takes a moment to connect with someone outside the local system who is, perhaps, stranded in a moment of waiting as well.

Dilemmas regarding how students allocate their attention in the classroom predate the presence of networked devices, but these devices have introduced new relational opportunities to the classroom. In fact, much of what teenagers do with social media would seem specifically designed to take productive advantage of spontaneous or unexpected moments of discretionary time in class. Idris lays out fairly clearly what conditions authorize his use of a cell phone in class, but not all students approached their devices in this way. They made different choices—perhaps no better or worse, but rather more or less aligned with their teachers' expectations—based on different commitments to self, known others, school, and society. In the next section, I discuss how these decisions can be thought of as ethical in nature, writing choices that reflect the kinds of people students say they want to be for different audiences.

Ethics

Ethics was not an original focus of my study, but, rather, an organizing concept that emerged from my data. How students and teachers talked about the ethical dilemmas proposed by the introduction of networked devices into the classroom—in part by having different patterns of reading and writing for different categories of relationship—is the focus of Chapter Four. To facilitate that analysis, I provide here a brief explanation of how I am conceptualizing ethics. Idris's criteria for turning to his cell phone during lulls in classroom activity provides a way into thinking about students' uses of tech in the classroom not as addictive or compulsive (as obstacle-focused researchers might argue), but instead as what James Brown, Jr. (2015) calls an

ethical program. Brown defines an ethical program as "the procedures we develop in order to deal with ethical predicaments (a program of action). An ethical program, computational or otherwise, is a set of steps taken to address an ethical predicament" (p. 5). Brown draws on Derrida's theory of hospitality to explain how networked devices implicitly require their users to "host" messages from others and to arrive on others' devices as "guests." Understanding ethics as grounded in hospitable relations helps account for the varying ways students and teachers in this study justified their uses of technology to invite or exclude others in classroom networks. In the remainder of this section, I lay out Derrida's conception of the challenge of hospitality and Brown's proposal that these challenges construct technology-mediated relations between humans as ethical in nature.

In *Of Hospitality*, Derrida explains that there are "two regimes of a law of hospitality: the unconditional or hyperbolical on the one hand, and the conditional and juridico-political, even the ethical, on the other: ethics in fact straddling the two, depending on whether the living environment is governed wholly by fixed principles of respect and donation, or by exchange, proportion, a norm, etc" (Derrida & Dufourmantelle , 2000, pp. 135-137). The hyperbolical Law of hospitality demands that a host unconditionally accept and protect the foreigner who arrives at the door. Derrida uses the Biblical story of Lot offering his daughters, rather than his angelic guests, to the violent mob at his door. This illustration of the Law of hospitality suggests that guests must be received and protected, even at outrageous cost to the host. In doing so, it suggests that the host is a hostage to his guests, that the relation between them, in practice, is not as straightforward as it appears. It also illustrates two elements of hospitality that are worth noting before we consider the ways in which classrooms may or may not be subject to the Law and laws of hospitality.

First: hospitality requires alterity. It constitutes itself in response to the problem of negotiating the relationship between a self and an "other," a native and a foreigner, a host and a guest. As a threshold between inside and outside, the door marks both a boundary and a bridge between the home, or self, and the other. It defines who belongs inside and who is "foreign" while also offering the possibility of connecting the two. The "foreigner," or guest, retains alterity—in the case of Lot's story, the angels' status as guests require that Lot provide special protection that Lot's daughters, as natives to the house, do not command. The necessity of host/guest, native/foreigner, self/other is important because the conditional laws of hospitality that rise up in the wake of an impossible-to-implement Law of hospitality sometimes hinge on defining who counts as a foreigner. Derrida gives the example of Socrates pleading for "foreigner" status when he asks the court condemning him to consider that he does not speak the language of the law. This move introduces the possibility that speaking a different "language"—in this case, the language of philosophy rather than the language of rhetoric or law—is enough to mark one as a foreigner and demand the protections of hospitality. In contemporary classrooms, networked devices introduce a kind of hosting place—through cell phones, email accounts, multiple windows on laptops, we open the possibility of receiving guests from the outside. May, a student at Sunnydale, remarked that one of her teachers pointed out that there was no reason teachers should be irritated with students when their phones went off in class because you can't help who calls you. The device is a place of receiving, and as a result, it is a place of ethical decision-making: who is let in and who is excluded. Conversations about networked devices that position teens (and adults) as addicted, unable to resist the pull of a notification, miss this crucial social sorting aspect of the person-device interaction.

Second: hospitality requires proximity. Only once the self and other, the host and guest, the native and the foreigner come into contact with one another do the Law and laws of hospitality engage. Once again, defining what constitutes proximity isn't always straightforward, especially in a networked age. Derrida gestures toward the complications introduced by e-mail and the internet when he remarks that "the accelerated deployment of particular technologies increases more rapidly than ever the scope and power of what is called private sociality, far beyond the territory of measurable-surveyable space, where it has never been possible to keep it anyway" (Derrida & Dufourmantelle , 2000, p. 57). In other words, the ways technology collapses geographical barriers to proximity with others complicates the boundaries that structure the Law and laws of hospitality, as well as the boundaries of the classroom network. In a brief moment between classroom activities, Idris can read a text from an arriving other and feel more proximate to that relationship than to his co-present peers, whom he may be ignoring for the sake of preserving the social norms of the classroom.

James Brown, Jr. argues that Derrida "saw the problem of hospitality as one that was exposed, in a particularly radical way, by networked technologies" (2015, p. 10) because

> Networked life forces us to interact with others, even when we haven't extended an invitation and even when we haven't been invited. Life in a networked society—one in which information and bodies constantly move and collide—means never getting to be alone and never getting to be offline. (p. 1)

The experience of never being alone—or being "alone together"— is one that is familiar to students and teachers, who move through classroom spaces with the constant presence of others. In addition to this physical proximity, teachers and students today are subject to arrivals through virtual proximity, subjecting them to overlapping, sometimes competing, decisions regarding

hospitality. Brown, Jr. notes that the "Law of hospitality in a networked society is connectivity, and the laws of hospitality are written in response to this unrelenting fact of connectivity. These laws are particular, contingent responses to situations, and they are attempts to make ethical determinations" (2015, p. 24). Brown gives the example of logging into a bank account: if your login credentials are incorrect three times in a row, the bank's software runs an ethical program that shuts down online access to your account to protect both you, as account holder, and the institution from fraud. At that point, you might have to call and speak to one of the bank's representatives—a person who will run a different sort of ethical program in the form of questions to verify your identity and your right to access the account. Importantly, Brown notes that this characterization of the internet as hospitable should not be understood in terms of the kindness or generosity that we typically associate with hospitality. Instead, the term describes the ethical difficulties of a networked society, one in which we are forced to face up to others that arrive in spaces, digital or otherwise. (p. 23)

Brown concludes that "hospitality is the defining ethical predicament of networked life," because we are always in a state of choosing whether to engage or disengage with arriving others (p. 28). In these conditions, "ethical programs enact rules, procedures, and heuristics about how (or whether) interactions should happen" (p. 6). While Brown focuses his analysis on the ethical programs that software enacts in a series of case studies, this dissertation considers the "rules, procedures, and heuristics" of human actors, particularly as they try to define boundaries around and between the overlapping visible and virtual networks that take shape in two high school ELA classrooms.

To that end, I propose a theory of *ethical frames* to account for the ways students and teachers perceive and make decisions about what Heath (1983) called "the interactional rules for

occasions of language use" (p. 344). The coextensive visible and virtual social networks of the classroom create conditions for students and teachers to constantly create and recreate relationships with one another and with actors outside of the classroom space, redrawing the map of their interactions. These relationships are materialized in writing and mediated by technology, and students and teachers take different approaches to creating and maintaining them. These boundaries are not automatic, and they can shift as students' perceptions of their relationship to different audiences are redrawn. Students are not locked into particular responses the way computer programs script interactions. Unlike programs devised to answer particular ethical dilemmas, *ethical frames* represent orientations toward defining who is included or excluded, who is answered and who is, as my 16-year-old niece Mahala puts it, "left on open." For students in this study their decisions to read and write on networked devices were bound up with the kinds of relationships they perceived their devices mediating.

Ethical frames

In the physical space of the classroom, students must adhere to the hospitable social code of the classroom crowd. They must behave in a way that is conducive to the group's progress. At the same time, they have hospitable commitments to individuals and groups in the overlapping virtual environments they participate in. When they answer the call of virtual others, they separate from the physical group, sometimes—but not always—in ways that are perceived as violations of classroom hospitality. This competition between hospitable commitments is an ethical dilemma brought on by the way networked devices promise the possibility of our continual presence and engagement, even as we move through physical environments that demand some share of our attention. Networked users must balance the demands of the multiple contexts they are present in, weighing the costs and benefits of taking action, or failing to take

action, when they are occupying overlapping virtual and physical spaces. This dissertation argues that a theory of *ethical frames* begins to account for how students and teachers use technology in and between the visible and virtual networks of the classroom.

By drawing attention to the way participants decide to include or exclude networked others, an *ethical frames* lens recasts the decisions that teachers and students make to read and write in and for the classroom as materializations of ethical relations. For example, Mr. Pope reports checking his phone "every half hour" throughout the school day in case his wife or young son need him, and I more than once observed him or Ms. Murphy searching for articles and videos for the class period's activities while students were logging into devices and completing vocabulary activities. Mr. Murdock, on the other hand, was rarely on his phone or laptop unless he was responding to student work or, as he put it, "improvising" the lesson. Students like Nelly, an 11th grader at Sunnydale, avoid looking at their phones during class, while her classmate Idris sees no issue with taking a few moments to check one's notifications and send a text if necessary. At Neptune, students were more united in their commitment to checking their phones, citing the responsibilities they had to people and places beyond the classroom walls. Each of these participants thinks of themselves as in relation to the co-present others in the classroom and in relation to their friends, family, and interests outside the classroom, and when they are confronted with making a choice between them, they are faced with an ethical dilemma that calls for an ethical response.

Ethical frames represent the reading and writing decisions to include or exclude content or actors on the other end of a networked connection for the purpose of establishing or maintaining the desired relationship. Essentially, I argue that the decisions students and teachers make as they toggle between audiences that are available to them in the coextensive visible and

virtual networks of the classroom are best understood as a process of making ethical decisions and preserving ethical orientations toward their in-person and virtual audiences. Attending to ethical motives, rather than behaviors or products, has implications for the curricular focus of the literacy classroom, and will call for different ways of thinking about how both print and digital literacies are valued and taught.

From an *ethical frames* perspective, the ELA curriculum would be centered on the relationships that students currently propose and maintain when they write in digital environments and then build connections between those relationships and the digital literacy practices that maintain them and new academic and civic relationships that their teachers would be able to scaffold them into. Both product and process would be subordinate to these ethical concerns, which would likely vary from student to student. Every reading and writing assignment would be able to answer the questions: what relationship does this assignment ask my students to propose? How does it build on the relationships that they have already built and the *ethical frames* that guide their ways of maintaining those relationships? What expertise does the teacher have or need to successfully introduce them to these new ways of relating in reading and writing? In chapters four and five, I analyze my empirical data through this lens, identifying the *ethical frames* that my participants adopted and unpacking how these frames defined the boundaries of their reading and writing practices on networked devices.

As the previous chapter demonstrated, much of the research produced regarding digital literacy practices in schools has focused on issues of material access with a more recent turn to concerns about access to high quality instruction and professional development to support such instruction. In the classrooms I observed for this study—and in many other classrooms I have observed as a high school teacher and a teacher-educator—these tool- and skills-oriented

approaches to technology integration have not brought about the kind of transformational change promised by the opportunity-focused researchers. Nor have they adequately addressed the deeply-felt concerns of those in the obstacle-focused camp. Because literacy practices have a sociomaterial dimension and because the meanings and uses of technology are multiple, students and teachers frequently find themselves making decisions about whether, when, and how to use the technologies at their disposal according to the perceived hospitality demands of the situation. I argue here that these are not material or instructional problems, but, rather, relational ones. They are questions of ethics—of how we consider and construct ethos through reading and writing with those to whom we are physically and virtually proximate.

The condition of "never getting to be alone and never getting to be offline" is one that many of the participants of this study describe, in both positive and negative ways. For the seven to eight hours a day that they are compelled to be in classrooms, they make periodic decisions about how much of their online life can be ignored. Students, and teachers to some extent, were negotiating across multiple sets of ethical circumstances at once. They were responding to "the problem of hospitality [which is] coextensive with the ethical problem. It is always about answering for a dwelling place, for one's identity, one's space, one's limits, for the ethos as abode, habitation, house, hearth, family, home" (Derrida & Dufourmantelle, 2000, pp. 149-151). In all our decisions about "occasions for language use," we are writing and revising our boundaries between self and other, claiming our territory in a way that is a pre-condition of welcoming someone into it.

Though the hierarchies of teacher-student dynamics are often obscured, taken for granted, or else resisted in an effort to center students and democratize the classroom, teachers are still frequently positioned as welcoming students into classrooms. Teachers prepare the space and

structure the interaction. They monitor the door, deciding who comes in and who leaves, thus setting themselves up as the host by default. Against this role, students are guests, but not in the usual sense. They are routine guests, familiar with the rhythms of the place and sometimes contributing to or upending them. They are the close-connected other—to the teacher and to their peers—what Heath (2012) has theorized as the "intimate stranger" (p. 47). Alterity and proximity are constant features of both classrooms and networked communication. Students arrive at the door, and with each student, a virtual network of others approaches. Derrida considers how the boundaries and privacy of the home are both constituted and threatened under different regimes of hospitality and Brown extends those considerations to the boundaries between ourselves and the technological "dwelling places" that we inhabit and port with us in the form of networked devices. My analysis explores the ways in which students and teachers in classrooms are subject to two kinds of hospitality considerations—those in the visible and virtual networks present in the classroom. As I investigated how students and teachers were negotiating the role of technology in the literacy classroom, I found them constantly balancing the demands of others who were physically proximate to them with the demands of others who were virtually proximate. They frequently did this through reading and writing, in person and on networked devices. These are the conditions of classroom life in the 21st century, and while they are not entirely unfamiliar, they are amplified and complicated by invisible others arriving at the digital windows of the classroom, pressing to get in.

Chapter 3: Research Design and Methodology

Study design

In the previous chapters, I presented some of the common discourses shaping the conversations about teens' uses of technology and technology integration in English language arts classrooms, and I laid out a theoretical framework that aims to complicate those discourses by focusing on the social and relational aspects—the *ethical frames*—that students and teachers bring with them to the practice of digital literacies in and for the classroom. I argue that students and teachers are negotiating multiple, sometimes competing, ethical commitments as they make decisions about what, when, where, and with whom they read and write on networked devices. In this chapter, I describe how I collected data on the classroom context and how I elicited teachers' and students' perspectives on their decision-making processes when reading and writing on networked devices.

This chapter outlines the design of the study and explains the methods employed to collect, code, and analyze the data. It also addresses my own subjectivity as a former high school English teacher and the subjectivity of my role as a researcher embedded in a high school classroom. In this qualitative ethnography, I had two overarching goals: 1) to address a gap in current digital literacy research by bringing the perspectives of high school students and teachers into the conversation regarding networked devices and their use in classrooms and 2) to generate a theory about the decisions that students and teachers make about using networked devices in

and for the classroom that was grounded in empirical data collected from classroom-related actors.

Because this study engages both what students and teachers do with technology in classrooms and what they perceive to be their motivations for using technology in particular ways, I paired classroom observations of both the routine ways technology was employed as well as attention to moments of technological interference with interviews that asked students and teachers to explain the decision-making processes that underpinned both routine and unusual uses of technology. In addition, I collected school documents that explained official policies regarding technology in order to contextualize the constraints within which students and teachers were making digital reading and writing decisions. I analyzed the documents, interviews, and field notes through inductive, thematic coding.

Research sites and recruitment

I am a veteran high school teacher who worked primarily in large, urban, low-income schools with students from diverse ethnic, racial, linguistic, socioeconomic, and disability backgrounds. My experience as a teacher at these schools led me to believe that one of the principle values of public schooling is the possibility of gaining contact with people who bring a different perspective to the world, its problems, and the ways we communicate about them. I wanted a research site that offered opportunities to observe students and teachers communicating across differences and using technology to write for both social and academic reasons. I obtained IRB approval for my recruitment, interview, and observation protocols, and I initially pursued a large comprehensive high school where a colleague put me in touch with a teacher who had been a former student of hers. The teacher was enthusiastic, and I gained verbal approval from the principal, who reported that he forwarded my request to the district office and repeatedly assured

me that permission was forthcoming. Approval from the district languished for weeks and eventually resolved when I reached out to the assistant superintendent who informed me that he had never received the request from the principal and that—even though their policy documents clearly promoted the idea of collaborating with nearby universities—the district never approved research on their campuses. I mention this not only to document my process, but also because I suspect these kinds of hurdles to conducting research in secondary classrooms are common and could be a reason that so little research has been conducted on youth and technology in secondary classrooms that was not initiated by the classroom teacher.

Having lost two months of the school year, I reached out again to my professional and personal network to see if anyone had connections with local schools that might admit a researcher. Ultimately, I gained administrative permission to conduct research at my younger child's high school, where my spouse worked as an English teacher and where I had previously conducted a brief research project for a qualitative methods class. I was a familiar presence to many of the teachers and students there, and this gave me a head start in forming trusting relationships with participants at Sunnydale.

Sunnydale High School met my desire to speak with a population of students from diverse backgrounds in one sense because Sunnydale served a substantial Muslim population, which the school perceived and leveraged as an asset in their promotional materials. However, as a public magnet school without bussing services, its population tended toward middle and upper-middle class—families who could afford the time and expense of commuting to campus. While Jenkins et al. (2009) note that "the Pew survey found no significant difference in participation by race or ethnicity" (p. 3) with regard to creating media on networked platforms, my experiences growing up in intermittent poverty and teaching students from low-income backgrounds

suggested to me that students who were balancing the kinds of demands made on low-income families with school and social activities would provide a different and valuable perspective on the ways young people were using technology to communicate and coordinate as they pursued social and academic goals. I spoke to an administrator at Sunnydale about my desire to gain access to an additional research site with a different socio-economic profile, and she put me in touch with the principal at nearby Neptune High School.

I contacted the principle of Neptune High in early November. On the day I went to meet with him, the school's water pipes had burst, and school had been canceled for the day. I returned the following week, and learned that the school had hosted researchers from my institution before. He gave me a tour of the school, introduced me to the English teachers, and approved my request to conduct research, sending me to the district office to complete the paperwork. Teachers at Neptune co-taught in interdisciplinary pairs. The 9th and 11th grade teachers combined English and social studies while the 10th and 12th grade teachers combined English with science and statistics, respectively. In the interest of keeping student participant age and subject matter roughly equivalent across sites, I asked the 11th grade CiviLit (Civics and Literature) teachers for permission to observe and conduct interviews at Neptune and the 11th grade English teacher (who happened also to teach History) for permission to observe classes and conduct interviews at Sunnydale. I began formal observations at both sites once the schools returned from Thanksgiving break in the fall of 2015 and made a recruitment pitch for student participants at each site (Appendix A).

Site descriptions

The two schools at which I collected data were located approximately two miles apart but were governed by separate, coordinating administrative bodies. In 2013, the local school district

consolidated to address severe budget deficits and declining student enrollment. In response to the infrastructural crisis, a number of schools were closed, and students were redistributed through a School of Choice program. In the Executive Summary that describes the vision for the new school district, the superintendent mentions both Sunnydale and Neptune as exciting choices that would draw students back to the district and play an important role in the new consolidated district's "cradle to career" plan to provide students with a 21st century education. The buildings, material resources, curricular designs, and campus policies at these two schools impacted student and teacher experiences and expectations around the use of technology, and so in this section, I describe the demographics, material organization, and curricular orientations laid out in the published literature about each school in order to contextualize the observational and interview data collected at each site.

Sunnydale High School

Founded in 2011, Sunnydale High School is a public International Baccalaureate (IB) school serving approximately 440 students. It is housed in a middle school that was closed in 2010 in an attempt to reduce the district's budget deficit. According to its promotional literature, "No single race represents a majority of people in the school," and the reported demographic breakdown is 46% White, 35% Asian; 12% African-American; 2% Hispanic and 5% mixed race. 12% qualify for the Free/Reduced Lunch program, and approximately 20% identify as First Generation College students (School Profile). There is no bussing available to the school, so parents must be in a position to drop off and pick up their children or to carpool. Students apply to attend through the district's School of Choice program, and the school aims to admit 170 students in 9th grade. Applications have not yet exceeded this number, so to date no student who has applied has been turned away.

IB schools have a reputation for being homework-intensive, and Sunnydale is no exception. The curriculum calls for 150 hours of extracurricular projects aimed at creativity, activity, and service in the 11th-12th grade years in addition to participation in two "enrichments," after school programs that represent 20 hours of investment in an extracurricular activity, each year. Modeled on the British system, IB treats the first two years of high school as foundational work, and students specialize in the final two years by choosing which high level (HL) classes to take to fulfill the diploma requirements. Sunnydale classes last 90 minutes and meet on an A/B schedule, so students have 4 classes per day, which meet every other day. Students in 11th and 12th grades complete specific IB assessments that are administered by their teachers, but sent to the IB Board for evaluation, and between 11th and 12th grades, they propose a topic and choose a faculty mentor to guide them through the process of writing a 15-page analytical essay. Sunnydale offers choir and orchestra, but does not have the resources to support sports teams or marching band. Students who want to participate in those activities sometimes join the teams at their "home" school—the school that they would have attended by virtue of their address if they were not at Sunnydale.

Neptune High School

Neptune, like Sunnydale, is a small school with a special curriculum focus. It is part of the "New Tech Network" of schools, which focus on collaborative, project-based curriculum and participate in a one-to-one initiative—that is, they issue a laptop to every student for school and personal use for the academic year. Founded in 2009, Neptune High School is housed in a former elementary school and serves approximately 320 students. The student population is approximately 61% African American, 29% Caucasian, 3% Asian, 6% Hispanic, and 1% unidentified. 57% of students qualify for the Federal Free and Reduced Lunch program. Bussing

is available for Neptune students, with 11th and 12th graders arriving at school at 7:25 while 9th and 10th graders take their elective course at the larger comprehensive high school during the first hour and then bus over at 9:00.

Classes meet for 90 minutes every day and are taught as combined subjects. This strategy is part of the New Tech model, and classes are built according to the preferences of the local faculty. The class that I observed was "CiviLit"—Civics and Literature. Other classes on campus include "BioArt" and "CompStat"—combined biology and art and combined composition and statistics, respectively. The classes have between 40 and 60 students with two teachers who determine how best to divide the instructional time to cover the course material. Some upperclassmen take electives at Neptune in the afternoon, but most enroll in classes at a local community college. Neptune has a culinary arts program, but offers fewer extracurricular choices than Sunnydale, instead relying on students to take the bus to the comprehensive high school for music, sports, foreign language, and other electives.

The schools fell under the same umbrella district policy for technology use, but implemented it in radically different ways, an issue I take up more fully in Chapter Five. At Neptune, teachers reminded students daily that cell phones and headphones were prohibited by district and campus policy, though these reminders had little effect on the continued use of these devices. At Sunnydale, both the teacher and many of the students reported that they didn't know what the district and campus policies were for technology use, but felt certain that it was up to the teacher to decide and the students to be responsible for their own decisions about device use.

Participant selection

In accordance with my IRB protocols, I began by securing parental consent and student assent for as many students enrolled in the selected classes as possible (Appendix B). At

Sunnydale, parental consent and student assent reached 100% (n=34). Though they trickled in over the course of seven weeks, every student ultimately brought back the appropriate forms. While waiting for the forms to come in, I conducted classroom observations, got to know the students a little better, and made myself an expected presence in the classroom. At Neptune, the process was slower and more difficult. I wanted to gain parity in participant numbers, but I was ultimately only able to collect 16 parental consent and student assent forms from participants at Neptune.

At Sunnydale, the permitted students completed the questionnaire (Appendix C) during a study day. Most students took between twenty and forty-five minutes to answer the 23 questions about their reading and writing habits in print and on screens. At Neptune, students were given the questionnaire once they brought in their permission form. Most completed it during their 30-minute advisory period, but some took it home and returned it the next day. Though having class time dedicated to the completion of the form was preferable, there was nothing about the nature of the questions that required a time-limited approach.

The questionnaires collected self-reported data on participants' race, gender, their qualification for free and reduced lunch, and their self-identification as high, medium, or low users of technology. The purpose of the questionnaire was two-fold: 1) to gather information on what technologies students used and valued; and 2) to identify students for participation in interviews. To those ends, the questionnaire posed questions such as:

- Do you prefer to read in print or on a screen? If the experiences are different for you, explain the difference.
- What kinds of technology do you use at home/with your family/with friends?
- What kinds of technology have you used to complete classroom projects?

- Do you consider yourself a high, medium, or low user of technology? Explain why.

Questionnaires were completed on paper and then the responses were transferred into a spreadsheet by my research team (consisting of me and two undergraduate research assistants, who were approved under the IRB for my study.)

Once the questionnaire data was collected, I sought 12 student volunteers from each campus to participate in an interview lasting approximately 45 minutes to an hour. Appendix D contains the semi-structured interview protocol. Semi-structured interviews allowed me to collect comparable information across participants while still providing room to explore topics of interest with participants, who all had varying degrees of experience and opinions on technology and its uses. Students completed interviews after school, and as they scheduled their interview times, I gave priority to balancing participants along gender, socioeconomic, and tech use categories. In practice, this meant that after the first few interviews, I approached students who were consented, assented, present, available to interview that week, and belonging to a category (gender, socioeconomic status, tech use) that was underrepresented. In other words, I engaged in what Maxwell (2013) calls "purposeful sampling," in order to "adequately capture the heterogeneity in the population (p. 98). I looked at whether students identified as "high," "medium," or "low" users of technology and created groups with equal numbers of "high" and "medium" users within the socioeconomic groups. I had originally intended to have three equal groups, with "high," "medium," and "low" users of technology represented, but no student at either school identified themselves as a "low" user of technology. Among student participants, I had eleven males and thirteen females; fourteen high users of technology and ten medium; eleven who qualified for free and reduced lunch and thirteen who did not. There were nine

African-American student participants, six White students, five South Asian, one East Asian, and one mixed-race student. Almost half of the student participants reported speaking languages other than English at home (nine from Sunnydale and two from Neptune). In addition, I interviewed the three classroom teachers—one female and two male, all three White—who were the instructors of record for the two classes I observed. Teacher and student participant data appears in the tables below, and a brief profile of each participant is provided in Appendix E (pseudonyms are used in place of participant and school names).

Table 1: Teacher participant background and demographic data

Teacher	Age	Race	Gender	Years of teaching experience	School	class	# of students in class	curriculum
Ms. Murphy	31	White	F	7 (including current)	Neptune (314 students total, 70% economically disadvantaged)	English teacher for 11th grade CiviLit, 90 minute classes every day	56	New Tech Network Project-based curriculum with a focus on college and career readiness. Classes are cross-disciplinary and co-taught
Mr. Pope	42	White	M	10 (including current)	See above	History teacher for 11th grade CiviLit, 90 minute classes every day	See above	See above
Mr. Murdock	42	White	M	3 (including current)	Sunnydale (394 students total, 6% economically disadvantaged)	English Language Arts for 11th grade, 90 minute classes every other day	34	International Baccalaureate (IB) Traditional liberal arts curriculum with internal and external assessments

Table 2: Demographic data for Neptune student participants

Pseudonym	Race	Gender	Tech user	Free lunch eligible
Kylie	African American	F	high	Y
Julian	African American	F	medium	Y
Paulo	Hispanic	M	high	Y
Saira	African American	F	high	Y
Harrison	White	M	high	N
Michael	African American	M	high	Y
Jamila	African American	F	medium	Y
Zaira	African American	F	medium	Y

Antonio	Hispanic	M	high	Y
Megan	White	F	medium	Y
Jay	African American	M	high	Y
Sylvia	African American	F	high	N

Table 3: Demographic data for Sunnydale student participants

Pseudonym	Race	Gender	Tech user	Free lunch eligible
Sarah	White	F	high	N
May	East Asian	F	high	N
Emily	White	F	high	N
Nelly	Asian/White	F	medium	N
Via	African-American	F	medium	N
Nour	South Asian	F	medium	N
Mark	East Asian/White	M	high	N
Nihaar	South Asian	M	high	N
Haroun	White	M	medium	N
Kadeen	South Asian	M	high	Y
Jalil	South Asian	M	medium	N
Idris	South Asian	M	medium	N

Data collection

I collected multiple kinds of data through multiple methods in an effort to "gain information about different aspects of the phenomena" of networked device use in classrooms (Maxwell, 2013, p. 102). My experience in classrooms and my dissatisfaction with the existing research on teens and technology led me to believe that having only campus policies, only students' perspectives, or only teachers' rationales would not suffice to produce a nuanced understanding of how networked devices were (or were not) taking a role in the classroom system. Collecting all three of these data types supports "complementarity and expansion" (Maxwell, 2013, p. 102). An example of this approach, Maxwell (2013) explains, is when "observation is used to describe settings, behavior, and events, while interviewing is used to understand the perspectives and goals of actors" (p. 102). By the end of the school year, I had collected 50 questionnaires, 27 interviews, and field notes for over 40 classroom observations. Each type of data was digitized and entered into Dedoose, a program designed to aid in

organizing and analyzing qualitative data. In this section, I describe each of these data types and the process for collecting them.

Questionnaires

The questionnaire provided data on race, gender, class, and self-identified tech-use. Though the number surveyed is too small to produce generalizable statements, the data did yield some interesting information about the specific pool of students in my study. For example, 80% of male students self-identified as "high" tech users, while only 60% of female students did. Income differences across this population did not seem to produce the same gap, with 70% of both middle- and low-income students self-identifying as "high" users of technology. Running this kind of simple preliminary analysis on the data led me to revise my interview protocol to include questions about students' perceptions of gendered uses of technology. I also collected data about each student's age, disability status, household size, and language use at home. Among the questions designed to produce more qualitative data, I attended to students' responses to specific questions about students' perceptions of their use of technology in reading and writing, and to their teachers' (perceived) use of technology in relation to their own. I read these questions for common themes, pulling quotes with similar language and building categories that connected these quotes. For example, the table below represents a sample of how I categorized the different ways that students talked about distraction as a technology-related problem.

Table 4: Student categories of distraction

Distraction type	Definition	Examples
competing purposes	The participant defines the distraction by opposing two (or more) fields of experience (such as social/academic or entertainment/work)	Q19: Constant upkeep w/ the world means that if you're not online you're missing out. So many times the phone distracts me from learning because I'll be messaging friends and checking FB. (Survey Respondent 8) Q19: When I choose to use technology as entertainment rather than a means of work it becomes a distraction from learning. I still do learn when I use it as entertainment, but it does not always pertain to school or even the real/relevant world. (Survey

		Respondent 17)
rabbit hole	The participant describes the distraction as following an impulse that has aroused curiosity.	Q19: When I allow myself to be engulfed by the interwebs (so like 0% at school, 10% at home). (Survey Respondent 26) Q19: I can get distracted sometimes and look up things that have nothing to do with my education. (Survey Respondent 44)
willpower	The participant describes the distraction as a test of will, evaluating success or failure in moral terms.	Q19: When something distracting happens and I'm viewing it so I know. Not always am I distracted, even if I know about it; if what I'm working on I'm determined to finish it, then I will. (Survey Respondent 36) Q19: When I want it to. It's all about self-control. If I get distracted by technology, it's because I use it irresponsibly. (Survey Respondent 45)
"real"/online competition	The participant describes the distraction as competing with in-person interactions.	Q21: It can easily distract you from reality and rather than using technology as a tool, it is used as a crutch to let you hide from your small reality because you have the whole world at your fingertips. (Survey Respondent 1) Q21 It is a large distraction and it has taken over many people's lives. Social media has changed our perceptions of ourselves and created societal norms and expectations/stereotypes, often providing a path for depression and bullying. (Survey Respondent 24)
procrastination	The participant defines the distraction as part of a process of putting off some difficult, required, or undesirable task.	Q19: When I allow myself to procrastinate by getting distracted with it (Survey Respondent 23) Q19: When I procrastinate online (Survey Respondent 29)

This analytical process led me to think about how technologically-mediated distraction was often bound up with competing contexts, social processes, and notions of moral victory or failure—issues that were important in considering how the use of networked technologies was negotiated in classrooms.

Student interviews

Students who participated in interviews received twenty dollars in cash as a token of appreciation for their time. Interviews typically lasted 45 minutes to an hour and were conducted in conference rooms and empty courtyards at each school where we could be assured of some privacy and limited interruption. Students were informed of their right to refuse to answer any

question or to stop the interview if they wanted to withdraw their participation. Some chose their own pseudonyms for representation in the research while others declined to choose and asked me to simply generate a pseudonym for them.

Interviews were conducted during the second semester of the 2015-2016 school year, and I interviewed each student using a semi-structured protocol that asked questions about their particular composing practices on social media and in print and their preferences for print or screen technologies in response to specific social and academic composing tasks. When it was appropriate, I drew information from their questionnaire responses and my field observations to tailor questions about their experiences reading, writing, and connecting through technology both in and out of the classroom. For example, I pressed Paulo (Neptune), who indicated on his questionnaire that he "tinkered" with technology, to say more about what that meant, and I added more detailed questions about computer programming when speaking with Scott (Neptune), who indicated that he was learning to code and with May (Sunnydale), when she mentioned that she participated in an after school enrichment about building a simple robot. More generally, I asked students to discuss their school and home experiences with technology, their perceptions of its role in the classroom, their perceptions of its utility both within and beyond the classroom, and their preferred social and academic composing styles. I asked students to explain their decision-making processes when they composed a specific post on a preferred social site and to describe their approach to a specific (recalled) curricular project to identify points of similarity and difference in their ways of using technology in different contexts.

Because I was an observer in each class, I often asked specifically about technology-supported assignments I had seen them complete in class. Each of these methods prompted students to reflect on specific experiences, a process sometimes called "artifact elicitation" or

"episodic interviewing," interview techniques that ask participants to reflect on a particular object or incident rather than provide a general or abstract response (Maxwell, p. 103). When I asked students to take me to a particular post on their favorite social media feed and think aloud about their processes for composing and sharing it, I was employing artifact elicitation techniques; when I asked students to recount their composing processes for specific social and academic tasks, I was striving to tap into their episodic memory for specific information. These data were collected in order to better understand the association that students' networked devices carried for them, the people they connected them to, and their habits of use.

Teacher interviews

How do interviews help answer the research questions? The three teachers involved in the two classes I observed agreed to be interviewed when they allowed me access to their classrooms for the study. Like students, they received twenty dollars in cash as a token of appreciation for their time. Interviews typically lasted an hour to ninety minutes and were conducted at the end of the school year. Teachers were informed of their right to refuse to answer any question or to stop the interview if they wanted to withdraw their participation. I interviewed each teacher using a semi-structured protocol that asked questions about their teaching experience, about specific assignments using technology, about their rationale for including or excluding technology in class, about their assessment practices regarding technology-mediated assignments, and about their beliefs and attitudes about technology's role and value in a literacy class.

I generated a memo for each interview that condensed the information that student or teacher interviewees provided about their background and experience with technology in social and academic contexts, their specific stories about success or failure with technology-supported

school projects, their preference or resistance to technology-mediated participation for different kinds of activities, and their suggestions for what I should be asking teachers or teenagers about technology (my final question). These summaries, which include my immediate and reflective impressions of the interviewee, became the basis of the participant profiles in Appendix E. Information about what teachers thought the role of technology could or should be helped me understand the assignments they crafted for students, the implicit and explicit rules they tried to communicate about device use in the classroom, and their understanding of what constituted digital literacies in their disciplines.

Classroom observations

Field observations were conducted twice a week and spanned both semesters. I began observing at Sunnydale in early November and at Neptune in late November, once the necessary permissions from the respective school districts were secured. Both sites have 90-minute classes, during which I took open-ended field notes to document the social and material interactions present in the classroom, noting especially when technology was introduced as a resource for students or discussed as a disruption. Classroom observations were fundamental to the research questions, which were concerned with how students and teachers interacted with, through and alongside networked technologies in the classroom space. They also helped me refine my interview questions and increased my visibility and connection to the classroom community. As students became more accustomed to my presence and more familiar with my questions, I gathered more participants. During the early weeks of observation, I spent most of the time sitting quietly and documenting instructional routines—whether they had anything specifically to do with technology or not—to get a feel for the way the classroom community was structured and for the power relations implicit in the material and social organization of the space. As I

spent more time in each of the classrooms, I circulated more, especially during times when students were working independently, and asked students to explain the tools they were using and the requirements of the assignment. I didn't audio or video record, feeling that the presence of recording devices would strain my ability to make friendly connections and observe more natural interactions, but I jotted notes during class and wrote memos directly after. I wrote down specific pieces of classroom talk, from both students and teachers, as it regarded technology use or expertise, and I wrote brief narrative descriptions of both technical and social problems of technology in the classroom.

Being in class frequently provided opportunities for me to ask questions "on the spot" and to document responses to technology as they evolved. For example, Neptune adopted a much stricter cell phone policy in the middle of the school year, which teachers on campus attributed to students' quick communication to their parents about a bomb threat at another high school in the district that turned out to be false. In the space of two weeks, I saw the teacher go from disregarding (if still disapproving) the presence of cell phones in the classroom to taking them up and locking them in a "cell phone jail."

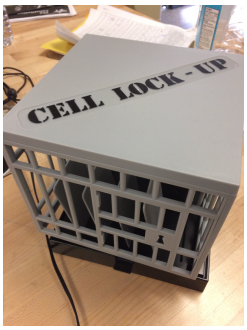

Figure 3: Cell phone jail

Had I not been visiting the class each week, I might have missed this particular teacher's interpretation of the change in policy, which reflects the very real anxiety of administrators over the control of information about school crises. At Sunnydale, technical issues with Turnitin.com

caused the teacher to alter his peer feedback procedures in ways that disrupted students' ability to be prepared for class. These fine-grained interdependencies between technology, policy, and classroom procedures are hard to capture without being in the classroom, and they are important for understanding how technologies serve as a point of contention and a locus of power struggles in classroom spaces.

Field notes provided important context for questionnaire data, which was often brief, and interview data, which sometimes prompted narratives that focused on either the best or worst aspects of technology use (or, sometimes, both the best *and* worst aspects) rather than the everyday advantages and challenges posed by technology in the classroom. The field notes were coded for the introduction of technology, its latent (and unquestioned) presence, and conflicts between classroom individuals over technology. Field observations were especially important for my analysis of classrooms as spaces that mediate a great deal of their communication through technological apparatuses that are taken for granted as familiar, useful, and preferred by the majority of the community members because of their status as "digital natives." Push back against this term finds its most vocal proponents among teachers who have argued that in classroom settings, students are not always excited about using technology and are often not familiar with the tools necessary to create the kinds of projects that showcase their academic knowledge. The data I attended to in my field notes foregrounded these moments of technological "interference" with the planned learning activities in the classroom.

School documents

Both Sunnydale and Neptune promoted their schools through websites that described the curricular orientation, student population, community involvement, and school improvement plans in place to support students. These documents provided important historical and

demographic information as well as specifics about the role of technology in the curriculum. In addition, I collected documents that outlined technology policy at the national, state, and district level to contextualize the global situation within which the local scene was operating and to which it was sometimes responding. It would have been interesting to obtain copies of students' written work and scrapes of their social media feeds for a content analysis and comparison of the rhetorical moves they made to develop ethos and establish ethical relations with their various audiences.

Data analysis

One of the advantages of qualitative research is that it "can be used to obtain the intricate details about phenomena such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods" (Strauss & Corbin, 1998, p. 11). It is just these sorts of details I was searching for—details that research about students' time spent on screens and research about outcomes on national measures of achievement miss. I collected, transcribed, and read through the interviews, observations, and documents for the study, drafting memos and coding the data thematically and recursively. Strauss & Corbin (1998) describe analysis as "the interplay between researchers and data" (p. 13), and I went through an iterative process with my data, generating codes, revisiting the list to streamline it, and coding across data types to see if categories held their definition.

For example, "distraction" emerged as a prevalent theme in the questionnaires, but when I began coding for "distraction" and its variants in the interviews, a more complicated picture emerged. It wasn't simply that students' attention was wandering, but, rather, they were addressing specific tasks through their networked devices that they felt obligated to complete. For example, one might think of a bird flying into the classroom through an open window as a

distraction. In contrast, a text from Kylie's mother warning her that her father, whom she and her mother were hiding from, was in town is not a distraction, but an important alternate engagement. The first has nothing to do with Kylie's life or the class activity; the other is a deliberately and reasonably chosen movement from one activity to another, ranked by the importance it holds to Kylie at that moment. I paid special attention to moments in the interview data where students reported who and when they responded to notification on their phones or laptops and to teachers' explanations of whether and how they intervened when students were using networked devices. Sometimes students acknowledged these moments of personal device use as distracting, but more often they positioned their device use as representing their responsibilities to family, friends, curricular, and extra-curricular activities. As I turned to field notes, personal uses of technology rarely produced disruptions to the rhythm of classroom activities, and in fact facilitated the smooth operation of the classroom when students completed work at different paces. As I'll explain in Chapter Five, these uses were ignored at Sunnydale and addressed continuously and ineffectively at Neptune. Tech failure—to connect to the network or to access a desired site—caused more recognizable lost time and frustration at both sites than students' personal uses. My eventual focus on ethics and the identification of *ethical frames* arose, in part, from repeated attention to the conflicts about personal device use in classrooms raised by teachers and students during class and in interviews.

Paying attention to controversies is one of the cornerstones of actor-network theory, and so, having identified personal uses of networked devices in the classroom as the most frequently appearing controversy mentioned by both students and teachers, I returned to the teacher interviews, student interviews, campus policy documents, and classroom observations to code every mention of personal device use. Actor-network theory also advises following the writing,

and though I didn't collect writing samples, I returned to students descriptions of example posts they had shown me during the interviews, with their rationales for posting and their expectations for response. I returned to teacher data about the writing they anticipated students might do in online environments, the activities they imagined their classroom assignments preparing students for, and their own experiences with using LMSs to organize the flow of writing between themselves and students.

In the process of identifying these moments, sub-categories emerged: participants expressed preferences for connecting or containing their digital selves that varied depending on who they imagined themselves in relation to. Commitments to self, commitments to known others (family and friends), and commitments to society emerged from student data—with individual students expressing connecting or containing preferences that varied from audience to audience. Examples of these categories from the codebook can be found in Appendix F. For example, a student who routinely Snapchatted her mother in class refused to set up a Facebook and only, reluctantly, posted on Twitter when her teachers required it. An apparent digital native tapping away at her phone in class, she explained that she saw no need for strangers to know her business. So the imagined person or people on the other side of the phone emerged as an important aspect when students decided to use their devices. These people were most often not a generic audience, but specific people with whom the student had a relationship.

Teacher data had examples of these categories—checking in with children or parents—and yielded a further one: commitments to school. Teachers expressed a desire that students would not open the classroom network to outsiders, and a disappointment that was sometimes framed as a violation of trust when they did. Mr. Murdock was covertly video-recorded in class when he responded angrily to the senior prank, and that video was put on YouTube and shown to

administrators. Of the incident, he said, "I shouldn't have said what I said, but videotaping teachers without—videotaping people in school without telling them you are doing that: not cool. It's a quasi-public forum, but still." He added that "The video of me was online in like ten minutes." At the same time international, national, and state policy documents overflow with ideas about promoting student engagement with society beyond the classroom and about teaching them how to secure their data about themselves, and district and campus policies paid closer attention to maintaining the closed network of the school. Both schools adhered to well-known curricular designs—the New Tech Network's project-based learning design at Neptune and the International Baccalaureate's intensive liberal arts curriculum at Sunnydale—neither of which addressed technology in ways that conformed to other global policies.

In short, networked devices and how they were or should be used raised a variety of responses, and I began to wonder whether these were technical or ethical problems. Was it ethical to covertly record your teacher, even if he was behaving inappropriately? Was it okay to answer your mom's text if she was warning you to watch out in case your dad came by the school unannounced? If these could be thought of as ethical, were there clear moral grounds to side with one perspective or another? In my search for work on the ethical dimensions of technology, I encountered James Brown Jr's (2015) *Ethical Programs* and saw Brown's conception of the ethical dilemma introduced by networked life as closely connected to what my participants were describing—being hailed by multiple audiences and having to make decisions about who to welcome and who to deflect. His focus on the way programs do this work automatically didn't fit as neatly with what I was seeing and hearing. Just as most adults don't answer the phone every time it rings, most students don't answer every notification. And the decisions that they do make are more flexible and less specific than programs in the way Brown

defines them. Instead, they have patterns of reading and writing with people that define a window for some conversation partners, letting some pass through for immediate interaction while others pass by for asynchronous attention. In short, like Brown's software subjects, my participants were responding to ethical dilemmas; unlike his, their responses were guided by shifting notions of who they were, what commitments they held with respect to the audiences hailing them for their attention, their position with respect to completing goals for that day's class, and how they drew boundaries that defined the window of immediate interaction and prioritized relations and goals within that window.

In the process of exploring the possibility of an ethical framework, I read John Duffy's (2017) piece on virtue ethics in rhetorical education, which argues that writing is always a series of decisions that posits a relationship between the reader and the writer and that instructors "are always already engaged in the teaching of rhetorical ethics and that the teaching of writing necessarily and inevitably moves us into ethical reflections and decision-making (p. 230). Each of these approaches treats reading and writing as enmeshed in responding to ethical dilemmas. In the unbounded, always on, always open, conditions of networked communication, teachers and students have to set their own boundaries for engagement—with self, with known others, with school, and with society—and they deploy *ethical frames* to do so. Chapters Four and Five develop these categories in detail and explain why classrooms—as spaces that liminally straddle the family/society categories—are an important site of investigation for the consideration of *ethical frames*.

Research ethics

My subjectivity, role, and relationships

Prior to entering the PhD program at the University of Michigan, I spent ten years teaching in secondary classrooms. I taught English as a Second Language and co-taught mainstream English with a licensed special education teacher in large, urban, low-income public high schools. My experience as a teacher of marginalized student populations (including students who identified as low-income, minority, language learners, and disabled) in mainstream classrooms gave me an appreciation for the value of diverse student experiences and perspectives and a particular joy in the challenge of designing instruction that afforded multiple entry points for students with different learning needs. Many of my students were gifted artists and storytellers who struggled with the literacy demands of academic work, and my commitment to valuing their talents and leveraging them to develop their skills as readers, writers, and communicators animates every aspect of my research agenda. My experience as a field instructor and English methods teacher in the teacher preparation program at the University of Michigan convinced me that in spite of advances in abandoning the banking model of education (Freire, 1970) and in acknowledging the "funds of knowledge" that students bring with them to the classroom (Moll, Amanti, Neff, & Gonzalez, 1992) that create hybrid learning spaces (Gutiérrez, López, &Tejeda, 1999), there is still much to do in terms of understanding how to integrate students' latent literacy and communication skills into the curriculum. My pre-service teachers' concerns with the role of technology, which seemed to be simultaneously required and restricted on their campuses, narrowed my focus to the way students and teachers perceive the relationship between students' social, implicit, "native"—if you will—digital literacy practices and the academic digital literacies commonly called for in classrooms with material access to technology and an instructional imperative to use it.

My goal as a researcher was to become a peripheral part of the classroom community through the investigation of that community. My stance was to enter the space as a learner and to rely on the participants to explain what they were doing with technology and how they perceived it as useful to them both in and out of classroom contexts. This stance produced some funny results. For example, though I was an early adopter of both Twitter and Facebook, some students took great pains to explain to me how these sites worked as if I came to the them *tabula rasa*. I never interrupted or corrected these assumptions, feeling that the position of the student as expert in this case was an advantage to my data collection. I, of course, brought with me my own experiences of using technology as a means of connection—with my children as they go about their day in high school classrooms, with my colleagues as we negotiate collaborative projects, and with my extended family and friends as we maintain social worlds that are no longer supported by shared geography. I also brought years of experience working with teachers and students as a secondary ELA teacher myself, and though I have some strong ideas about the importance of inclusive classroom communities, I also have an appreciation for the challenges inherent in building such spaces, and I have observed multiple paths of working toward that goal. I know that practice does not have to look like mine to be successful.

Any study that involves human participants requires careful attention and commitment to the ethical treatment and representation of those participants. As a former high school teacher who remains committed to the development of equitable classroom spaces, I was especially aware of my own subjectivities as I interacted with students and interpreted classroom dynamics. My identity as a (former) teacher and as a middle-aged White lady with a quick smile, lots of pop-culture based T-shirts, and purple-streaked hair caused students to respond to me in a variety of ways. Most students were respectful and politely curious about my teaching experience and

my pop culture interests (perhaps the two most obvious and accessible things about me). Some treated me as a sort of confessor, revealing thoughts about classroom practice and their out-of-school literacies that were perhaps meant to shock me. Others were reserved in their responses, not sure of my position in the hierarchy of the school or uncertain about whether they were giving me the data that they thought I wanted. My presence in the classroom and the process of raising questions about technology undoubtedly shifted the classroom conversation in both obvious and subtle ways.

Teachers routinely apologized for the lack or failure of technology in a given lesson and occasionally expressed concerns about their own or their students' performance on challenging days. Recognizing my experience as a teacher, the teacher participants in my study occasionally made asides to me that seemed meant to relieve tension when they perceived that they were not performing at their best (i.e., Mr. Pope once said "I can't believe I'm doing this in front of two professionals," referring to me and his co-teacher, Ms. Murphy. Ms Murphy once mused, "I wonder what you took notes about today," indicating a concern that little direct instruction had taken place and that my notes would reflect that.). In response to these kinds of concerns, I sometimes shared stories of my own teaching challenges, and I endeavored to position myself as someone who was benefitting from their openness in that it provided an opportunity for me to maintain a realistic connection to the struggles of classroom teachers. Interviews were less fraught, and both Ms. Murphy and Mr. Murdock described the interview process as "therapeutic."

Students frequently asked me about the progress of my research and sometimes spontaneously shared an insight or opinion on the workings of technology in their school and social worlds. What participants said to me on a given day certainly reflected their particular

understanding of my role in the classroom, my goals as a researcher, and their delight or disappointment in how technology was working out for them (socially and academically) that day. At both schools, technology use for academic purposes was pervasive, and students and teachers expressed a tense mix of reliance on and resignation to this state of affairs.

Study limitations

As with all research, this study has limitations. Some of these limitations relate to my own identity, and others are inherent in the study design and methodology. I conclude this chapter by acknowledging these limitations and discussing how I have endeavored to address them.

Researcher identity

My years of teaching experience cautioned me against jumping too quickly to judgments about students' or teachers' performance on any given day, and yet I still found that sometimes I disagreed with how things were being done. I also felt a sense of nostalgia for the classroom and a concern that I was not contributing to the immediate improvement of my research subjects' educational situation. My decision to remain a peripheral part of the classroom rather than take on a more active participant-observer role played into this tension, and made me sensitive to the dangers of either romanticizing the classroom or being overly critical. For descriptions of classroom moments, especially, I relied on member-checking to validate my description of events. My personal experience with and interest in the social dynamics of classrooms led me to exclude information on academic outcomes beyond what students and teachers commented on. Such information would undoubtedly add depth to a project on the effects of networked technology in classrooms.

Specialty schools

As should be clear from the site descriptions, this research took place in two very distinct schools with small populations and unique curricular frameworks. The clarity and coherence of each school's curricular mission offered an opportunity to look specifically at the potential relationship between technology and curricular goals or dispositions. However, this advantage limits what can be said about other kinds of schools, especially those with broad or generic learning goals. And while each school had within it a diversity of races and cultures, the infrastructural realities of the schools meant that Sunnydale was primarily middle and upper-middle class while Neptune was primarily low-income. This selection was a purposeful attempt to gain data from students with a range of socioeconomic experience, but it limits the ability to extend findings to school contexts that may have more socioeconomically diverse populations.

Selection bias

This study relied on the participation of volunteers, which might have generated a participant pool that was more interested in academic research or more confident about their academic identity or performance than would be representative. In addition, though neither school rejected any student who applied (at the time of the research), the very existence of an application process might be considered a form of selection bias. Whether they or their parents made the decision, there was an element of choice in both school populations that might not extend to traditional comprehensive neighborhood schools.

Limited time

Limited time is always a problem when trying to understand complex social dynamics, and my study was no exception. Throughout the spring, observations and scheduled interviews were perpetually interrupted by absences, vacation days, extracurricular activities, special schedule days, and the logistics of preparing for and managing standardized testing. I scheduled

my observations to see class periods from beginning to end in order to understand the rhythm and routines of the classes, and I made a point to attend every day of project presentations in both classes at the end of the school year.

Validity

This study primarily focuses on students' and teachers' perspectives and experiences, but I have also gathered classroom observations and policy documents to enhance the validity of my findings. Of course, the most indispensable sources of data are the students and teachers themselves because they are interpreting and implementing policy and negotiating the local norms for technology use and digital literacy instruction in the classroom. As Chris Gallagher (2011) has noted—and as I have written about elsewhere (Hammond & Garcia, 2017)—as the inflection point between students and the curriculum, teachers play a crucial role in any standards or curriculum movement: "being there matters." Though teachers and students are best situated to report on the status and role of technology and digital literacies in the classroom, virtually no other research has attempted a classroom study that explored the interdependence of material resources, policy initiatives, and teacher and student beliefs, attitudes, and experiences.

The convergence of the end of the study with the end of the school year somewhat limited me in terms of member checking. While I was transcribing and analyzing data, students and teachers scattered to summer jobs—some of them preparing to change schools. I contacted all twenty-seven participants, received responses from eleven of them and—to date—have been able to meet with six students and one teacher. These participants were given a summary of my *ethical frames* framework and asked to reflect on how it might be useful in guiding research on student and teacher practice and curriculum development. They read my profile descriptions of them, descriptions and analysis of classroom moments at their schools, and any section of the text where they were quoted and interpreted. Factual statements were clarified and corrected. For

example, two students noted in member checking that they were adopted and wanted their profiles to reflect as much. On the whole, students confirmed that my interpretations of their words either accurately reflected their memory of the experience or else introduced an agreeable meta-awareness that had not previously occurred to them. One student notably remarked, "Your research is pretty fire," which is maybe the best thing anyone has said about it so far. Their responses appear in the text where they complicate or expand a moment of analysis.

The methods and theory of studying technology and secondary classrooms

I have argued in this dissertation that the research gap about teens' uses of technology is, in part, a methodological and theoretical gap. Researchers who have an opportunity-focused orientation toward teens' digital literacy practices tend to draw their data from extracurricular environments that would be likely to over-represent students and instructors who are highly invested in integrating technology into learning and literacy instruction. Researchers who take an obstacle-focused orientation draw their data from personal experience and large-scale surveys (Turkle is something of a departure from this, drawing on decades of interviews she has conducted with young people involved in after-school programs sponsored by the robotics lab at MIT.) Neither group centers the classroom as the unit of social cohesion in selecting subjects, yet the classroom is where they often direct their implications, imploring schools and teachers to focus on networked structures of participation or to limit the encroachment of networked others on the classroom space. The result of these methodological gaps is an under-theorization of the role technology plays in everyday classrooms, where students and teachers use networked devices to mediate and materialize their ethical commitments.

I designed this study to fill in some of these gaps and to highlight the possibility and necessity of a middle path that neither valorizes nor demonizes technology, but, rather, considers

what students and teachers say about its affordances and limitations as part of their daily literacy and learning practices, conducted in spaces that are frequently neither wholly academic nor wholly social, but liminal in nature. Classroom and digital networks, independently, are complex systems with varying social codes about reading and writing; the intersection of these two networks is a daily occurrence, navigated by teachers and teenagers who have extensive experience in both, but have had limited representation in the research. I designed my interview protocols to prompt them to think about what networked devices mean in their lives and in their classrooms and to share their strategies for balancing the demands of the multiple networks they read and write in. In the findings chapters that follow, I develop the theory of *ethical frames* by unpacking what participants said about the role of reading and writing on networked devices in creating and maintaining the relationships that mattered to them.

Chapter 4: Opening the Blackbox of Networked Tech Discourses and Devices

As more and more of my participants framed their networked devices as embodying their commitments to themselves and to others, the project of my dissertation turned to unpacking the relationships that participants seemed to perceive as implicit components of their networked devices. In other words, the devices were "blackboxing" relationships that I identified as belonging to four different axes:

- to the self
- to known others
- to school
- to society

Latour (1999) explains that "blackboxing" occurs when the efficiency of a device is so advanced that "one need focus only on its inputs and outputs and not on its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque and obscure they become" (p. 304). In the context of this study, I suggest that cell phones in particular, and laptops to some extent, are blackboxes for the relations they mediate. Our discourses center on these devices and the opportunities or obstacles they pose in ways that obscure the relationships they routinely pose and maintain. Callon (1986) further points out that each node in an actor-network is, itself, a blackboxed network of further associations. Each teacher and each student is a collection of all the materials and relations—all the associations that brought them to the classroom space. Thinking about everyday reality in this way is impractical. We have to

blackbox, bracket out, or take for granted much of our knowledge of how things work and what they are supposed to do in order to move through the day with any kind of efficiency. But given the continuing controversy surrounding how networked technologies support or challenge ways of doing things in the traditional classroom, it is worth slowing down to unpack what is going on when a student is "distracted" by a networked device. Reconsider Figures 1 and 2 in Chapter Two, where one could see the classroom as constrained to the visible network of actors, or one could read each student and teacher as a network of technology-mediated connections, coextensive with the visible network. In the first figure, students and teachers were black-boxed; in the second, their networked device blackboxes were partly unpacked, showing the collection of associations mediated by their networked device access that constituted each student and teacher. (We could have traced other associations—relatives, prior schooling, their methods of transportation to school. For the purpose of this study I've limited the tracing to their reports of reading and writing within and beyond the classroom walls.)

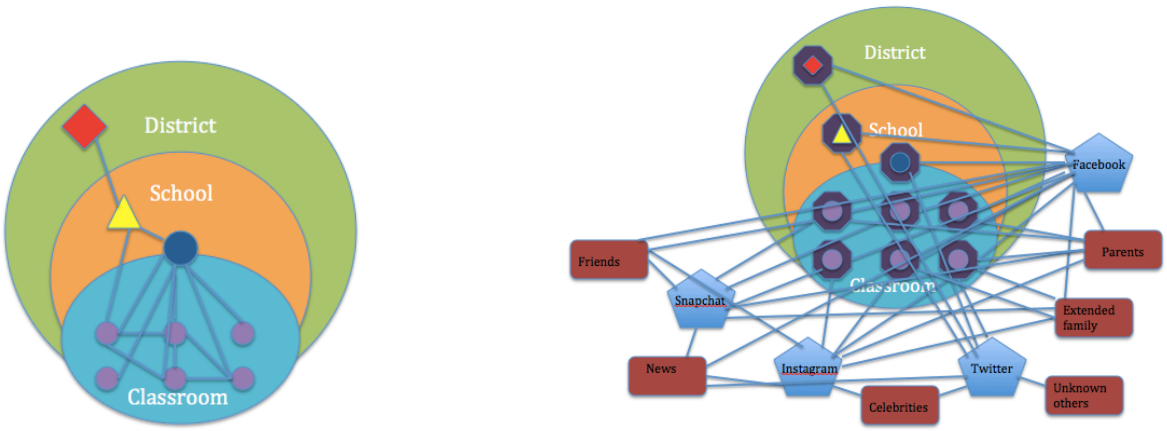

Figure 4: Closed and opened blackboxes of the classroom

In the findings chapters I present here, I begin the work of identifying and untangling the different kinds of relations that students and teachers reported as being part of their networked

devices and the relational possibilities proposed by policies at multiple levels. In this chapter, I begin the process of unpacking the ethical relations within the blackbox of internet-connected cell phones and laptops in the classroom. In doing so, a tangled mess of relations spills out, and I propose a set of *ethical frames* to untangle the relations—at least to some extent. The process of doing so is instructive because it helps explain how students decide whether to use their networked devices in classrooms and what to use them for in ways that do not devolve to insulting their intelligence, maturity, or willpower. I argue that the tangling of these relations within the blackboxes of the cell phone or the network is part of what accounts for seemingly paradoxical variation in students' digital reading and writing practices and the occasional misalignment between teacher expectations and student behavior regarding networked technologies in the classroom. In other words, they offer a conceptual vocabulary for how student and teacher participants in this study negotiated the complexity of occupying multiple relational roles that sometimes presented competing demands for attention.

Ethical frames is the schema for including or excluding people and content on the other end of a networked connection through reading and writing practices. Communications scholar Jim Kuypers (2009) explains that "frames are so powerful because they induce us to filter our perceptions of the world in particular ways, essentially making some aspects of our multidimensional reality more noticeable than other aspects" (p. 181). So while an ethical program regulates a social interaction through scripted and scripting the relationships between actors, *ethical frames* intervene prior to the moment of interaction, guiding the decision whether to interact at all.

Understood this way, a student's felt urgency to read a text on their cell phone during class has more to do with who they think it might be from than with a relationship to the device;

a student's decision to text back is entirely based on who they are responding to and the relationship they have with that person. These decisions can be understood as guided by the *ethical frames* that students develop from their experience and practice with reading and writing on networked devices. They are frames because they define a window of engagement with different categories of audience, letting some pass through and excluding others. They focus attention on what is within, and they can be easily moved if circumstances call for it. These boundaries are ethical because they reflect the relations that my study participants reported trying to maintain or manage. *Ethical frames* are not fixed, but moveable, and they have little to do with moral character. Instead, they are ways of understanding how participants perceived reading and writing on networked devices as positioning them with respect to those they read and wrote to, including themselves. *Ethical frames* filter the relations between readers and writers, determining which take precedence at any given moment. They bound the space of interaction, allowing some interactions while excluding others, and they are the result of ethical commitments—to parents and friends, but also to teachers and classmates.

My turn to the ethics and ethical commitments reflected by digitally-mediated networked writing brings together James Brown Jr.'s concept of ethical programs and the hospitality demands of networked devices—outlined in Chapter 2— with John Duffy's (2017) recent attention to the ethical dimension of writing and writing instruction The concept of *ethical frames* helps us consider how we create boundaries around our networked device use when technology shapes our interactions with devices and with each other—often through computer programming that is not transparent to the end user. While these theories focus on the ways that particular platforms or programs suggest patterns of use and styles of interaction, an *ethical frames* approach moves our attention from focusing on device usage alone to a broader

perspective that includes the relationship with the person or people on the other end of the connection. In other words, it shifts the focus from how people interact with technology in context-specific ways to how they read and write to one another *through* technology in ways that position them in relation to one another. An *ethical frames* lens suggests that, even if it looks like routinized or addicted behavior, the reasons for networked device use can be traced further back than the presumed dopamine hit that a text notification provides; indeed, it can point to the desire for particular kinds of human relationships and the practice of mediating those relationships through networked technology.

Additionally, Duffy argues that scholarship that has focused on rhetorical, linguistic, and aesthetic choices in writing instruction has overlooked an important category, the same one that the concept of technological frames misses: "the ethics and the ethical decisions writers make in the process of composing" (p. 229). Duffy suggests that

> Writing involves ethical decisions because every time we write, as I have argued elsewhere ("Writing"), we propose a relationship with others, our readers. In proposing such relationships, we raise those questions moral philosophers attach to the ethical: What kind of person do I want to be? How should I live my life? What does it mean to be a good person? (pp. 229-230)

This attention to the relationships proposed by writing is especially relevant to writing in digital environments, where those you read and write to can actively and instantaneously engage. Networked communication provides an environment of continuous feedback on the efficacy of a proposed ethos or ethical relationship. For example, Jamila was angry when her mother wasn't responding to her snaps. She explained that "I made my mom a Snapchat about a couple months ago," and "for a long time I was sending her Snapchats, and she'll just open them. And I got mad

at her, I was like, 'Why don't you ever reply to my Snapchat?' And she was like, 'I don't know how to!'" In other words, her mother's lack of response led Jamila to presume that she was being ignored, and she confronted her mother about it, only to learn that her mother didn't know how to use technology to mediate the relationship Jamila expected.

Similarly, Saira emphasized that because her mother was home caring for younger siblings and a relative with schizophrenia, "I need the phone. I need to know when she [Mom] needs me, what she needs me to do 'cause I have a life too. So, I need to adjust it around my mom to see whatever I need to help her with. If I can't pick up my phone, I cannot communicate with my mother." For his part, Jay recounted,

> I remember I bought my first cell phone. I was about in third grade. It was a little silver flip phone that my parents used to call me because that was around the time where my mom got a job again. She didn't want me being home alone, so she bought me that little phone.

For both Jay and his parents, and Saira and her family, the phone represents more than a tool for communication. The device blackboxes a whole set of commitments and concerns, and it functions to assure people at both ends of the relationship that Jay is safe and supervised enough to be home alone at a young age. In these situations, the meaning of the cell phone is more than the material device itself, and more than the connections it facilitates, it mediates the commitments that family members make to support one another.

The data I present here suggests at least four kinds of *ethical frames*, each attached to a different kind of imagined relationship partner (audience): relations with oneself; relations with known others (family and friends); relations with school; and relations with society. Though there are undoubtedly other relations to be found, these categories were most prominent in the

concerns raised by my participants. Each of these relational categories supports *ethical frames* that move along a continuum from connected to contained. As Chapter 1 demonstrated, the extremes of this continuum dominate current discourse, with obstacle-focused researchers pleading for containment while opportunity-focused researchers champion connection. The participants in this study often voiced these extremes, but in further conversation, they rarely inhabited such stark positions. Rather, they mixed and matched frames according to their perceptions of the urgency of the activities and relationships they were concurrently engaged in. On the more connected side of the continuum, participants adopted a responsive *ethical frame* with respect to known others, an archival *ethical frame* with respect to self, and an involved *ethical frame* with respect to society. On the more contained side, they adopted a protective *ethical frame* with regard to known others, a redactive *ethical frame* with regard to self, and a detached *ethical frame* with regard to society (See Table 5).

Table 5: The Contained-Connected Continuum

Redactive Deletes posts or accounts to create a particular image	With regard to self	**Archival** Keeps old posts and accounts, even when not active on them
Protective Ignores texts and social media notifications in particular times and places	With regard to others	**Responsive** Answers texts and social media notifications immediately

Closed Uses networked devices to increase the density of the closed classroom network	With regard to school	**Open** Uses networked devices to open the boundaries of the classroom to outside people
Detached		**Involved**

Avoids social media to avoid controversy and controversial subjects	With regard to society	Engages in social media to understand or promote change

Ethical Frames along a Connectivity Continuum

As I explained in Chapter 3, I open-coded interviews, looking for patterns in how students and teachers thought about the role of technology in the classroom and for connections between how they used social media applications (texting, Facebook, Snapchat, etc.) and how they made use of networked devices in classrooms, especially in ways that caused controversy. What emerged was a number of fears—fears about being disconnected from important people and fears about being overwhelmed by connective opportunities. Students' fears of being stranded without a connected device ranged from inconvenience—not being able to get a ride to their community college class—to dying alone, unable to contact loved ones in a crisis. Fears of technology use leading to negative social or physical consequences prompted vigilant gatekeeping, which ran the gamut of careful attention to posting practices and privacy settings to avoid giving the wrong impression to family members or college recruiters to putting cell phones in the glove compartment while driving or in another room while sleeping. As I examined these fears and the strategies that students and teachers were describing to address them, I began to see a continuum between strategies to contain situations and strategies to maintain connection.

Participants described these strategies in terms of their identities—notions of what kind of person they were and what kind of person they wanted their digital practices to convey. Zaira reminds her friends who complain, "You know me! I never text back!" implying that her character and her practice of not responding to them are linked. Kylie posts her art on Instagram because she identifies as "the type of person that likes pictures that are artistic," and she mines her feed for artistic inspiration. Her presence on Instagram reaffirms to herself and

communicates to others her vision of herself as an artist. Participants' concerns were bound up with the potential response of people at the other end of their mediated relations. An *ethical frames* lens helps us to tease out how these concerns informed students' networked technology use in terms of their desired relations to different kinds of audiences. This lens sensitizes us to the varying ways students understand—that is, *frame*—reading and writing practices as being indicative of their commitments to those they read and write to.

Teachers: Experience, expectations, and *ethical frames*

My research question about how the role of networked technologies was negotiated was, in part, premised on the idea that teachers and students would bring different experiences, expertise, and expectations with technology to the classroom and that this variation would mean that the role of networked devices would not be solidly settled. That is to say, they bring with them *ethical frames*—sometimes competing, sometimes complementary, always shaping how they engage with and through networked technologies. This premise was suggested by the literature reviewed in Chapter 1, which indicated that many scholars held either obstacle-focused or opportunity-focused attitudes toward networked device use; moreover, there were few classroom studies at the secondary level that might provide a more nuanced picture of how people discussed and resolved these conflicting views in a classroom where multiple viewpoints were likely to be represented.

Before we turn to students' combinations of *ethical frames* and what an *ethical frames* lens affords us when looking at networked device use in classrooms, it is worth unpacking what role teachers in this study wanted and expected networked devices to play in the classroom space and what *ethical frames* they, implicitly, wanted students to adopt. Teachers, of course, have their own *ethical frames* with regard to technology use for themselves—Mr. Murdock actually

downgraded to a flip phone to cut out the possibility of notifications while Mr. Pope reported routinely checking his phone in class—but for the purpose of this study, I was most interested in the *ethical frames* they might have wished to cultivate in their students. The negotiation between the *ethical frames* that teachers expected and the ones that students practiced is the site of controversy that this chapter investigates. In this section, I discuss the finding that the teachers in this study demonstrated an implicit preference for a particular combination of *ethical frames* on the part of students, even though they themselves exhibited a variety of *ethical frames*.

All three teachers in this study had extensive experience with using technology for personal and pedagogical purposes. Ms. Murphy was a member and contributor to Facebook groups for pedagogy development and for support when she was diagnosed with cancer, which indicates an involved *ethical frame*—connecting to a broader group that included people she didn't know in person. She used Jing, a screencasting program, to make instructional videos for students while she was on leave for chemotherapy treatment, and she identified herself as the person on campus facilitating discussion about technology integration. Mr. Pope described one-to-one schooling as being focused on inquiry, explaining that "you can go so much deeper here. Instead of my telling them the answer, they can go look for it." In his view, networked technology pushed the curriculum toward learning how to find reliable information and sources rather than presenting reliable information selected by the teacher—a view that would seem to support an open *ethical frame* for the classroom, encouraging students to pursue and evaluate content beyond what the teacher has vetted. At the same time, he struggled with the tension between depth and breadth of content coverage, complaining that the focus on inquiry meant that "I get through maybe, *maybe* two-thirds of the curriculum I used to get through." Mr. Murdock was an Army veteran who completed his MA with teacher certification in English and history after returning from his

second tour of duty in Iraq. He was a committed and disciplined writer who, on his second deployment, "drag[ged] around a 7-and-a-half pound laptop with me everywhere I went, and I wrote 700 words every single day no matter what conditions it was. Most of the time, the conditions were 120 degrees and filthy." He experimented with a variety of tech-based assignments, including video projects, PowerPoint presentations, history timeline-building software, class blogs, podcasts, Google docs and Turnitin.com.

All three teachers provided virtual access to course materials through their campus's learning management systems (LMS)—Echo360 at Neptune and Moodle at Sunnydale. At Neptune, this was a necessity since, as both Ms. Murphy and Mr. Pope pointed out, Neptune did not have textbooks or a library. At Sunnydale, students accessed the Moodle site less routinely, but all students were required to turn their papers in through Turnitin.com, a program the school purchased in order to discourage plagiarism. Though each of the teachers hoped that students would gain benefits from being able to access class materials virtually, the purpose of these programs was not to open the classroom network, but to reinforce the ties in the closed network of the classroom, increasing connections between students and course materials, students and the teacher, and students and classmates rather than opening the classroom to connections beyond the visible classroom network.

Teacher preference for redactive, protective, closed, and involved *ethical frames*

Even though teachers had various *ethical frames* guiding their own uses of networked technology, they demonstrated a consistent preference for students to use a particular set of *ethical frames*: redactive, protective, closed, and involved.

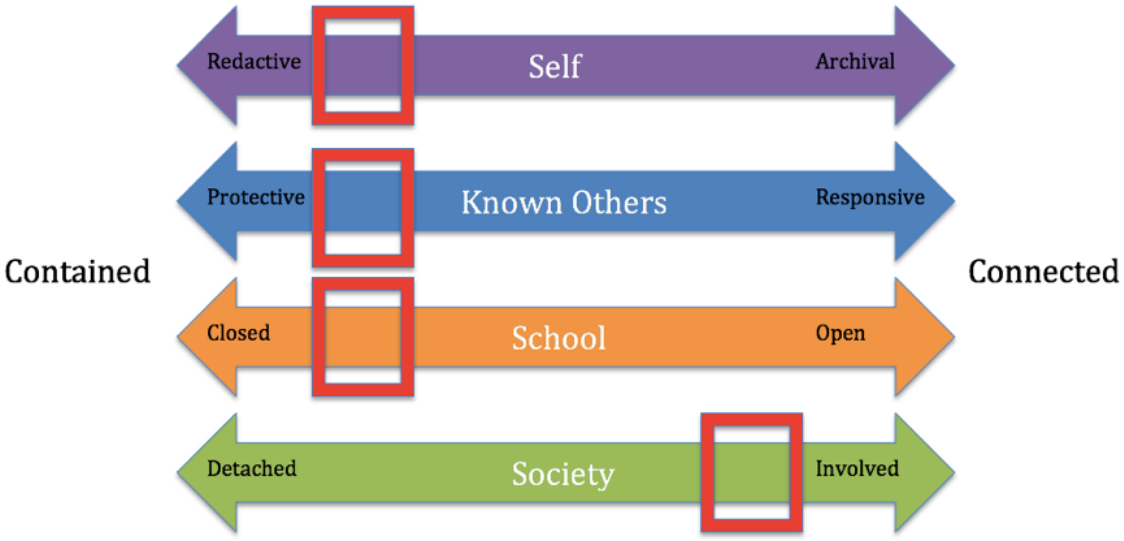

Figure 5: Teachers' expectations for students' *ethical frames* in school

Of the four social axes presented, teachers were most concerned with how students related to school. Maintaining a closed network in a classroom with wireless access to the internet requires every member of the classroom crowd to adopt a closed *ethical frame*, agreeing not to connect to people and texts that are not related to the classroom activity at hand. To encourage a closed *ethical frame* with respect to the classroom, teachers included technology policies in their course materials and posted rules about the use of technology in the classroom, but they still had to field moments in class where they feared the use of networked technology would interfere with student learning. Ms. Murphy was emphatic in her preference for paper-constrained ways of working, explaining that even though she had access to a pdf copy of *The Great Gatsby*,

> I would rather go to the library down the street and check out all the books and watch them read it. I want to see their finger gliding along the lines and following along. I don't want the readers up here to have a computer on their lap because I think that flip in their brains, like, "There's a tab right here for a book but there's a tab right here for Facebook, and I'm going to choose Facebook every time." I know that that urge is there. I have such

> a hard time having them put their phones away anyways. Why am I going to give them another reason to get their phone out or their computer out? That's not what I'm going to do.

Her sense that students have "a flip in their brains" and an "urge" to engage with social media aligns with concerns that obstacle-focused scholars raise about the addictive nature of technology and the disruptive impact it has on in-person interaction. Her co-teacher, Mr. Pope, concurred, saying, "I've come to the realization that students these days have grown up with it in their hand. I think it's better to try and figure out how to teach around it. You're not going to win the battle." These narratives position students as powerless to resist the call of their devices, which leads the teachers in this classroom to adopt a closed *ethical frame* toward the classroom when they can, even though they rely on an open network for their course materials.

When they needed the network for a class-related activity, teachers had few strategies for handling the less desirable aspects of opened classroom networks. Mr. Pope relied on students to manage their use of technology during class time, though he lamented that having access to multiple tabs on the computer "makes the assignment, what should be being done, a low priority." He explained that in a "comprehensive classroom, I at least knew that my thirty-two students were getting it," but in his one-to-one classroom where every student was looking at a computer, "I'm looking at forty kids, some of them look like they're working but a lot of them aren't." Though Mr. Pope had access to technology that would allow him to monitor all the students' screens from his teaching station, he never used the program, feeling that it transformed his role from teacher to police officer. If students were to adopt the *ethical frame* he privileged, Mr. Pope reasoned, policing students' use would be unnecessary. As we will see in the next chapter, the idea that technology changes the role of the teacher is pervasive in technology policy

documents. One reason that teachers like Mr. Pope seem to resist—or seek to constrain—networked technology use is that they don't want to occupy the roles that technology seems to script for them.

Like Mr. Pope, Mr. Murdock pointed out that when students were using laptops in class, they were often opening the classroom network:

> The laptops are more of an issue [than cell phones] because students just have multiple windows open, only one of which is what they're supposed to be doing. That's the thing that on the one hand it's a problem. On the other hand, it's not something that I've really dealt with.

Mr. Murdock's classroom policy was to encourage students to discover what works for them and to make decisions about the responsible use of technology accordingly. Their engagement in "multiple windows" was something he was willing to tolerate for the sake of giving them the opportunity to make the best choices for themselves. He explained, "My assumption is that at some point students are kind of going to figure out, 'Okay. That is a bad choice.'" Mr. Murdock believed in the promise of these tools, though he admitted, "I have yet to find a decent universal solution for getting the students to plan." He described several approaches to address this gap, from taking the whole class through the planning process—"work[ing] out together a hypothetical reading and writing schedule for that month"—to sitting down with individual students and mapping out their academic and extra-curricular commitments with markers in different colors. He concluded, "I don't know how you teach it." In his classroom, if the work was completed well, how students chose to spend their class time was a non-issue. But as Mr. Murdock observed, a challenge of this approach was that some students never seemed to make the connection. And while he was committed to supporting young people as they built their own

systems of discipline for getting the work done, when he said “it’s not something I’ve really dealt with,” he was expressing a legitimate concern that—like Mr. Pope—he wasn’t sure how to resolve the issue of balancing individual student needs with the demands of the academic activity and the variety of social norms governing the classroom crowd and the networked devices that extended that crowd beyond the borders of his classroom.

Ms. Murphy was not so willing to leave it to individual student decision-making. She took action to contain the sociomaterial network of the classroom, adopting a closed *ethical frame* that kept the people and texts in view. She explicitly stated that it was impossible to adequately observe and intervene when students were on their computers: “I like collaborative work on paper. I don't like this computer stuff where I can't see everybody and what they're doing. I like the computer shut, and I like seeing what everyone can do.” She adhered to the project-based curriculum that her school was known for, but she moved it off the screen and onto paper, where she felt better able to judge where students were—who was participating and how. This approach reflected long-established methods of evaluating whether students were engaged in the lesson and gave her more confidence in her sense of whether students were understanding the content. The closed *ethical frame* that she preferred for the classroom was not an aversion to technology, or even networked technology, per se, but rather a reflection of the kind of teacher-student relationship she felt was most effective—one in which she could monitor on-task behavior and track student progress.

Though teachers had a strong preference for closed *ethical frames* with respect to the classroom, the idea that classroom activities should prepare students for writing in college and in “the real world” meant that they sometimes described experimenting with networked tech to encourage an involved *ethical frame* with regard to society. I did not observe any assignments

that required students to make their writing public in online spaces, but students at Neptune did prepare business proposals for a *Shark Tank* style presentation to invited local business owners, and students at Sunnydale gave oral presentations that were video-recorded and sent to external assessors for the IB program. Ms. Murphy noted that when she implemented projects that required students to tweet responses to in-class activities using Twitter hashtags, she did so because she "wanted to emulate what I was doing in my grad class." This experiment with promoting an involved *ethical frame*—one that invites interaction with the public—called for students to also adopt a redactive *ethical frame*—one in which their online presence represented only what might be approved by a general audience. She noted that

> a lot of [students] have problems with it. "I don't want you to know my Twitter handle," [they said]. I said, "Well, why? Because I can find you easy enough. If you're afraid to have me or your mom or anybody else … look at your profile or your Twitter handle and what you're posting, then there's a problem. There's a problem, so either make a separate one for your professional life, which is here at school, or you just need to rethink how and what you're posting."

Ms. Murphy's suggestion that students' professional lives were at school and that social media participation for educational purposes demanded that they adopt a particular *ethical frame* with respect to their representation of self highlights the tension between the preference for a closed *ethical frame* at school and an involved *ethical frame* with regard to society. In chapter 5, I examine this tension more closely, using an *ethical frames* lens to account for the challenges that even tech-savvy teachers face when trying to balance the demands of a closed classroom network with calls for literacy pedagogy that addresses the community and communicative structures of a networked society.

As the teachers in this study worked to identify the kinds of digital literacies they thought worth teaching and the kinds of networked device use they wished to allow or support in their classrooms, they struggled to find instruction and assessment strategies that would prepare students for the digital demands of the future. On the one hand, Ms. Murphy questioned whether online writing would even be part of students' professional identities, saying that, as an English teacher, "I don't even think I use it in my career."

> Do I even use online for writing? Do I even write for my career? I could keep a blog, but I don't. I don't think—no. Do I think they're going to use online for their future career? I think they're going to be doing it in some way, shape or form. Definitely something. It doesn't have to be professional. They are going to be doing it.

This uncertainty about the value of online communication to a professional future raises questions about how teachers think about the reading and writing skills that belong in the ELA curriculum. Is the 11th grade ELA classroom a proto-workplace, where students learn to write reports, compose memos and briefs, take profession-specific notes? Or is it more about developing personal reading and writing habits that set a path for lifelong learning? These options are not mutually exclusive, but thinking of the ELA classroom as primarily the place for professional or personal literacy development shifts the curricular focus in ways that might include or exclude instruction in different kinds of digital literacies.

Though Ms. Murphy characterized school as a "professional" space, she also argued that it was not a high school teacher's job to teach every literacy skill, but rather, to help students see, "This is out there. Whatever job you get, and you need this, it's right here. I think it's our job to show them the resources, but I'm not going to show them how to perfect videos because that's not my job." So for Ms. Murphy, composing for digital environments was something she wanted

students to be aware there were tools for but didn't want to take up as central to the ELA curriculum. But Mr. Murdock observed that

> It would be folly to pretend that more and more of these students' lives are not going to happen online. I think it would also be folly to pretend that that's a reason to simply let that happen, heedless of the outcome. I think we do want to surface what the decisions are that you're making about what you share and how you share.

In other words, Mr. Murdock sensed that there would be some value to opening discussions with students about their digital literacy practices beyond, though perhaps including, the professional aspect.

Mr. Murdock's *ethical frame* inclined him to interpret technological platforms as sometimes interfering with students' ability to develop the habits, skills, and knowledges that traditional classroom instruction would facilitate. He worried that by outsourcing plagiarism detection to Turnitin.com, the school was simply sidestepping the necessary conversation about the importance of producing one's own work and citing others carefully. He expressed disappointment that the school dealt with a perceived "cheating problem not by teaching the students to have integrity, but by making things cheat-proof, which is not the same as teaching people to have integrity." As he viewed it, the technology might mediate the problem, sorting the plagiarized work from the original, but it also obscured it. He felt that you could only address the issue if you spent time addressing how students understood their relationship to their work and to the work of others. He concluded,

> I would like my classroom to be a place when tech is being used; we are being deliberate about it. We are clear on why we are using it, why it is the right tool to use, and understanding that it is not always the right tool to use.

These kinds of pedagogical discussion were not always easy to script, though. Mr. Pope explained his frustration at students "tricking him," by appearing to be on task, but not turning in their work at the end of class.

When I asked about his strategies for teaching students how to prioritize and complete classroom assignments, he confessed:

> I assume I've taught about it by expressing my expectation that I only want you to have this open. When that's finished to a high-quality standard, then you can move onto something else. Teaching them how to do that, I guess I've never done that. I wouldn't know how to.

These teachers were experienced users of technology, but were not always certain of the place of digital literacies in the curriculum or the best pedagogical strategies for addressing the way networked technologies opened the classroom network in undesirable ways. Mr. Murdock's reservations about Turnitin.com were more broadly indicative of the *ethical frames* teachers brought to their engagements with students and the shared classroom space: Teachers wanted technologies that would reinforce connections within the closed network of the classroom, but suspicious of the same technologies when they altered the role of teachers as disciplinary experts.

Teachers varied in the *ethical frames* they adopted for their own uses of technology. Both Ms. Murphy and Mr. Murdock had involved *ethical frames*, posting in online forums and blogs for the purpose of documenting their experiences and connecting with broader audiences. Mr. Pope actually opened the classroom network to respond briefly to texts and felt confident in his ability to identify credible resources quickly. These skills—writing responsibly in online spaces, checking a cell phone for notifications in ways that don't derail progress, and vetting online

sources—were identified as desirable, but seldom addressed in the classroom. Teachers didn't introduce these practices to students, even though—as Chapter Five takes up—developing an involved *ethical frame* with respect to society seems to be an implicit goal of many of the policy documents written to guide classroom practice.

Students: Variations in *ethical frames* combinations

Zaira: "Technology brings out my life"

> I was online schooled … that was 6th grade, I believe, I started doing that. That's why I'm very, maybe I'm being arrogant, but I'm tech savvy in a way, because I really know how to use different programs … I do think I adapt to things easily, even if I don't understand it, I think I get things. … It was easy for me to use it, but I did end up failing—not failing, but I wasn't as successful as I could have been, because I was very depressed, I had a very depressed time in my life. … I'm over it now. I've grown. I've used that time to become me. Yeah, that's when I was, like, again, I was on that game [Startle] for friends and stuff. I felt like I had nobody but my twin sister, that's how I got so dependent on my twin sister, too. Technology brings out my life, this is funny!

Possessed of a quick smile and a can-do attitude, Zaira, a sixteen-year-old student at Neptune, was a frequent contributor to class discussion—the kind of student a teacher can count on to brave an answer when the class has been quiet just a beat too long in response to a discussion prompt. She and her twin sister, Saira, often collaborated on group projects and took lead roles in organizing and distributing the work of the groups they were part of. They made a point to wear different colored hijabs to help the teachers and their classmates tell them apart, and their devotion to each other was clear as they finished one another's sentences, shared stories about the extracurricular activities they did together, and made plans for their future that prioritized

staying close to one another. When I asked Zaira to trace the associations she made to her first experiences using technology for academic reasons, I did not anticipate getting quite so much information about her family situation, her own struggles with depression and isolation, and her journey toward becoming herself. And, as her exclamation that it is "funny" that "technology brings out [her] life" suggests, neither did she. Perhaps we should have, though, considering the ever-present role that networked technologies play in mediating the everyday logistics and relations in our lives. This tangling of the personal and the technological is at the heart of conflicts over networked device use in classrooms, where technologies designed for personal use and invisibly mediating multiple kinds of personal relationships are reimagined as tools for learning.

The experience of attending an online school taught Zaira some things we might expect: transferable skills like "how to use different programs" and how to "adapt to things easily." Being homeschooled narrowed her social world to her immediate family, and she became "dependent on [her] twin sister," but having access to an online game meant that, as she described it, she had "friends all over the world." In spite of the extended exposure to technology that her three years of online schooling provided, Zaira explained,

> I use technology, but not a lot … I don't post, and if I do post, it's every 6 months. They're very spread out. I have messaging apps but I barely text back. I'll get a notification, I'll see what the person said, but I don't text back. For video calling apps, I don't use those. Snapchat app—I watch other people snap, but I hardly actually snap. If I am using social media, it might be for one of my organizations, or something, because they use social media to contact everybody. I do not personally use social media.

Zaira's self-appraisal of her reading and writing habits on social media points to some of the different relational categories that I engage with in this chapter. When she says she doesn't post, that tells me that she doesn't use social media to document or process her daily experiences. She reads people's messages and snaps, but "barely" responds, but she does use social media as part of her participation in larger social groups, her "organizations." The fact that she didn't post often and didn't text people back signaled, for her, that she was not a social media user, even though she described reading other people's messages and feeds, and she reported following 400 people on Instagram and having 500 followers. This indicates that if she is not a social media user now, she was at some point in the past. One or more of her *ethical frames* has shifted.

In another part of our interview, she indicated that it was not always the case that she avoided personal use of social media. She described a transformation that she went through as she moved from her online homeschool to an in-person high school, saying,

> **Zaira:** I think I changed. Last year I think I was a different person. I was still a nice person, but I think I was new to high school, so I think I was looking for people. Over the summer I had realized, myself, "I'm not this person, I don't have to be that person." I've become my own person, and I just deleted a lot. Once I think I had like 20 something posts, that's when I was trying to be like everybody else. Everybody had an Instagram, everybody had this. Then I realized, "This is not you, be who you were." Now I'm me again.
> **Merideth**: What made you realize that? What helped you realize that?
> **Zaira**: I was doing stuff out of my character like, I was never into makeup before and then all of a sudden I was into makeup. Then all of a sudden I had to text people back. All of a sudden I was like … "Wait, when's the last time I hung out with my baby sister?" I was this different person, I did not like it. I decided to just be me, now it feels like I can breathe.
> **Merideth**: Did deleting the posts help you feel like that? Like you'd recovered yourself somehow?
> **Zaira:** Deleting the posts erased something I didn't want to be for myself.

As far as Zaira was concerned, technology not only brought out her life, it supported and defined her identity and materialized her relations to others in important, though not always desirable, ways. Reaching out for friends and community changed her into "this different person," and

when she decided it was not the person she wanted to be, she "erased something [she] didn't want to be for [herself]." In this way, Zaira conceived of her reading and writing online as not just reflecting, but also potentially altering her identity and interests. As she made efforts to find friends at school, she made parallel efforts to engage with friends in online spaces—a common relationship maintenance strategy for new friendships. She set up accounts on platforms where people she met in person were posting, and she responded to texts when hailed by new friends. It would be totally reasonable to assume that during summer break, her use of networked devices to mediate these new relations would increase to make up for the decrease in in-person interactions, but Zaira's sense of herself and her preference for particular kinds of interactions led her to reconsider her digital literacy practices. It wasn't the platforms that drove her device use, but the relationships which they mediated. When she didn't want to prioritize those relations or enact those versions of herself, her device use dropped off.

Like Zaira, many of the students and teachers in this study told stories about how their uses of everyday networked technologies put them in relation to one another and to the contexts they moved in and out of, including the classroom. I interpret these relationships as fundamentally ethical in nature because participants' digital reading and writing practices seemed to both reflect and materialize their commitments—to themselves, to their family and friends, to school, and to society—in a way that contributed to their sense of ethos in those relationships. In other words, Zaira, sitting in class, is both a student and a daughter. (She is also a twin sister, an older sister, a granddaughter, a friend, and a member of a youth community research team.) Even in a non-networked classroom, this would be the case. With a networked device at her fingertips, though, she is able to perform any or all of those identities simultaneously; for instance, reaching out to read or write to her mother at a moment when her

teacher would like her to be acting primarily as a student. Zaira reports, "if I'm at school, I always have it [the cell phone] by me because my mom always likes to tell me if she's coming or if she's not coming." In those moments, Zaira, like millions of other teens in classrooms around the world, has to decide which role takes priority.

These ethical dilemmas regarding the relationships students wanted to develop or maintain animated much of Zaira's (and other participants') concerns about their writing practices on networked platforms. When she defines herself as someone who reads but doesn't text back, who privileges in-person time with her little sister, and who understands deleting posts as erasing an identity—not just online, but internally— that she didn't want for herself, she is adopting multiple *ethical frames* that shape the ways she bounds what and to whom she reads and writes on networked devices, letting in the relations that align with her self-concept and filtering out those that do not, both sets of which are obscured in the workings of the same device. As Zaira's example illustrates, *ethical frames* represent the boundaries around interactional possibilities that people set regarding the relationships they wish to propose and maintain with others. *Ethical frames* include and exclude potential audiences, not because the networked device suggests it, but because the device user wishes to perform a specific relation.

What we learn when we begin to consider students' reading and writing on devices as materializations of their *ethical frames* is that reading and writing decisions can be deeply connected to the imagined relationships it proposes or supports. This is especially true for writing in digital environments, where the person at the other end of the relational tether can hail or respond in real time (or, perhaps, choose not to respond) and where some applications notify the sender when a message is received or read (or, again, could be left unread). In a digital environment, (lack of) response and response time are frequently assigned meaning.

Acknowledging the connection between writing and relationships in moments where students text or engage with social media, provides an important opportunity to recognize students as agents who shape their identity, in part, through the reading and writing they do with and for others. In connecting students' reading and writing on devices to their *ethical frames*, my research offers a vocabulary for discussing the variations in how that agency is practiced through writing

Zaira's case demonstrates the complexity in how these frames interact. Her decision to delete her posts when they were not reflective of her identity any longer suggests a redactive *ethical frame*; her confession that she barely texts back suggests a protective *ethical frame*; her insistence on keeping her phone accessible at school suggests an open *ethical frame*; and her practice of posting on behalf of her organizations suggests an involved *ethical frame*. These frames are about how she sees her relationship and responsibilities to the people on the other end of the reading and writing connections that her networked devices mediate. Her position with respect to these different relational possibilities is illustrated in Figure 6, where her mediated expressions of relationship to self, known others, and school are fairly stable (at present), but her relation to society is flexible. Left to her own devices, she doesn't post, but in her capacity as a member of an organization, she will post to promote events. That means that frames shift according to the role student perceive themselves to be playing and the relationships they imagine they are proposing or maintaining with when they write in digital environments. She explains:

> I'm that good student. I try to seek out opportunities, I'm part of many organizations, because I really want to be this community outreach worker, to put pride into my community. I would say, as far as technology goes, I do rely on it a lot, because its many

purposes. As far as, reaching out to many people, to different types of social groups, and to check up on people.

Her perceived relationship to the people on the other side of the networked connection (her audience) changes, and so her *ethical frame* slides down the continuum.

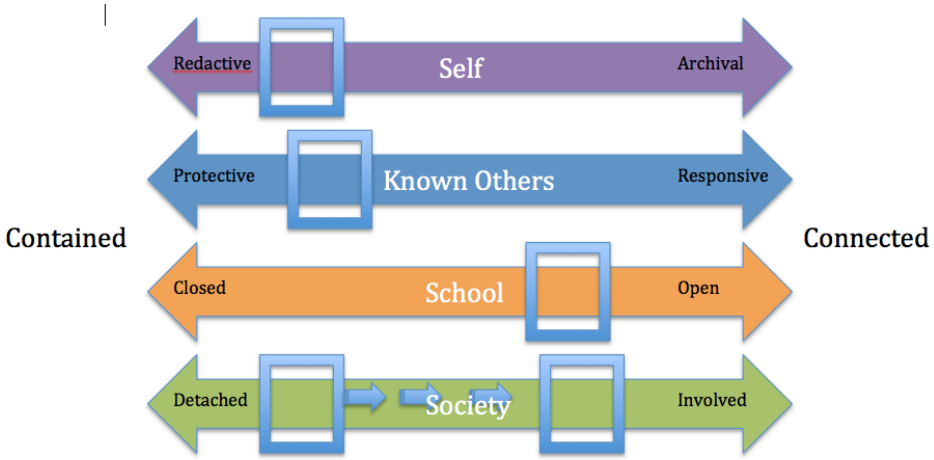

Figure 6: Zaira's *ethical frames*

As Zaira's history demonstrates, she hasn't always used the same *ethical frames* as she's thought about her reading and writing online. Her continued, though waning, engagement with an online multiplayer game and her admission that she got on Instagram and made a flurry of posts because, as she puts it, "I think I was looking for people," suggests that she will adopt a responsive *ethical frame* in times of felt isolation. Her flexibility across these frames points to the way participants' uses of networked technologies were grounded in both their sense of themselves and their social needs. Her *ethical frames* have shifted as her priorities, responsibilities, and her perception of herself and her relationship to others have changed over time. In the sections that follow, I provide some context on how teachers imagine the boundaries of their classrooms and case studies of three students to demonstrate the variation in *ethical frame* combinations among my participants. These cases are snapshots of how participants were

negotiating the use of technology to mediate their multiple roles and commitments to self, others, school, and society. Put simply, Zaira's *ethical frames* are flexible. As participants imagined and reimagined themselves in relation to their parents, their peers, their teachers, and the community, they took up different *ethical frames*. In other words, it is not possible to fix a student into a specific *ethical frame* category.

The most pressing concerns related by the students and teachers in this study had to do with how students took up technology in relation to others—both those who were physically co-present in the classrooms and those beyond the easy surveillance of teachers and peers. For the most part, teachers tried themselves and wanted students to adopt a closed *ethical frame* toward the classroom. This took shape as a desire to provisionally ban electronics from parts of the class day, as Ms. Murphy did when she collected a class set of *The Great Gatsby* from the public library to prevent her students from reading the pdf on a laptop where they could potentially interact other people and materials. At the same time, all three teachers went to some trouble to extend the reach of the classroom virtually, sometimes into the community and more often into the home. In other words, they wanted students to adopt a closed *ethical frame* when they were in class and a responsive (to class) *ethical frame* when they were at home.

The social relations to known others—represented by a continuum of *ethical frames* that ranges from protective to responsive—and the social relations to school, represented by a continuum from closed to open—are slightly tangled. This tangle is the result of the nature of the classroom network or "crowd," as Philip Jackson (1968) described it. Because classrooms contain peers who are sometimes friends and sometimes not and because teachers sometimes position themselves as the equivalent of workplace bosses and sometimes as *in loco parentis,* acting as guardians rather than guides, the idea of open and closed *ethical frames* (in the

classroom) and protective and responsive *ethical frames* (with known others) have some overlap. Such is the peculiar nature of the classroom. As Jackson (1968) long since observed, the classroom is not a random collection of strangers, nor is it perfectly composed of chosen companions, but instead comprises some relations that are akin to family and others which may not even qualify as acquaintances. Sometimes students are "friends" on their social networks with people who also occupy the classroom space, complicating any clean distinction between "family and friends" and "teacher and classmates." In this way, the classroom is almost uniquely positioned to be a space where classroom actors bridge *ethical frames*, moving from—and toggling between—relations with known others to relations with society. The cases below illustrate the variety of *ethical frame* combinations adopted by students as they address the ethical dilemmas posed when they are hailed by multiple audiences. The first, Nelly, shows us a student whose *ethical frames* align fairly closely with teachers' implicit expectations, while Jamila and Nihaar demonstrate variations in *ethical frames* that complicate easy assumptions about their habits of writing in online environments.

Nelly: Redactive, Protective, Closed, Detached

Nelly, an 11th grader at Sunnydale High, was perhaps the most extreme example of someone unilaterally on the contained end of the continuum because she set clear boundaries on both her use of class time and her use of leisure time, doing what she could to prevent schoolwork from intruding on her time at home. In addition, she had strong convictions about both the amount of time one should spend on technology and the kind of identity one should craft through reading and writing on social media. For example, she explained that "My computer I use the least, I'd say, just because I tend to use it only for school work. On the weekends I use it even less, because I try to keep Sunday no technology at all." Nelly's

protective *ethical frame* led her to set boundaries on what she used technology for, how much time she spent using it, and when she used it at both school and home.

In class, she maintained a closed *ethical frame*, only using her phone "for writing small reminders on a calendar or small notes [saying], 'Hey, you need to do this.'" She used her phone strategically, to save time and minimize the disruption to her participation in class that could be caused by the uncertain process of connecting to the school wifi: "I use my calendar a lot on my phone. Then I'll use it to look up really quick things if I need to, because my computer, I have to boot it up, and then I have to enter the wi-fi thing. Sometimes it doesn't boot up right, … [so] it's a longer process to use my computer than it is to use my phone." By using her phone instead of her computer for quick calendar updates and access to information, she saw herself as minimizing the potential distraction technology use posed to herself and nearby peers.

Nelly's detached, redactive, and protective *ethical frames* informed her social media platform decisions and posting practices. She avoided interactions with unknown publics online: "All my accounts are private, so it's really only to connect with my friends and family." And she avoided controversial topics that might lead to unpleasant exchanges:

> I don't usually post anything controversial or anything that could be taken wrong by anyone else. Usually it's something that my rule is if my grandma is there, if she was looking at me posting this, she'd be okay with it generally, or my family, because my family, like I said, they have all my passwords to everything. They can see all of that.

She explained that she had "several younger followers that I have friends at the stable and students that I've taught at the stable who view it. Obviously I don't use profanities, because it's not professional." Her *ethical frames* for using networked devices take into account the people she has relations with on the other end of the network connection: her family, her grandmother,

the younger children who follow her. She briefly engaged with Twitter, but confessed "I have not used Twitter since 9th grade, really. I got it because my family started getting into it. Then I just never felt it was useful. I never knew what to tweet about, and I still have no idea what is a tweet." Her confusion over "what is a tweet" can be productively thought of as related to her detached *ethical frame*. Twitter lends itself to broad audiences and frequent check-ins. Her preference for Instagram reflects her protective *ethical frame*, where she can make posts that really only reach her family and friends. She did, however, find ways to be involved in online communities, in spite of her resistance to interacting with strangers, by contributing to a citizen science project for Cornell where she contributed to the "database. Then the ornithologists at Cornell University take that data, and they're able to sort of use it to figure out the populations of birds and the migration." Her contribution to the North American bird database hosted by Cornell was a form of social participation, if not a particularly interactive one, so though she was more on the detached side, there were obviously some public social spaces she could be persuaded to move down the continuum for, though perhaps not as far as Zaira. Her *ethical frames*, represented in Figure 7, largely align with the *ethical frames* teachers preferred and expected, even if they weren't always sure how to teach them. This puts Nelly at an advantage; the alignment of her *ethical frames* with those privileged by her teachers makes her less likely to draw negative attention to herself and more likely to use technology in ways that convey to teachers that she is responsible and mature.

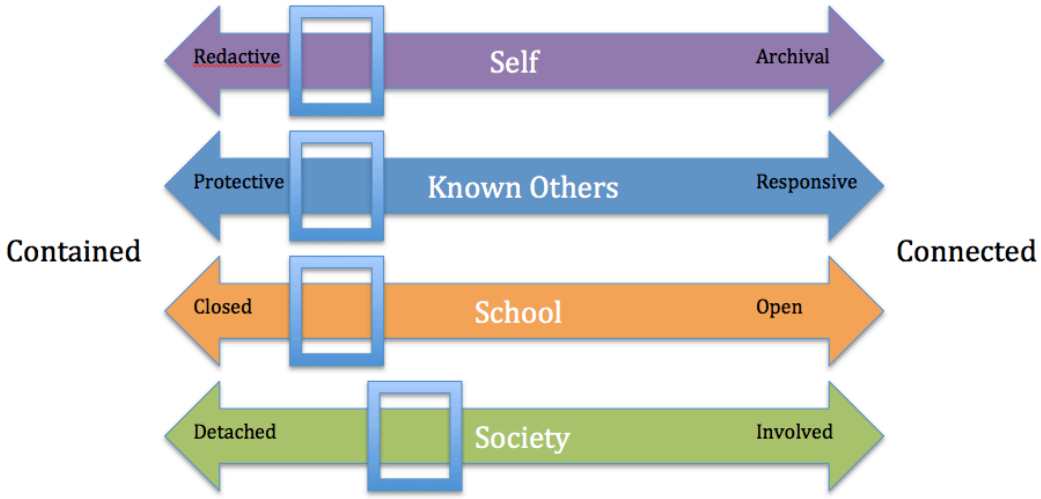

Figure 7: Nelly's *ethical frames*

Jamila: Redactive, Responsive, Open, Detached

Though Nelly was forceful in her habit of keeping her phone put away, more than half of the student participants explicitly referenced texting or responding to texts from their mother in class. Jamila, a 16-year-old student at Neptune who described herself as: "really quiet and I try to fly under the radar so teachers don't expect much of me. But my grades always say that I'm very hard working. … I have fairly A's and B's throughout all of high school," reported: "I'm actually guilty of *calling* my mom in the middle of class, haha," and further explained that she set up a Snapchat account for her mother so that she could stay in touch throughout the day:

> And, yeah, I know it was inappropriate, but yeah, that's the type of stuff I do in school. I Snapchat my mom. And I call my mom because I'm usually done with my work, so I just call her, and I know she sleeps so I just wake her up and call her. I'm just like, "So what are you doing? What'd you dream about? I know you want to come pick me up from school." Because every day, I have to catch the city bus home from school, because I don't live in this district. So yeah, that's what I do.

This brief statement represented a number of features common to students' reports of using networked devices that have implications for classrooms. First, Jamila planned for conversation with her mother throughout the school day. She expected the classroom network to be open to her mother any time she was "done with [her] work." Jamila defaulted to calling, in part, because her mother couldn't get the hang of less intrusive social media platforms (Snapchat, you may remember from earlier in the chapter, caused a problem when her mother didn't know how to reply.), but in both cases her underlying assumption was that she would and could be in communication with her mother while in class, and she planned for that by attempting to create a shared social media space, by anticipating her mother's schedule, and by engaging with her mother when she was done with work. Second, like many participants in this study, she left much of the logistical planning for getting from school to classes or home to be scheduled as needed. Nancy Baym (2015) calls this "micro-coordinating," and it was especially prevalent among the students at Neptune who took community college classes in the afternoon, worked part-time jobs, and played for sports teams on other campuses. The precarious or complex nature of both students' and family members' daily schedules made moment-to-moment planning preferable. Jamila's quiet and studious persona in class combined with her careful balancing of "work" with calling home perhaps accounted for her observation that

> the school phone policy doesn't get enforced on me, even though I have [the phone] out. There are sometimes where I just put it in my backpack, but there are sometimes where if I'm done with my work, I'll just have it out, just be on my phone.

For Jamila, the classroom was not a closed network, but a space where she toggled between multiple demands and desires that permeated her whole day. Her actions were underpinned by an open *ethical frame*. That desire for connection did not extend beyond her

known family and friends, though. Though she had accounts on Snapchat, Kik, and Instagram, she explained, "I don't really use Instagram. Mainly because I found that a lot of people were adding me. People that I didn't know and um, I'm more of a private person. I don't need people to be all in my business." She said,

> My parents always taught me that it's no one's business besides your own, so I don't need strangers to say, 'I'm sorry if you feel this way,' or 'I'm sorry for what you're going through.' I don't need that. And I don't feel the need to get attention from strangers. So, yeah.

In addition to her insistence that strangers don't need to know her business, she shared Nelly's aversion to Twitter, claiming "I'm too lame to be on Twitter. Nothing eventful goes on in my life. I'm always at school or I'm always studying. There's nothing eventful about my life." These orientations toward social connection to a broader public represent a detached *ethical frame*. Jamila had no sense that she could either gain from or contribute to the kind of public forum Twitter provides.

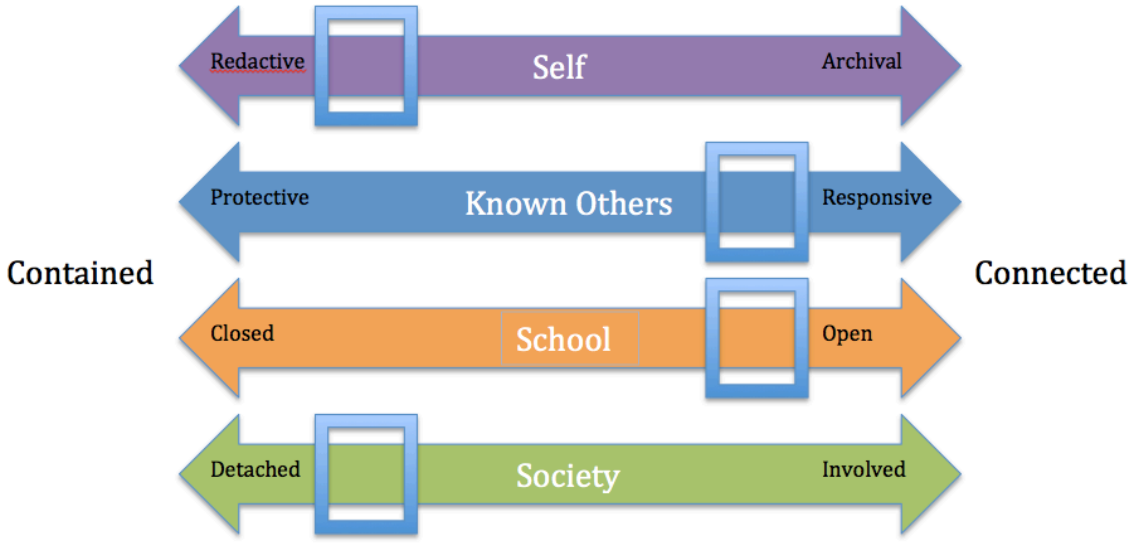

Figure 8: Jamila's *ethical frames*

Jamila's pattern was common among participants, who understood that entanglement in online controversies could ruin one's future prospects, a concern that both Nelly and Jamila expressed. Their caution about posting online led them to avoid public forums like Twitter and contain their social media to family and friends on Snapchat or Facebook. This had the effect that Ms. Murphy championed: they did not attempt to write things that were not in keeping with their desired public persona. In this way, the redactive and detached frames often, though not always, paired, and the open and responsive frames did as well since students who wanted to be responsive to their family and friends throughout the day opened the classroom network to do so. Jamila's open and responsive *ethical frames* mean that she is consistently violating classroom rules—a difficulty she gets around by being an A/B student. Her redactive and detached frames mean that attempts to motivate her writing by moving it to a digital space are likely to backfire, even though she might impress the casual observer as someone who is invested in reading and writing in digital environments. She is invested in a particular kind of digital writing that proposes and maintains particular kinds of relationships.

Nihaar: Archival, Protective, Open, Detached

Student participants related complex, and sometimes conflicted, *ethical frames*. Nihaar, a 16 year old student at Sunnydale described himself thus: "I wouldn't consider myself a hardworking student, but I'd consider myself a good student." He described math as his favorite subject and he participated in a variety of sports, including "soccer, tennis, swimming, and lacrosse sometimes." His family had a strong set of guidelines for using technology that was unusual among participants in this study, and his *ethical frames*, represented in Figure 9 were archival, protective, open, and detached.

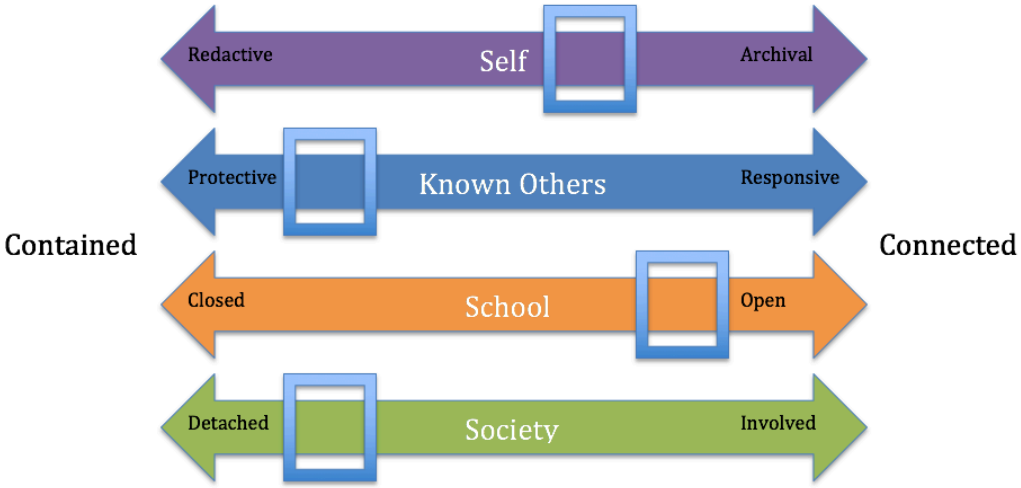

Figure 9: Nihaar's *ethical frames*

Nihaar adhered to family rules that included "No using phones in the car, no using the phone at dinner, no using the phone while studying. …No having my phone upstairs ... When I sleep, I have to have my phone downstairs, and I sleep upstairs," but he also noted that his parents "don't really enforce that with my iPad and my laptop because those aren't things you see charged in the wall. I'll end up using those in the night without them knowing." He adamantly insisted that there's "No even going near my phone at the wheel. I won't even pick up the phone for a call," and that he didn't use his phone while studying. He said,

> I don't have notifications turned on. I'll have messages waiting but I don't know that they're there, because I don't have vibration turned on, so anytime I'm curious someone texted me, I'll look and just see, but it won't bother me from doing something.

These guidelines indicated that he implemented a protective *ethical frame* to contain his active presence to one space at a time—when he was driving, sleeping, or studying at home. And yet, when it came to school, he had an open *ethical frame*. He explained that some teachers at Sunnydale had begun having students surrender their phones at the beginning of class, placing them in an organizer with pockets for everyone's phone. He said,

> I really don't like it, having to put my phone in the caddies, because it's just become so integrated into my studying that [the phone] doesn't hinder me from doing anything anymore, but it keeps me talking to people which is always good. I know it can be a distraction at times, but I think putting your phone in a caddy in Spanish class or biology class is a little bit of a stretch.

In response to this "stretch," Nihaar pointed out that "It's just inevitable that kids will use their phones to text. Honestly, I use my computer to text from bio and Spanish, so why are they just making it more difficult for me?" As Mr. Murdock pointed out, the laptops can perform all of the same messaging functions that phones can. Taking up Nihaar's phone didn't prevent him from engaging in social spaces beyond the classroom, but it did add a layer of effort to his ability to do so. He reported variation in his use, saying, "If I have a day with lots of activities, I'll probably go without even checking my phone, but then if there's something I want to talk about, I want to talk to someone, I'll use that." In other words, as far as he was concerned, the schedule and the relationship drove his device use more than its addictive properties. He texted with students in other classes and students sitting in the same class with him, indicating an open *ethical frame*.

His approach to social connectivity was detached, and he said

> I limit my accounts to my friends. On Instagram, I have follow requests pending right now, but I won't accept them until I actually know who that person is, and I just purge everything out of my account, purge all my followers that I don't know.

Nihaar's practice of purging followers he doesn't know and curating his social media relationships to only known others reflects a detached *ethical frame*, one in which he doesn't seek engagement with a public beyond the one he can try to predict.

Predicting publics in online spaces is not always so clear cut, though, and though there's nothing specific in Nihaar's interview to say decisively whether he had a redactive or archival *ethical frame*, he described an incident to me that suggested he kept texts, pictures, and posts even when they caused him some measure of trouble. He took a date to prom, and when he posted prom pictures, a friend who had previously gone out with her was angry and started a group chat to complain about his behavior. I asked him how he knew about it, and he showed me a screenshot that a friend in the group chat took and sent it to him. He walked a line between being unapologetic for taking a date who wanted to go with him to prom, feeling bad that his friend was upset about it, and recognizing the situation as somewhat absurd. In the course of it, though, he archived the prom pictures and group chat, and when I asked my concluding question about whether he had suggestions for what researchers should look into regarding teenagers and technology, he said

> How its problems, like ... How that's come into their normal life. Like, the problem I had with the guy finding out ... me and that girl? That was something, but people don't really think of it, people think like, oh, I'll get stalked, is the only way that technology actually, that social media comes to play in your normal life. Meeting new people, and just familiarizing yourself with those people, getting to know them better, and how it affects your relationship to people.

Nihaar's concern points to need for a more nuanced conceptual vocabulary for the various kinds of relationships mediated by networked devices—not just the extreme (and often negative) examples. I propose *ethical frames* as a theory that might facilitate such discussion, providing a common vocabulary for discussing differences across experience and practice.

Conclusion

The teachers in this study brought different kinds of networked device experience to the classroom, experience which shaped their own *ethical frames*. In spite of variations in their own use, they seemed to prefer that students adopt a particular combination of *ethical frames* in the classroom: redactive, protective, closed, and involved. Most of the technologies that teachers adopted for classroom use, including the campus LMSs and the Google suite, were leveraged to reinforce the closed network of the classroom. In addition, Mr. Pope and Ms. Murphy took steps to deflect device use when they judged that students might be unable to resist the appeal of opening the classroom network. *Ethical frames* that might inform device use for mediating or maintaining relationships with online representations of self, with known others, and with society were rarely addressed—the only exception being Ms. Murphy's suggestion that students adopt a redactive *ethical frame* by creating a Twitter account that wouldn't have anything they wouldn't mind her reading. The teachers pointed back to the importance of using networked devices in professional and responsible ways, but didn't feel that they had strong strategies for teaching students how to do that, even though they themselves seemed to have experience participating in online communities. In short, teachers knew how to read and write in online spaces, had particular notions for how students should be reading and writing in online spaces, felt uncertain about strategies for teaching students how to do so that went beyond catechisms of what not to do, and erred on the side of caution when asking students to use networked technologies—preferring closed networks with known boundaries.

Zaira, Jamila, Nelly, and Nihaar demonstrated that no two students approached reading and writing on networked devices in precisely the same way, but patterns of connection and containment could be discerned, and their reports suggested that the focus of our conversations about networked technology use in classrooms should be the relationships students imagine

materializing and maintaining through their reading and writing practices on devices. As one illustrative example, Figure 10 highlights how looking at teachers' expected *ethical frames* for students (depicted in red) alongside a student's *ethical* frames (Jamila's, depicted in blue) can reveal potential tensions between what teachers expect and what students do.

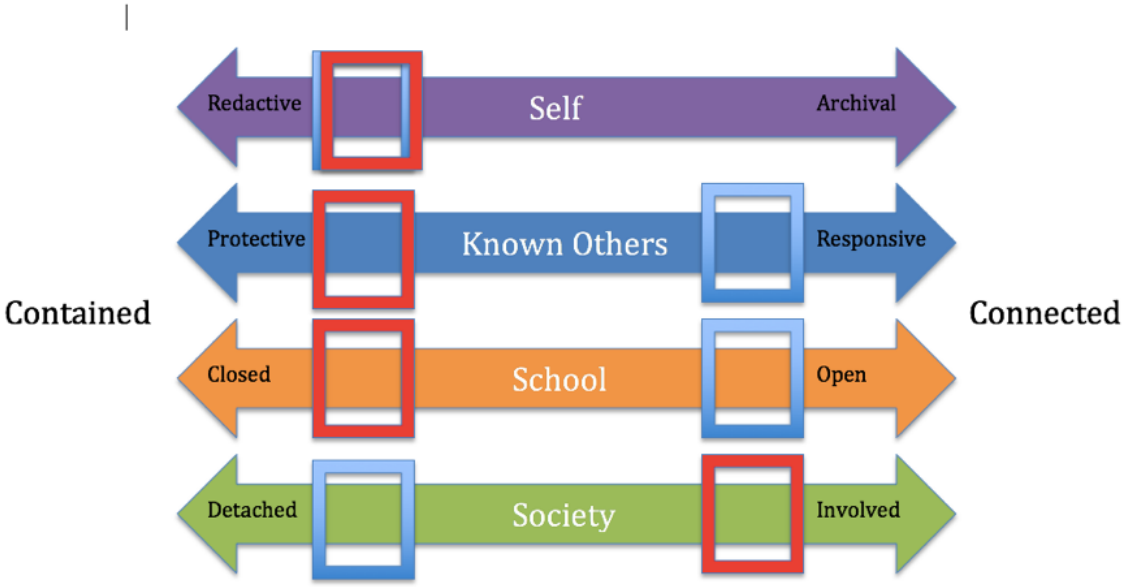

Figure 10: Teachers' expectations and a typical students' practices

While teachers and most students agreed that young people should be cautious about what they post online, every other interactive axis would have to be negotiated. Thinking of networked device use in classrooms as the result of *ethical frames* generated by teachers' and students' understandings of how reading and writing online mediated their ethical commitments provides a conceptual vocabulary for teasing out these differences. Circulating discourses have cast these practices in black-and-white terms, praising networked technologies for their expansive possibility to connect the classroom to the outside world and condemning them for encroaching on the sanctity of class time. These constructions were apparent in the ways student and teacher participants talked about technology use in classrooms, but they elide a critical aspect of the conversation about the role of technology in the ELA classroom: the relationships that are

obscured, or "blackboxed" by speaking as if the relation is between the student and the device and not the student and the person (even if that person is an imagined future self) on the other end of the network connection.

A commitment to improving technology integration and digital literacy instruction—to say nothing of social relations— in ELA classrooms demands that the ethical relations implicit in writing through networked devices be brought to the center of the curriculum. As Zaira's experiences made plain, decisions about using networked technology in classrooms to read and write to other people could be viewed not just as simple decisions about task management, but, rather, as complex relational decisions that involved positioning oneself with respect to multiple audiences. These are the moves that readers and writers make in our modern world, whether inside a classroom or outside. Duffy's attention to the ethical turn in composition allows one to see these acts of composition as demonstrations of ethical relations—every text or post representing a student's attempt to materialize an ethical commitment to the reader on the other end of the connection, with each student bringing a particular combination of *ethical frames* to the composing moment.

Discussion of why, when, and to whom we write is fundamental for both understanding how networked devices impact our patterns of communication and for building a solid foundation in rhetorical writing instruction. In other words, the goals of teaching students to write effectively and to manage their time on technology, which have often been positioned as competing for attention in the classroom, can be seen as complementary when instructors adopt an *ethical frames* lens, they can see literacy practices on networked devices as manifesting ethical commitments and position their curriculum to take seriously the ethical commitments that students carry with them into the classroom.

Chapter 5: *Ethical frames* in policy and practice

In the prior chapter, I proposed a theory of *ethical frames,* grounded in empirical data collected from students and teachers in two high school classrooms, to help account for the variety among student approaches to using networked devices as well as the disconnect between teachers' expectations and students' practices regarding networked tech in the classroom. Teachers and students rarely talked about these disconnects with each other. Instead, they independently devised systems for handling the hospitality demands of networked device use in the classroom. The disconnect and discontent created by a misalignment between the *ethical frames* that teachers expected students to adopt and the *ethical frames* that students brought to their reading and writing on devices is often treated as a problem to be solved by constraining material access to open networks. Teachers expressed a surprising solidarity in expectations for particular *ethical frames* combinations on the part of students, which only partially reflected their goals for student learning and didn't align neatly with their own *ethical frames* for personal device use or their understandings of how students used networked devices for everyday communication and extra-curricular purposes.

As students toggled between approaches to personal, familial, educational, and civic contexts for reading and writing on their devices, teachers operated with both direct and ambient input from overlapping institutional directives, negotiating multiple policies, plans, and practices with regard to networked tech in the classroom. The object of this chapter is to analyze the various policies meant to guide technology integration in schools, putting them in conversation

with empirical data that illustrates the tensions between the implicit *ethical frames* advocated by policy and tolerated or promoted in practice. To do this, I supplement my actor-network theory commitments to attending to objects as actors that mediate relationships between local and global contexts with elements from activity theory. Specifically, activity theory insists that tracing the interaction of policy and practice through documents written to structure and streamline classroom instruction across contexts requires

> a radical localism. The idea is that the fundamental social relations and contradictions of the given socioeconomic formation—and thus the potential for qualitative change—are present in each and every local activity of that society. And conversely, the mightiest, most impersonal societal structures can be seen as consisting of local activities carried out by concrete human beings with the help of mediating artifacts, even if they may take place in high political offices and corporate boardrooms instead of factory floors and streetcorners. In this sense, it might be useful to try to look at the society more as a multilayered network of interconnected activity systems and less as a pyramid of rigid structures dependent on a single center of power. (Engeström, 1999, p. 36)

In other words, though policy is often measured in terms of outcomes for students, reflected in large-scale assessments that are compared over time and across sites, another way to investigate policy is to become "radically local"—attending closely to the local activities that reflect, deflect, or adapt policies set by distant actors at the state, national, and international levels. Looking at classroom interactions as activities guided not only by the local actors (materials and people), but also by distant policies as they are interpreted and implemented by those local actors is a way to begin tracing the relationship between local practice and global policy, an effort that improves our ability to see how policies effect change.

Each activity system consists of objectives (goals), actors, contexts (communities), tools, division of labor, and rules (norms) (Engeström, 1987). The interconnected activity systems that I take up in this chapter include standards set at the international level, national and state plans devised to improve technology integration in classrooms, district policy governing the use of both personal and school-issued devices, and campus implementation of district and curricular policies. Each document represents slightly different sets of actors, addresses the rules for the tools that are the focus of this study, and presumes a predictable classroom context with traditional divisions of labors, but they differ slightly in their objectives and the *ethical frames* they implicitly promote as a result. Taking an *ethical frames* lens to policy allows us to see the tensions inherent in how guiding documents conceive of the role of networked devices and how those conceptions are supported or rejected in practice. I present three findings related to how policies at different levels positioned the roles of teachers and students and aligned with or avoided the *ethical frames* that students and teachers brought to their classroom uses of technology: 1) Some education policies promoted *ethical frames on the connected end of the continuum*, like those described in Chapter Two, advocating for an open *ethical frame* at school that reached out into the community and an involved *ethical frame* toward society, developing online methods of civic engagement; 2) Other policies promoted contained *ethical frames,* stressing appropriate use in ways that implicitly reinforced closed school networks; and 3) Teachers cited policy on an *ad hoc* basis to support their disciplinary curricular commitments, which frequently had little to say on the subject of leveraging the affordances of networked devices. As a result of these tensions, aspects of these standards, plans, and policies surfaced in incomplete and intermittent ways in the two classes presented here, and integration of networked devices into the curriculum looked quite different, even though stakeholders in both classes

expressed a commitment to developing the 21st century skills outlined in the broader standards documents, and both classes were governed by the same district policy.

Connected *ethical frames* in policy

The strongest proponents for connected *ethical frames* were, perhaps not coincidentally, the furthest removed from classroom contexts. International standards drafted by the International Society for Technology in Education (ISTE) promote a vision of the classroom where "all educators are empowered to harness technology to accelerate innovation in teaching and learning, and inspire learners to reach their greatest potential"(ISTE, *About ISTE,* n.p.). Their mission— to "inspire educators worldwide to use technology to innovate teaching and learning, accelerate good practice and solve tough problems in education" (ISTE, *About ISTE*, n.p.)—aligned with opportunity-focused scholarship that advocated for connected learning as a solution to problems of access and equity.

The ISTE standards conveyed their educational goals in terms of the characteristics of technology-empowered students and teachers. The standards are brief—2 pages for each imagined stakeholder—and broad, advocating for

Students who are:

- Empowered learners
- Digital citizens
- Knowledge constructors
- Innovative designers
- Computational thinkers
- Creative communicators
- Global collaborators.

(ISTE, *For students*, n.p.)

Teachers who are:

<u>Empowered professionals</u>

- Learner
- Leader
- Citizen

<u>Learning Catalysts</u>

- Collaborator
- Designer
- Facilitator
- Analyst

(ISTE, *For educators*, n.p.)

Each of these characteristics has sub-points that clarify and extend how these traits lay the groundwork for supporting students and teachers as they become connected and agentic actors in

both visible and virtual networks. For example, students who meet these standards "build networks and customize their learning environments in ways that support the learning process," (empowered learner), "cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world" (digital citizen), and "evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources" (knowledge constructor) (ISTE, *For students*, n.p.). These students were imagined as having a great deal of agency in controlling their learning environment and online representations of themselves—agency that was sometimes received as problematic by teachers in this study who wanted students to adopt contained *ethical frames* that kept classroom networks surveillable and student representations of themselves predictable and professional.

Teachers who embody the ISTE characteristics "Use collaborative tools to expand students' authentic, real-world learning experiences by engaging virtually with experts, teams and students, locally and globally" (collaborator), "Create experiences for learners to make positive, socially responsible contributions and exhibit empathetic behavior online that build relationships and community" (citizen), and "Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces or in the field" (facilitator) (ISTE, *For educators*, n.p.). Teachers are imagined by the ISTE standards as deliberately fostering and facilitating students' engagement with broader communities, activities that promote connected *ethical frames* that open the classroom network and that teachers in this study rarely brought into play. That meant that, for the most part, when the classroom network was opened, it was a result of students' adopting open *ethical frames* to pursue their own personal or academic goals duing class time.

Positioning students as empowered citizens who construct knowledge and teachers as collaborators, citizens, and facilitators are not novel ideas brought about by the introduction of networked technologies. One could be forgiven for asking: why have separate standards for technology at all? In part, these international standards seem to be addressing an aspect of technology that is foundational to opportunity-focused views: people must participate in the network for the network to be valuable. If educators are not creating content and using the network to connect students to authentic audiences for educational purposes, then technology integration is subject to the "bells and whistles" arguments advanced by the obstacle-focused camp. This demand for participation in authentic online networks introduces its own set of challenges, though, not the least of which is the privacy and security of information about students. Each of these positions reflects different *ethical frames* and tensions between them: participating in society online requires open and involved *ethical frames*; preserving a high standard of privacy and security required closed and detached *ethical frames*. Teachers in this study preferred classroom systems where they could "see what everybody was doing," where they felt empowered to structure the reading and writing activities students encountered.

Technologies that facilitate exchanges which reinforce the closed network of the classroom are useful, perhaps even necessary given parents' and students' expectations for transparency and communication, but they are not the vision that the most radical opportunity-focused scholars hold for the future of connected learning. In fact, that vision often defines itself against narrow definitions of traditional schooling, as the Connected Learning Alliance's website demonstrates: "[Connected learning] is a fundamentally different mode of learning than education centered on fixed subjects, one-to-many instruction, and standardized testing" (What is connected learning?, n.p.). What do traditional schools, which are still organized by age cohorts

of students tested on discipline-specific content that they have usually learned from a single teacher, have to offer in the digital age? Standards documents such as ISTE suggest that being a digital citizen is not a native condition to students, but requires instruction and practice, an idea borne out by this study's data, which indicates that many students actively avoid engaging in online spaces, perceiving an inherent tension between projecting a pleasing and professional identity (adopting a redactive *ethical frame*) and engaging in civic discourse on political or social issues online (an involved *ethical frame*). The standards also propose a subtle shift in the role of the teacher, encouraging teachers to train themselves in discipline-specific technologies and to design learning activities that leverage technology's affordances for teacher-identified learning goals. Even the "facilitator" role takes on an active monitoring aspect, managing both technologies and students. In this way, the ISTE standards represent a compromise between the complete self-directed learning "supported by peers and caring adults" pitched by the Connected Learning Alliance and the closed *ethical frame* for school often implicitly encouraged by district and campus policies (*Why connected learning*, n.p.).

What these student and teacher characteristics look like in action and how we might evaluate their practice is less clear. Mr. Pope admitted that one of the advantages of network-supported project-based learning was that students could go deeper—"Instead of my telling them the answer, they can go look for it. They check with me to see if they're right, and then I make sure that they know the answer at the end, but they've got it themselves." He didn't regard this as an advantage without costs, though: "Here, you have to teach them how to find proper websites and where to find the answers, which also can be distracting for them to be on the Internet." The fact that the device that supports what Mr. Pope identified as "deeper learning" is also the device that disrupts that learning is one of the tensions at the heart of technology integration, and

students' and teachers' continued uncertainty—without a vocabulary to articulate where they have different expectations and practices—means that the question remains open.

Is Kylie's decision to block out the noise of her classmates by listening to music on her headphones a way of customizing her learning environment? She thought so, but her teachers were less certain. And how might a more obviously learning-focused strategy—such as letting students move ahead of their peers or take longer on a project to match their academic pace—disrupt the community aspect of the classroom? Ms. Murphy explained that limiting access to the network was one strategy to keep students together in terms of workflow, and Mr. Murdock was constantly exploring ways to help students manage their workloads for much the same reason—so that students were not too far out ahead or too far behind. These strategies reflect a commitment to the particular social structure of the classroom, which has these pockets of time where students are at loose ends because it is more important that the group stay together than for each student to move as quickly, or as slowly, as they can through the material. In other words, some of the personalized learning goals articulated in standards documents like ISTE seem to be in conflict with the community-oriented nature of the classroom because they privilege the student's individual progress over the collective knowledge-making activities of the group. These two activity systems have different, albeit related, educational goals: one that focuses on the needs of the individual and the other that takes the group activity as its object. At the local site of interaction, teachers are constantly balancing these goals, but in policy they are treated in ways that do not acknowledge their co-occurrence.

Attending to this subtle shift between keeping the class group engaged in an activity together and supporting students as they move through assignments at their own pace helps us see why advanced personal experience with social media, such as Ms. Murphy's cancer support

group or Mr. Murdock's daily blogging, didn't translate into instruction about that kind of media in the classroom. Both of these teacher examples are focused on individual practice rather than group dynamics and the asynchronous flexibility of an online community supports asynchronous, self-paced participation in a group in ways that a scheduled, compulsory participation—one designed to be assessed—does not. Teachers were much more likely to use available networked tech to replicate and reinforce connections between co-present classroom actors that were already part of the traditional classroom space, keeping the group together rather than opening the closed network of the classroom.

When teachers did venture beyond their closed *ethical frames* in the classroom, they appealed to outside authority rather than handing off power or authority to students. Rather than take on the uncertainties and challenges of social networks in the wild, teachers organized highly structured audience interactions for their students. Ms. Murphy and Mr. Pope brought in local experts to respond to students' Shark Tank projects, and Mr. Murdock recorded and submitted his students' Interactive Oral Presentations to the IB Organization at the end of the school year. In de facto and planned ways, they facilitated connections with exterior audiences that had a different sort of authority from that available in the classroom—an "authentic" audience. Ms. Murphy and Mr. Murdock described prior experiences with having students create multimedia and online projects that had the potential to reach a broader audience, though they expressed some skepticism about the value of these projects given the time it took to support them. Attempts to scaffold students' digital literacies in contributing to online community building were not part of the curriculum at either school, though Ms. Murphy's experiments with class-related hashtags on Twitter and her concomitant injunction to students not to put anything online that they wouldn't want her to read might be considered practice for such lessons. Along the axes

of self, school, and society, ISTE standards argue for redactive, closed, and involved *ethical frames*, asking students and teachers to curate their online identities carefully, to be aware of threats to privacy and data security, and to approach society online with a participatory attitude. Perhaps appropriately, the standards do not address the axis of family and friends, but silence on this subject means that much of students' prior experience and daily digital literacy practice is left out of the conversation.

Though the teachers in this study were not familiar with the ISTE standards—a point of interest worthy of a separate study, perhaps—it is worth thinking about how these teachers' attempts to integrate technology dovetailed or departed from ISTE's goal of "rethinking education" through technological innovation. It doesn't take too much interpretive work to see aspects of what participants in this study did with technology as addressing the standards, and yet, my observations and students' reports would not have identified either classroom as significantly engaging in discussion of how (or why) to read and write effectively online and how to build relationships beyond the borders of the classroom through networked devices. In fact, teachers' own experiences led them to question whether such relationships were within the scope of what they were qualified to do. Mr. Pope said,

> I'd almost rather wait for things that are transformative to become common and then just jump on the bandwagon then. … if it's good I'll assume it's going to become common practice. That's when everyone will know how to use it. I can continue to teach history without missing a beat.

In this sense, even though they were committed to authentic audiences, teachers like Mr. Pope and Ms. Murphy saw standards promoting innovative technology practices and global citizenship as competing with their own disciplinary objectives of mastering content knowledge and local

audience awareness. Their preference for a closed *ethical frame* with regard to the classroom was a result of their desire to define the boundaries of the curriculum in ways that they felt made the best use of class time and resources. Opening the network had the potential to slow the pace of the lesson as they addressed orienting students to unfamiliar tools and unanticipated content. As my analysis moves through documents that are more proximate to teachers' everyday instructional activities and curricular commitments, the possibilities for technology tend to narrow in ways that better fit teachers' notions of their role as disciplinary experts who take up technology in ways that support a closed classroom network.

National and State Plans: Everywhere all-the-time learning

The National Education Technology Plan (NETP, 2017) directs educators to the ISTE standards for guidance on what it means to be a responsible digital citizen:

> Increased connectivity also increases the importance of teaching learners how to become responsible digital citizens. … For the development of digital citizenship, educators can turn to resources such as Common Sense Education's digital citizenship curriculum or the student technology standards from the International Society for Technology in Education (ISTE). (p. 11)

This deference to ISTE for the development of digital citizenship is, perhaps, telling. ISTE's head standard regarding digital citizenship reads: "Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical" (ISTE, *For students*, n.p.). Much of the discourse promoting networked technologies for learning mention the importance of preparing students for navigating an increasingly digitally-mediated world, but few specifically address what such lessons would look like or which disciplines

would take them up. Currently, these are lessons that students learn by experience and example—usually negative—or from their parents and peers. The NETP delegates this aspect to ISTE, focusing instead on the ways technology can transform learning by replacing outdated or absent resources and reconfiguring the school day.

The landing page for the National Education Technology Plan (NETP) states: "The National Education Technology Plan is the flagship educational technology policy document for the United States. The Plan articulates a vision of equity, active use, and collaborative leadership to make everywhere, all-the-time learning possible." (NETP, *Home*, n.p.) This vision of everywhere, all-the-time learning is posited as unquestionably desirable, but it implies a lack of boundaries around school activities that introduce challenges to the traditional borders of the classroom that are, ironically, the opportunities of engaging with a networked society. The plan argues for the urgency of this work:

> To remain globally competitive and develop engaged citizens, our schools should weave 21st century competencies and expertise throughout the learning experience. These include the development of critical thinking, complex problem solving, collaboration, and adding multimedia communication into the teaching of traditional academic subjects. In addition, learners should have the opportunity to develop a sense of agency in their learning and the belief that they are capable of succeeding in school. (NETP, 2017, p. 10)

Globally competitive, engaged, and agentic, students in 21st century classrooms will not remain subject to the boundaries of traditional classrooms: "Historically, a learner's educational *opportunities have been limited by the resources found within the walls of a school*. Technology-enabled learning allows learners to tap resources and expertise anywhere in the world, starting

with their own communities" (emphasis added, p. 9). This push to move beyond the boundaries of the classroom proposes both an open *ethical frame* with regard to school and an involved ethical frame with regard to society—*ethical frames* that the analysis in Chapter Four suggests are not easily implemented. The plan acknowledges gains in universal access to equipment and broadband internet, arguing that "technology has allowed us to rethink the design of physical learning spaces to accommodate new and expanded relationships among learners, teachers, peers, and mentors" (emphasis added, p. 10). These new and expanded relationships mean that "*the roles of PK–12 classroom teachers and postsecondary instructors, librarians, families, and learners all will need to shift* as technology enables new types of learning experiences" (emphasis added, p. 5). Some of the ways the NETP imagines technology transforming learning opportunities and spaces include setting up "virtual chemistry, biology, anatomy, and physics labs" when schools can't afford lab equipment and space, having students "publish their work to a broad global audience regardless of where they go to school," and offering distance learning, and facilitating online courses when their school "lacks the budget or a faculty member with the appropriate skills to teach the course" (p. 9). These suggestions advocate extending the classroom beyond its traditional boundaries (an open *ethical frame*) and altering the role of teachers, suggestions that gave teachers in this study pause, as they implemented educational technologies that tended to reflect a closed *ethical frame* with regard to school and curriculum that gave little space to explicitly developing digital literacies for either personal or academic use. In other words, the networked technologies that teachers used in classrooms tended to reinforce the traditional roles of teacher and student, and when they didn't, teachers were left feeling frustrated and uncertain.

Following the structure of the national plan, the state's educational technology plan was designed to put the NETP in conversation with state-set goals to improve access to high quality education for all learners. It was meant to streamline educational goals (objectives) across contexts (school sites). The plan advocates "reinventing the learning system to support personalized pathways" for all students, and the goals are tied to five key areas outlined in the national plan: learning, teaching, assessment, leadership, and infrastructure. The learning and teaching goals focus on supporting students as they "become global citizens successful in the workplace and society," while the leadership and infrastructure goals emphasize "transformational, equitable, technology-rich environments" that "support everywhere, all-the-time learning." The goals conclude with a reminder:

> Implementation of these goals requires a commitment to learning *new ways to approach the design of the school day.* It necessitates a shift in the way we think about teaching, learning, and assessment. It demands new ways of collaborating with parents and the greater community; always with our students as the focus. (emphasis added)

Taken together, the international, national, and state standards and plans envision 21st skills as highly connective and individualized; the classrooms that support them, flexible and innovative. As activity systems, their object is to improve learning outcomes at the level of individual students. They imagine teachers willing and able to alter their patterns of instruction to support reconfigured learning structures and students free to set their own learning goals. As we turn to local policies and practices, which often take as their objective the preservation of the social dynamics of the group, these visions run into logistical and relational problems that complicate the adoption of highly connected *ethical frames*.

Clashing *ethical frames* within and across policies

The standards and plans discussed thus far implicitly drew on connective *ethical frames* to promote a curriculum that positioned students and teachers as co-explorers in an infrastructure that opened the boundaries of the classroom to new content and relations. This kind of orientation was rare in the classrooms I observed, though it sometimes surfaced in interview data when teachers and students were asked to consider future possibilities for digital literacy learning and practice. While opportunity-focused scholarship and international and national standards might lead one to believe that future is already here, classroom practice on the ground was much more cautious. Teachers drew instead on local policies or curricular commitments in an attempt to contain the classroom network to a manageable and predictable space and to deflect digital literacy instruction that was not concretely connected to their perceived disciplinary responsibilities. These actions were not the result of anti-technology sentiment, *per se*, but were the product of learning objectives that were more focused on the smooth functioning of the group. So while global standards and plans sought to personalize learning and throw open the classroom doors to interaction with authentic audiences in the world beyond, teachers' goals were directed at keeping the group functioning smoothly and cautiously introducing students to outside audiences whose roles were firmly established and predictable.

For example, the local school district policy begins by declaring that "a major goal of the District is to prepare today's students and staff for life in the 21st century and to insure a technologically literate citizenry and a globally competitive work force," but its "Electronic Information Access and Use Policy," referenced almost daily by teachers at Neptune and excerpted in the Sunnydale student handbook, focused on the penalties of misusing access to the network. While nodding to the importance of connective networks, the handbook gives more space to making clear the consequences of disturbing the classroom (group) environment or

engaging in online behavior that might reflect poorly on the District as a whole. After detailing the District's responsibility to provide access to networked technology, explaining its right to revoke access if students and teachers fail to comply with the terms of use, and disclaiming its liability "for any direct, indirect, incidental or consequential damages," the document turns to a lengthy treatment of users' responsibilities. In short, "The District expects the staff and students to conform to ethical and legal standards in the use of technology and to demonstrate knowledge and responsibility in the use of resources, processes and systems of technology." In contrast to the descriptive ethics that I take up to explore the way teachers and students imagine devices putting them into different relational configurations, the ethical use here has a very specific—and moral—meaning to student participants, who described limiting their use of the school's networked devices to avoid accidentally accessing sites that might draw negative attention.

The District reserves the right to revoke access to the network—a right that would create problems in practice since much of the curricular content of classes at both campuses circulates through the LMSs, which require logging in with district credentials. The policy includes language about supporting connections, but emphasizes concerns about privacy, safety, and appropriate use, stating that "Equipment must only be used for facilitation of learning and enhancing educational information exchange consistent with the goals of the District." The goals of the district, at least where technology is concerned, seem to reach for an involved *ethical frame* with regard to society and a closed one with regard to school. Having provided access to the internet, the District's greatest concern is that they might not be able to trust students and teachers to use it wisely.

As members of the same local district, the classrooms in the two schools that I observed shared the same guiding standards, plans, and policies at the international, national, state, and

district levels. However, the further these documents were from the local context, the less force they seemed to have, and implementation at the campus and classroom levels was more in line with the curricular orientations of each site—and the global, organizing policies associated with those curricular orientations—than unifying policies about technology. The IB and New Tech Network curriculum guides represented different activity systems oriented to different goals. Though neither system was particularly committed to leveraging students' everyday uses of networked technology in the classroom, the IB learner profile made room for risk-taking and communication that Mr. Murdock interpreted as supportive of technology integration while the New Tech Network curriculum focused more on training students to approach problems in methodical ways using the closed network of the classroom. In activity system terms, the two schools took up networked tech in different ways because of different perceived objectives (goals) even though they shared access to the same materials (tools) and district policies (rules). Figure 11 illustrates the alignment of the objectives of different policy activity systems as they played out at Neptune High. In that classroom, the teachers and students were hyper aware and well-versed in the activity systems represented by campus and district policies attempting to constrain cell phone use, and teachers structured their curricular activities to avoid the use of laptops when they could in order to keep students engaged in ways they could observe. National plans gestured toward international standards, and the state plan closely aligned with the NETP, but teachers at Neptune didn't reference these at all when talking about what guided their curricular decisions.

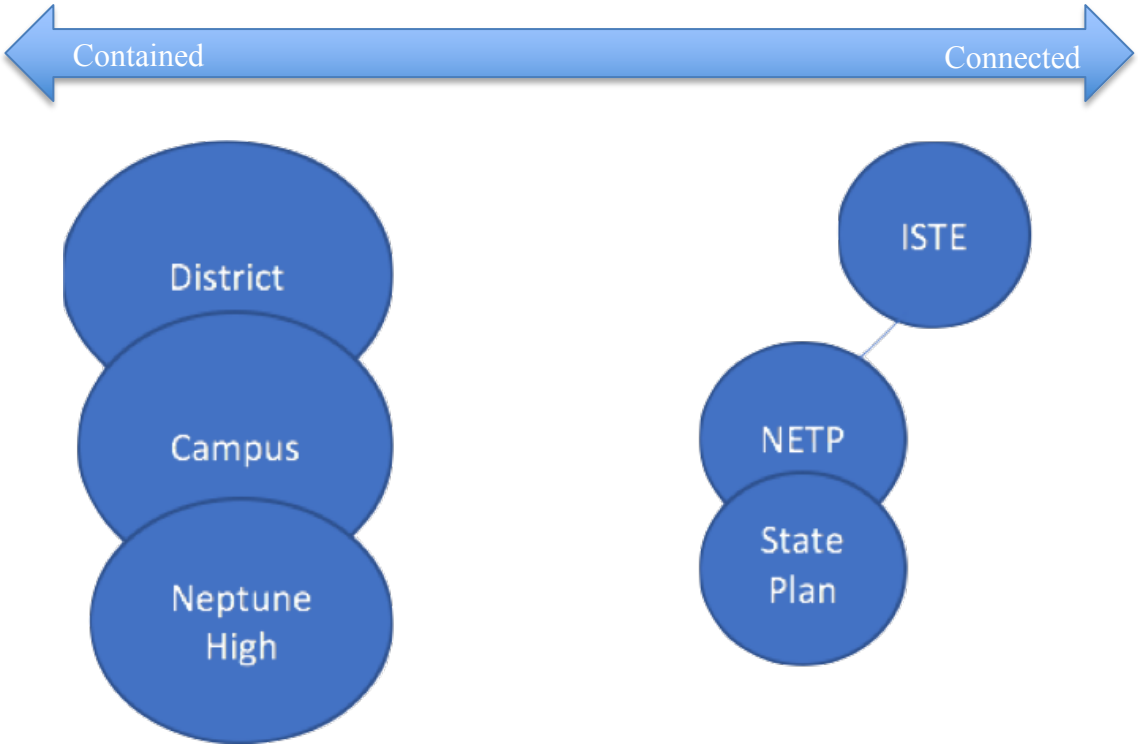

Figure 11: Objective alignment of activity systems at Neptune

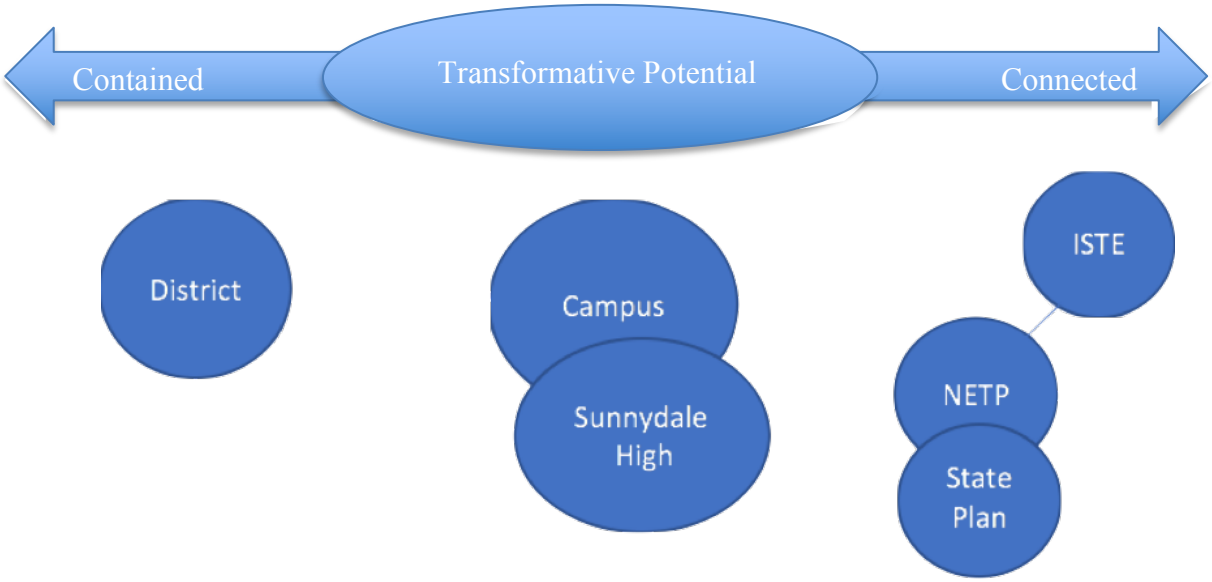

Figure 12: Objective alignment of activity systems at Sunnydale

The relationship between objectives of these policy activities, depicted in Figure 12, looked different at Sunnydale. As at Neptune, the Sunnydale teacher reported no knowledge of the international, national, or state guidelines promoting, but he was also unencumbered by restrictive district policies. Drawing on learner traits promoted by the IB curriculum and requirements to video- and audio-record different externally-assessed IB projects, Mr. Murdock had more flexibility to tolerate students' uses of networked devices in a way that—as my analysis in the following sections suggests—might be critical for transformative potential.

In spite of the ubiquitous presence of networked devices in both classrooms and some shared concerns across contexts, technology, itself, was not an instructional focus in the literacy curriculum at either school, and the ways networked devices were treated at each campus differed dramatically. This evidence suggests that unless teachers are seeking out technology standards (as the NETP suggests they should), generic policies about the benefits of networked technologies and the importance of supporting students in gaining the digital literacies necessary to take advantage of them will not take hold in classrooms in transformative ways. They may support administrators in writing grants to acquire technology, and they may provide a rationale for teachers who wish to experiment with technology, but they have little impact on classroom practice.

Networked devices at Neptune

Neptune was a partner with New Tech Network schools, which promotes a curriculum based on project-based learning and cross-disciplinary classes. The New Tech Network's vision, available on their website, is "transforming teaching and learning around the country. … every graduate of a New Tech school leaves aware, eligible and prepared to pursue postsecondary education or training" (New Tech Network, n.p.). Ms. Murphy was highly familiar with the New

Tech Network's curricular orientation, and she explained that "Echo, where we house our assignments, our domain for our classes, there's a lot of our common core state standards are listed in it." She described marathon planning sessions with her co-teacher to make sure that state disciplinary standards for both disciplines (civics and literature) were being covered adequately and that the codified procedures for the New Tech Network's particular brand of project-based learning were being followed. Although "technology" is conspicuous in the name of the curriculum, the website makes it clear that the kind of technology implementation that New Tech Network schools focus on is their robust LMS, Echo.

> Echo supports project-based learning and features an innovative gradebook that aligns to the deeper learning skills students will need in college and career. Digital tools, cultivated and aligned content, and a community of shared learning are integrated to create a powerful and innovative platform to support student and adult learning. (New Tech Network, n.p.)

In other words, networked tech use at schools participating in the New Tech Network, like Neptune, may default to a closed *ethical frame*, reinforcing the boundaries of the visible classroom network, facilitating communication about assignments and assessments that would be part of any traditional classroom. The goals of the New Tech Network activity system are to reinforce and contain the classroom network. The technology policy posted on Neptune's website expressed a strong suspicion of the utility of networked devices in the classroom, beginning with the statement:

> Cell phones and other personal electronic devices (PEDs) have become a major distraction for students and a disruption to instruction and learning.
>
> - Cell phones and PEDs are not allowed to be "seen or heard" during class (unless indicated by the teacher) Phones should be off or on vibrate, and put away.

- If a parent/guardian needs to contact a student, please call the office at 555-555-5555 and the secretary will put you in touch with the student. The student may also use a classroom phone if they need to contact a parent/guardian.

- Technology may only be used in the classroom for instructional purposes.

In both their curricular commitments and their campus policies, Neptune took a strong stance on the presence of unauthorized networked devices, and one of the first things to greet a visitor entering the building was a sign on the window to the principal's office, pictured in Figure 13, indicating how many cell phones had been taken up from students during the school year.

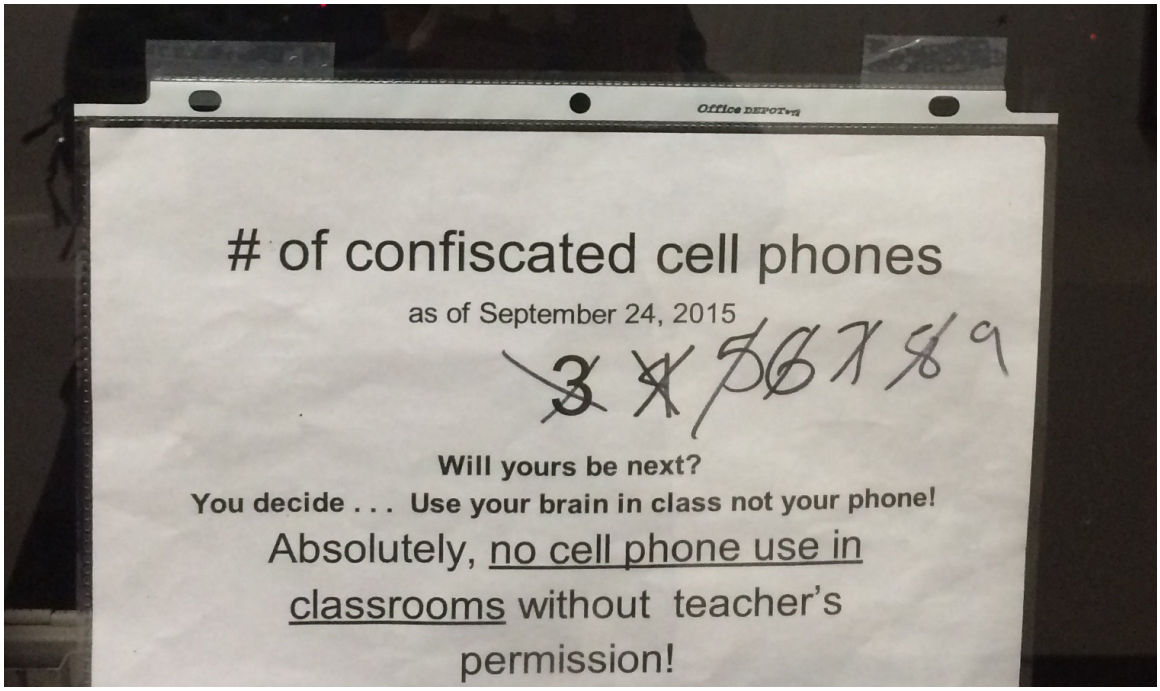

Figure 13: Sign of confiscated cell phones on the principal's office window

This sign itself is a written trace of a strong closed *ethical frame*, an obstacle-focused view of networked technology, and a policy activity system whose goal was to separate students from their usual ways of interacting through networked devices if it couldn't persuade them to make that decision for themselves. This *ethical frame* directly contradicts the *ethical frames* of state, national, and international policies, which advocate for helping students practice networked digital literacies with instructional guidance and support. Jamila explained that when a phone

was collected from a student, the policy was to keep it until the next school holiday, and she described the process thus:

> the principal came around confiscating phones that he saw, and he would walk around to all of the classes, and was like, "You thought I wasn't serious." Then they ain't getting their phone back until Martin Luther King Day or until Christmas break or something like that. And he was walking around with their phones, with them following him behind. He made an example out of them. They were just following behind like lost puppies.

She also indicated that she thought many students would simply "tell your parent that you lost your phone, and I think that's what most people did." The provision in policy reminding parents to call the office if they needed to contact their child was dismissed as unrealistic by Kylie, who explained that one of the reasons she needed her phone on and where she could see it was to be able to answer her mother: "say if my mom is up here or she needs to call me or something like that, that's another thing I have my phone for. Cause she's not gonna call through the office, that takes too long." In these ways, confiscating and banning students' networked devices had the potential to intervene in the relationships between students and parents (the known others axis) in ways that teachers and administrators might not have realized or intended. The goal of keeping classroom networks closed and surveillable conflicted with the goals implicit in the devices themselves (to connect people instantaneously) and with some students' *ethical frames* with respect to their devices when specific others were hailing them.

In my third week at Neptune, December 15, 2015, Mr. Pope declared, as an aside to me, that "cell phones are a disease that needs to be cut out—the worst thing that has happened to education." He turned to the students to say that the district had announced a new policy regarding cell phones and that "even if I want to let you listen to music on your phones, you

can't." He suggested to me that the change in district policy was due to a recent bomb threat at a nearby school in the district, word of which spread from students to parents before the school had all the information it needed to draft a formal explanation. In other words, when students implemented an open *ethical frame* in school, spreading news of school events before administrators could control the narrative, the district responded with a policy to make it harder for students to open the classroom network in unauthorized ways. The students' activity system had the goal of opening the school network to share information quickly—a goal shared by the design of networked devices and supported by the open *ethical frame* that students adopted. The administrators' activity system had the goal of controlling the narrative and the traffic around the building. Rather than attempt to reconcile these two systems by negotiating the role of networked devices in pursuing conflicting objectives, the district opted for tightening policy. Students, teachers, and parents were not invited into a conversation about what happened or what should happen when another such incident arises.

Fears about threats to schools, generally, were expressed at both research sites, and Kylie's concern about the change in district policy, which may have seemed melodramatic two years ago, has become a routine consideration for parents and students in the wake of the multiple school shootings of 2018.

> **Kylie:** That, at Neptune we're no longer allowed to use our phones or at least to have them on throughout the day. That's gonna be a problem. But, I mean like most of us use our phones during class time for specific projects they ask us to do, like the Twitter thing that I had talked about before. There are emergencies. There's so many other things as well. I'm a dual-enrolled student, and I have to call my ride to come and get me, it's probably gonna be here in the next few minutes, but I can't use my phone. What if I'm like in extreme danger, or something like that?
> **Merideth:** Yeah.
> **Kylie:** Call my parent and be like, "I love you, goodbye!" But I can't use my phone, so they'll never hear from me ever again, just nope. I'm gonna die alone, like here in this building, mm-hm, but it's ok, it's fine. I had emailed or typed the head lady that had made the decision after they told us that we had a no cellphone policy. I'm like "No!

> Why? You made a new cellphone policy, but not a detention policy! How does that make sense?" I wasn't yelling at her, I was just like saying in a most proper way possible. But, it's something that kind of got me and irritated me.

Kylie's critique of the new policy has four parts: 1) Banning cell phones seems odd because sometimes teachers ask students to use their phones. 2) The logistics of her complicated schedule require her to be flexible and to have a responsive *ethical frame* toward those who provide resources to cope with her travel needs. 3) In case of an emergency, the phone provides a sense of psychological security and an opportunity for closure, requiring both responsive and open *ethical frames* to execute and 4) Banning devices fails to address the real problem. Rather than creating consequences for a handful of off-task students, it causes the previous three problems for the rest of the school population.

Each of Kylie's critiques points to tensions in policy guidance as a result of competing objectives: that networks at school be both opened and closed. In some ways Neptune could be read as in compliance with the state plan's mandate to innovate "new ways to approach the design of the school day" by creating a flexible schedule where students covered the core classes on campus, took supplemental courses at the local community college, and participated in extracurricular activities at the nearby comprehensive high school. One of the attendant features of this kind of flexibility, as Kylie suggested, was the micro-coordinating that students did on their networked devices to get themselves from place to place. In her mind, the spirit of the new district policy ran counter to the kind of school day the campus was promoting.

With regard to her third concern, part of what Kylie described here in 2016—the fear that she might be prohibited by school policy from connecting with her mother in case of a life-threatening emergency—has become a dramatic and widely-circulated reality for students in 2018. As one example, consider this text from Sarah Crescitelli, a survivor of the Stoneman

Douglas High School shooting, pictured in Figure 14. The body of the text reads: “If I don’t make it I love you and I appreciated everything you did for me” (ChabeliH, 2018).

Figure 14: A tweet from a high school student during a school shooting lockdown

While these kinds of emergencies may still be statistically quite rare, they loom large in the public's imagination, and dismissing them as unlikely is not a substitute for dealing honestly with parents' and students' desire to remain connected even during the school day. As policymakers take a variety of stances on how to reassure the public that schools are safe—including, incredibly, arming teachers—it seems strange that cell phones would be positioned as the greatest threat to the learning environment.

And finally, Kylie's question about why a cell phone policy was implemented instead of a detention policy points to the idea that constraining device use for everyone was not the only way forward, and perhaps not the most desirable one. When the revised district policy took effect at the beginning of the new semester, it also became clear that it was not an enforceable one. The principal visited the classroom on the first day of the new semester, February 8, 2016.

> **Principal:** "If your schedule is not perfect, don't worry, be patient. It may take one to two weeks. There are two things. One—We have a high school assembly tomorrow, so the buses will take you to the Comprehensive High School where the superintendent is going to address a problem in the community… We want you to know that [this school district] is safe. I have a [metal-detecting] wand in my office, but I've chosen not to use it. Oh, by the way, I'll come back to address the cell phone policy another day. I don't want to add too much pepper to the pot."
> **Michael:** You might as well get it over with
> <Mr. Pope makes a pumping (victory) motion with his fist>
> **Principal:** Let me just say, I made the local news for suspending kids for wearing flip flops
> **Student:** So, in other words, you're going to suspend us
> **Principal:** The Board passed a new policy. You may have a phone, but it may not be on during the school day. I'm going to read this policy. I'm going to give you a copy. We're going to sign something saying we understand. Like a code of conduct. You may have a phone, but it's not to be on during instruction.
> <the principal exits>
> **Student:** That's dumb. If you can't have a phone, I'm leaving this school

The antagonistic and authoritarian tone set by the principal pervaded the campus. In member-checking, Kylie remembered this incident and noted that the principal had a good relationship with many of the students, allowing him to threaten students in this way without causing

widespread alarm. When I asked if I had mischaracterized him here, she said, "Oh, no. He was definitely aggressive." So even though Kylie objected to the district policy—writing to the district administration to lodge her protest—she didn't necessarily take the principal's threat seriously, perhaps because she had become desensitized to such threats. If that is the case, then it produces at least two negative consequences: students don't take the policy seriously because it is unenforceable, and they become accustomed to authority figures who threaten rather than support them. Furthermore, it sets up an opposition between the aspirational language of policy at the national and international levels that characterizes students as agentic and empowered, the language of the local policies that positions students as potential rule-breakers under constant surveillance, and students own complex *ethical frames* combinations, based on how they see themselves as participants in networked communication with family and friends.

Almost every class I observed at Neptune began with an injunction from Ms. Murphy or Mr. Pope to "put cell phones away, headphones off—that is the policy. Keep them away." On the first day I sat in on class, Mr. Pope confided that part of the reason was because when the principal came in to observe classes or evaluate teachers, he was looking for violations of the cell phone and technology policy, and so the policy activity system represented in the district and campus rules was put in direct contact with the classroom context by the campus administration. The activity system of the classroom, which might have been tolerant of students' participating in their own networked activity systems, was constrained by the policy activity system set up by the district and amplified by the principal, who presented himself as tough on rule-breakers and impatient with teachers who were not complying. And yet, cell phones and headphones remained a continual feature of the classroom. They rarely went off in a way that disrupted class, and I only have two documented incidents of students listening to music loudly enough to create the

impression that they were deliberately trying to ignore the teacher. The teachers were reluctant to enforce the policy for fear of the damage it would do to their relationships with students. Mr. Pope acknowledged that

> The five or six kids per class who had their phone out constantly this year were the same five or six who had them out constantly last year. That's just who they are. You're not going to do anything about it unless you want to write referrals and get all negative and all that stuff.

In other words, in spite of strongly-worded policies and almost constant negative attention to cell phones and technology-supported off-task behavior in the classroom, Mr. Pope recognized that only a handful of students exhibited behavior that caused problems, and he imagined that behavior as sometimes the result of poor choices, but also as possibly integral to who they were. An *ethical frames* approach to this behavior would reorient the conversation to a discussion of what commitments were driving students' reading and writing on devices during class. Mr. Pope located the devices as the problem, but he was hesitant to take them up, aware that it might jeopardize his own relationship with students and create a negative environment. In this way, technology policies and how they were implemented were perceived as an important part of classroom climate. Both Jamila and Kylie bristled at the idea of anyone taking their phones, and during member-checking Jamila recalled that her mother had instructed her to never let a stranger take her phone. She indicated that she would have left the school building before willingly handing her phone over to a teacher. Saira and Zaira were less aggressive, but no less worried. Without their phones, they worried they would be stuck between school, their after-school programs, and their community college classes. An atmosphere of low-level dread and antagonism pervaded almost every conversation about cell phones on Neptune's campus.

According to the *ethical frames* implicit in the curricular design, campus policy, and teacher preference, students at Neptune were expected to adopt protective and closed *ethical frames*, turning phones off to avoid notifications from their known networks and limiting their interactions to peers and content that the teacher provided. These *ethical frames* aligned with the intersecting activity systems represented by district and campus policy and the teachers' understandings of the demands of the New Tech curriculum. Yet, in practice, monitoring these boundaries was complicated and put teachers in a role that they considered undesirable.

> **Ms. Murphy:** Good morning, I know you are booting up. I was just watching how you all handled coming into class—those technical difficulties. So you should all clap for yourselves <The students clap.>
> **Ms. Murphy:** Please put all phones away, computers in courtesy mode, headphones out.

Ms. Murphy circulated, praising students who appeared to be on task. The class was quiet and still, 38 students absorbed in their screens, and her co-teacher, Mr. Pope, commented that "They came ready to work today." After a pass through the room, Ms. Murphy announced, "Go ahead and work, there can be conversation at your tables, but not across the room." Ms. Murphy stepped outside the classroom to conference with the principal and a paraprofessional aide, and when she returned, she noticed that two students, Michael and Jay, were not at their group table and were instead circulating and chatting. She turned to Mr. Pope and said—loudly enough for the class to hear—

> **Ms. Murphy:** I'm very concerned about Michael and Jay.
> **Mr. Pope:** You should be concerned."
> **Ms. Murphy**: Michael, are you logged in yet?
> **Michael**: I don't know
> **Ms. Murphy**: Jay, how are you getting any work done standing up?

Michael and Jay only noddingly acknowledged that this conversation is going on around/about them. Mr. Pope drew attention to their groupmate, Kylie, "Look at poor Kylie, she's wearing headphones!" She was, in fact, wearing a large pair of headphones and focusing intently on her

laptop screen. As the class conversation volume rises, Ms. Murphy took that as her cue to check on student progress and began calling on students to share what they had worked on.

A passing glance at the scene might suggest that none of the three students here were engaged with the assignment, which was to work in small groups to brainstorm ideas for a "Shark Tank" style business pitch. The two young men were chatting with their peers in class while Kylie was deeply absorbed on her headphones and laptop. The teachers' method of visually scanning the room to gauge student engagement and progress told them that the young men were off-task. It provided less information about Kylie. They responded to her as if she were working on the assigned project, in part because they trusted Kylie, but perhaps also, in part, because her behavior—quiet, focused—looked more like what they wanted students to be doing than Michael's and Jay's sociable perambulations. She was listening to music on her phone—an activity forbidden by school policy—while (perhaps?) working on the assignment, though not in the manner her teachers intended.

In an interview with Kylie two months prior to this classroom observation, she described her *ethical frame* for such moments. She explained that sometimes cell phones cut down on the usual social distractions of the class by redirecting student behavior and that she often used her headphones to create a learning environment more conducive to getting her work done:

> **Kylie:** Like in my classroom, there are distractions in class. Like for instance, we have a group of people at one table, even though this is Neptune, but they really wish they weren't here, they constantly make noise and constantly talk and so on like that and like completely disrupting the class. I'm like, when they're on their phones and stuff like that, and they're like not paying attention, I'm fine with that cause they're not talking. They're not disrupting the class. I can actually learn now.
> **Merideth:** Oh.
> **Kylie:** So, maybe a win-win bad situation, but I mean like there are students like me that listen to music to block out some of that noise if that stuff does occur.

Her characterization of this as a "win-win bad situation" points to the tensions inherent in classrooms where students are working at different paces and with different levels of interest and focus. Connected to her networked devices, Kylie was never very far from engaging with her classmates, her teachers, her mother, her music, the assignment, and countless other people, places, and content in her sociomaterial network that may or may not have been relevant to the class activity at hand. Because these technologies are interactive in real time, they have the potential to hail her in ways that pre-networked classroom distractions did not. She did not seem to hear and did not respond to Ms. Murphy and Mr. Pope as they called her by name while speculating—quite theatrically—on the progress of her group. Unlike reading under the table, passing notes, making lists, and milling about the classroom, networked interactions do not respect the borders of the classroom's time and space, and they are not always directly observable by the teacher. Ms. Murphy and Mr. Pope didn't call Kylie out for failing to engage with the assignment, even though her retreat into her headphones and laptop screen may have been no more on-task than her classmates' socializing. Michael and Jay were focused on using the opportunity of access to co-present others to chat, Kylie's goal was to concentrate without interruption, and the teachers were balancing objectives: keeping the classroom environment positive rather than negative, preparing activities that were engaging and self-paced, and adhering to the project-based and collaborative commitments of the campus curricular model.

At Neptune, the tension between campus policy, which promoted *ethical frames* all along the contained end of the spectrum (redactive, protective, closed, and detached), and classroom practice, which grudgingly tolerated networked device use to avoid confrontation, the need for conversation about the role of networked devices in the classroom seemed urgent. The competing objectives of the policies and practices put teachers and students at odds with each

other, and the time spent overcoming the difficulties introduced by a failure of agreement between all parties ate up class time on a daily basis.

Networked devices at Sunnydale

As noted in Chapter Three, Sunnydale High school was an accredited International Baccalaureate (IB) school, which meant it implemented a curricular program developed by the IB Organization. This program outlined the number and type of courses that students should take—including four years of a foreign language and two semesters of a philosophy course called Theory of Knowledge—as well as additional requirements for an extended essay completed over the summer between 11th and 12th grade and 150 hours of creativity, action, and service. The IB mission, cited in the Sunnydale Student Handbook and available on the IB website, promotes a traditional liberal arts education:

> The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.
>
> To this end the organization works with schools, governments, and international organizations to develop challenging programmes of international education and rigorous assessment.
>
> These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right (International Baccalaureate Organization, n.p.).

The IB occasionally makes mention of 21st century skills, but operationalizes these as flexible thinking in a global society, where negotiating and valuing difference are key to future success. Notions of digital citizenship are rarely taken up as part of the required curriculum. In short,

Sunnydale, following the IB curriculum, defined 21st century learners as critical and creative thinkers with a demonstrated empathy for others and a global mindset. the objectives of this curricular model are compatible with open and involved *ethical frames*, even if they don't specifically push for technology use in this, or any other, specific way.

At Sunnydale, the IB "Learner Profile" was published in the handbook, on the website, in the hallways, and mentioned at concerts and awards ceremonies on a regular basis. The teacher at Sunnydale was unaware of standards outside the campus governing technology integration, but it would have been impossible to avoid knowing the IB traits. According to the learner profile, successful IB students are inquirers, knowledgeable, thinkers, communicators, principled, open-minded, caring, risk-takers, balanced, and reflective, There was no mention of technology at all on Sunnydale's public website, in spite of the fact that the principal wrote several grants to fund a Mac computer lab, four Chromecarts with thirty Chromebooks each, and material infrastructure for wireless internet. Like much of the opportunity-focused scholarship and the national standards that reflect open and involved *ethical frames*, her vision for a high-quality education included these tools as a baseline infrastructure, producing an implicit alignment between her goals for the campus and larger policy initiatives.

Though they described differences in practice among the teachers, Mr. Murdock's students believed the technology policy at Sunnydale was fairly lenient, and some of them had knowledge of or experience with other schools that confirmed their beliefs. Via said,

> I think we're pretty laid back. In comparison to a lot of schools ... I know that other schools, like the school which I run [track] for … they don't have wifi, and they try to block cellular connections. That is really—that was really shocking to me. It was like, "Wow, you can't even really use your phone." Here you can. It's not really restricted.

May confirmed this view, saying, "Do we have any [tech policies]? I mean, I always have my phone with me, I always have my laptop with me," and Mr. Murdock was similarly in the dark:

> **Merideth:** What is the tech policy like at Sunnydale?
> **Mr. Murdock:** In what sense?
> **Merideth:** I mean, do you know what the written tech policy is on students' use of cell phones or laptops or anything [like that] in the classroom?
> **Mr. Murdock:** No. <pause> We've got one. <said with certainty>
> **Merideth:** Yeah
> **Mr. Murdock:** It's somewhere in the Student Handbook
> **Merideth:** Have you had difficulties with—I mean, I suppose you're not enforcing the policy if you don't know what it is, but how do you manage, I guess, tech policy in your own classroom?
> **Mr. Murdock:** My attitude is that personal devices of any sort are acceptable up to the point where they are clearly a distraction, and by that I mean distraction to others. I don't usually redirect students who are doing the wrong thing with their tech if it's just them, although I will occasionally say things to them like, "Both of us are going to remember this when you try and ask for an extension, right?"

Mr. Murdock indicated that he usually gave students extensions even if he had seen them using class time to pursue alternative activities on their laptops, hoping that eventually they would make the connection that they were making a bad choice by not taking advantage of class work time. He expressed some disappointment that they didn't seem to make this connection, and spent time brainstorming different ways of tackling the issue pedagogically, but in doing so, he was much freer from the demands of competing activity systems than the teachers at Neptune because he was really only answerable to the IB curriculum guide.

Mr. Murdock's sense that the school's policy was designed to support teacher preferences was correct. I tracked down a student handbook, and though it spent several pages excerpting official district policy on acceptable use, the brief section developed specifically for the campus indicated that the school "provides the opportunity for students to bring a personal laptop to school to use as an educational tool. The use of these laptops will be at teacher discretion," meaning that:

1. Students must obtain teacher permission before using a laptop during classroom instruction.
2. Student use of a personal laptop must support the instructional activities currently occurring in each classroom and lab.
3. Students must turn off and put away a personal laptop when requested by a teacher.
4. Students should be aware that their use of the laptop could cause distraction for others in the classroom, especially in regards to audio. Therefore, audio should be muted, since headphones should not be used during instructional time.
5. Students may use their personal laptop or tablet before school and after school in common areas only, such as the Media Center, classrooms with the teacher present or similar supervised areas.

The laptop should be used for educational purposes only during these times. If an adult asks a student to put his/her laptop away because of games or other noninstructional activities, the student must comply.

The consequences for breaking these rules were a formal set of documentations, parent contacts, and the revocation of privileges. I never saw any of these consequences in play because I never witnessed an occasion where Mr. Murdock asked students to put away their devices unless it was the end of class and they were returning Chromebooks to the charging station. The written policy at Sunnydale represented a sharp contrast in tone from Neptune's written policy, though in effect they made the same argument for instructional use only. In practice, the climate around technology use at Sunnydale extended a measure of trust to students and teachers that focused on natural consequences rather than punitive measures.

Technology use for non-instructional purposes was common at Sunnydale, but use that was disruptive or distracting to the class was rare. As Via noted

> There's a lot of people here who have phones, but you don't see them using it in class. There's one or two people who bring out their phones in class and do other things like text or whatever. Not very many people here. It's not that big of a problem.

One day during a time when students were working individually on projects and had spread out to tables in a small interior courtyard area, I circulated to ask students about their projects. When I asked Nihaar what he was working on, he looked up at me with a deer-in-the-headlights look

and sheepishly replied, “buying shirts.” While I often saw students “window shopping” for items—makeup, prom dresses, video games—this was the only instance I recorded of a student admitting to making a purchase. In member-checking, he recalled the incident and attributed it to his immaturity and more materialistic orientation at the time, noting even so that it was an unusual thing for him to do.

Students often complained that the internet was slow, and they speculated that the school blocked some programs—like streaming music and video sites—to cut down on the potential for distraction. When I asked the technology administrator about what sites were blocked, he said they blocked apps that took up too much bandwidth. The issue was a technical one, designed to keep enough room open on the network, rather than an instructional one. Students were often chasing down memes, looking for visuals to use in their presentations that sometimes took them down rabbit holes, or working on projects for other classes that seemed more urgent to them at the time, but my field notes document only two incidents of technology posing a potential distraction to class in the way Mr. Murdock defined it: one where an advertisement played loudly on a student’s laptop in the middle of a serious full class discussion and one where a student with disabilities was playing a silent game on his laptop while other students were giving individual presentations. The first incident I present in greater detail below; the second one was only potentially distracting to me and the teacher, as we were the only ones in a position to see the student’s laptop screen. In keeping with his non-interventionist policy, Mr. Murdock never invoked the consequences outlined in the handbook in response to students’ device use.

Instead, both he and students ignored off-task uses of technology, and if the occasional phone buzzed or beeped during class, it usually only drew attention when it was unclear whose it was—a problem which delayed silencing it. An exception occurred on November 16, 2015,

when the class at Sunnydale was scheduled to begin interactive oral presentations. These are short presentations developed and delivered by groups of four students that cover a topic related to a shared novel, which in this case was *Love in the Time of Cholera* by Gabriel Garcia Marquez. Instead, Mr. Murdock opened class with an invitation to talk about a current event that had been much on the minds of students: the terror attacks in Paris that had prompted renewed political resistance to accepting refugees. There were thirty students present, seated in groups of six. Four of them had their own laptops out and open, and six had cellphones out and placed facedown on the desks. Mr. Murdock started class by asking students to talk in small groups about their thoughts on several states' governors threatening to refuse entry to Syrian refugees.

> **Student 1**: So is immigration completely halted?
> **Mr. Murdock**: Yes. Whatever that pathway was, it is cut off.
> **Student 2**: I kind of agree – the overall goal is the safety of people under his [the governor's] care. The US can't protect the whole world.
> <several hands go up>
> **Nour**: I lived in Paris, and I have friends and family there still. They agree this cutting off immigration does not solve anything
> **Mr. Murdock**: ... Say more
> **Nour**: It was known as a peaceful place. When Charlie Hebdoe happened, everything stopped. <Nour begins crying> Like… I can't imagine what people will do in school.
> **Mr. Murdock:** What did people do in school [in response to the Charlie Hebdoe attacks]?
> **Nour**: Everyone talked about it. There were demonstrations—France loves demonstrations
> **Student 3**: <expressing concern about heightened antagonism toward refugees> [A nearby town] has a large Syrian population. My sister goes to school there. What if something goes wrong? <some discussion of how students would communicate with siblings and parents in such a situation ensued>
> **Student 4**: Isis operates through social media, so securing borders is not the solution. <audio of advertisement on a laptop interrupts the class, but students and teacher ignore it. The conversation continues for several minutes, with students proposing a couple of different metaphors to try to get a handle on the problem of balancing compassion with safety while questioning the legitimacy of the threat posed by refugees as a group>
> **Ani**: I'm sorry about the video. I was Googling ISIS, and there was a bomb threat at Harvard and then there was a video calling for an attack on DC, and I was wondering if that changed anybody's mind?

There are a number of features of this brief classroom discussion that warrant attention as we think about how networked devices might be used to achieve the standards for digital citizenship, everywhere-all-the-time learning, and appropriate use in the classroom. First, Mr. Murdock altered his lesson plan for the day to engage students in discussion of a current event, adopting an involved *ethical frame*. One of the advantages of networked devices is their ability to provide access to current information, an advantage that the student who was Googling ISIS leveraged. Second, knowing that Nour had lived in France, Mr. Murdock called on her as a resource for information on the situation there. She scrolled through her phone looking for friends and family to have checked in "safe" on Facebook as she talked to her classmates about the response to terror attacks that she had lived through in France. In member-checking Nihaar remembered this being a striking moment for him, giving him a perspective on the people living through terror attacks that he had not considered before. Students throughout the class tried to formulate a collective response to the situation; they took up concerns about safety, sovereignty, and values in ways that drew on personal experience, information from social media, and their own understandings of the political responsibilities and realities of the United States. Students who have participated in member-checking remember this day as "tense" and "difficult," with everyone on edge and people being afraid to say the wrong thing in a charged political atmosphere. The discussion was engaging, the viewpoints varied, and the sense of immediacy lent by the way social media (in this case Facebook and YouTube) entered the conversation expanded the possibilities for understanding the stakes of concerns expressed by students in the room and by interlocutors online.

I suggest that the lightweight, almost automatic turn that students made toward their devices to contribute to and complicate this challenging discussion represents a move toward

transformative uses of technology, precisely because it calls on students' self-directed and personal uses of technology. When the activity systems align in this way, it makes room for students' varied *ethical frames*. Nour's checking in on Facebook for her friends and Ani's desire to capture a missing element of the classroom discussion online and introduce it, all bound up in Mr. Murdock's willingness to be responsive to students' concerns and anxieties while scaffolding them through a complicated and deeply felt set of issues *worked*. The activity systems of campus and classroom policy and the *ethical frames* of teacher and students aligned in a way that made room for everyone to draw on their digital literacy and discussion practices to engage with a challenging topic. The promise of this moment fizzled a bit when, without any resolution or culminating activity, Mr. Murdock allocated the end of class as independent work time. It was perhaps the case that it was time to step away from the discussion, but with a better set of conceptual tools for how, why, and how often we connect to others with networked devices, there might have been room to extend the discussion beyond Nour's and Ani's contributions, tapping into different kinds of personal, familial, academic, and civic sociomaterial networks.

A couple of weeks later, there was a different kind of networked drama animating classroom dynamics. Mr. Murdock entered and instructed students to take out their prepared readings—written analyses of assigned texts—to exchange with peers. Though the instructions indicated that students should bring printed copies, few students had copies on hand. This created a problem because during a recent network update, the district-wide IT department limited the number of people who could sign on to the network. Now the network kicked people off when an extra student signed on, and Turnitin.com would routinely lose any comments when a student logged off in the middle of a session. Mr. Murdock had planned to avoid this situation until the

IT department could fix the glitch by having students work on paper, but because they were accustomed to doing peer review through Turnitin, they had not taken his directions to print copies seriously. The activity system of the district actually intervened in a way that was highly uncommon on Sunnydale's campus, and though the teacher had anticipated it, the students were unprepared. Mr. Murdock said, "If you have a physical copy, raise your hand." Seven students raised their hands, and Mr. Murdock rearranged seats in the classroom to move them to two tables in a corner. "If you're over here, don't say a word, and don't test me today." A student mumbled an attempted defense. Mr. Murdock shouted, "WHAT THE HELL DID I SAY?"

Mr. Murdock was clearly upset, both that the usual system for peer review was unusable because of the IT update and because the failsafe of working on paper was also unworkable because students hadn't brought printed copies. He gave brief directions to the two tables of students with paper copies, then addressed the rest of the class, "This is unacceptable—that there are this few people who are getting their work done and following directions." He asked them to "Take out a piece of paper and write down the top three reasons you don't have anything in front of you." He left class to find out who had the Chromebook cart checked out and returned carrying a stack of Chromebooks. Students wrote their apologies and worked silently for the rest of the period.

In this situation class was completely derailed by a combination of routine IT updates from the district that were not well-coordinated with the campus leadership and students' failure to compensate for the missing tech, even though Mr. Murdock had anticipated issues and asked them to print their papers. The assignment itself didn't require technology, and the educational program that students were accustomed to using was one that reinforced the closed classroom network, creating connections between classmates as anonymous peer reviewers while checking

student work against an algorithm for plagiarism. Though students' uses of networked devices are commonly identified as distracting elements in class, my observations suggest that in this instance—and in others like the slow login briefly described in the Neptune vignette above—the delays produced by the approved networked technologies that have taken over curriculum and assessment delivery systems may take up just as much or more time as a student's occasional reply to his mother's text. Students and teachers alike cited using cell phones when the school network or equipment was too slow.

In sharp contrast to the principal at Neptune, the principal at Sunnydale dropped by Mr. Murdock's class a few days later to reassure students that the IT issues would be brief. She entered Mr. Murdock's class on a day when he had checked out the Chromebook cart so students could work independently on their prepared readings. Students were still having trouble getting online:

> **Student 1**: Why? Why does the internet suck? <exaggerated, mournful>
> **Principal**: The whole intent is for you to have access to the internet
> **Student 2**: Is Moodle blocked on programs?
> **Principal**: We just fixed it!

As the exchange suggests, the IT update had actually blocked the school's LMS, disabling students' access to readings and materials, if only briefly. Worth noting here, though, is the principal's attitude, which positioned networked technology as an important part of the instructional environment rather than a threat. The district's goal of keeping the network contained hindered the principal's goal of lightweight and seamless access, and it interfered with the teacher's classroom goal of facilitating peer feedback exchange. These kinds of barriers to accessing programs continue to be raised in studies that reflect on why technology integration initiatives have not achieved the transformative potential promised by state, national, and international standards.

Conclusion

This chapter has examined how the goals of policy at multiple levels serve as activity systems that shape the way networked technology is tolerated and leveraged in secondary classrooms. Both classrooms had teachers who were experienced in personal social media use, and both classrooms had access to laptops and the internet. Students in both classrooms did a substantial amount of group work using collaborative tools like Google docs. The schools shared a policy context in some ways, belonging to the same school district, but the way that policy shaped administrators', teachers', and students' attitudes toward networked devices differed dramatically.

The aspirational language of open and involved *ethical frames* presented in international, national, and state policies regarding technology reflects the goals of those activity systems, rarely entered the vocabulary of students and teachers at these two schools. At the same time, each classroom occasionally met those goals by another route, drawing knowledgably and extensively in the language of their respective curricular programs. Neptune students frequently pointed out that they were attending a New Tech school, and they puzzled over the technology restrictions in place on campus and on the school-issued laptops. Neptune teachers commented on the necessity of infrastructural support for their networked classrooms so that they could take advantage of the Echo LMS and enact the project-based learning required by the New Tech Network curriculum. Sunnydale students routinely invoked the workload that IB schools are famous for and the necessity of networked devices to handle that workload both at home and at school. The Sunnydale teacher described IB as "famously technophobic," but also understood the IB learner profile as supporting innovation and experimentation with communicative modes and making connections in real time to current events. Policies and standards that promoted

technology without connecting it to disciplinary commitments or campus-wide learning processes had no direct presence in either school. Policies that set up restrictive policies regarding networked tech had a negative effect by placing students and teachers in antagonistic roles and by constraining students' ability to practice their digital literacies seamlessly, as they would in almost any other context.

In presenting these examples from classrooms at two substantially different schools, I do not mean to suggest that their technology policies should be compared in terms of the outcomes they produced for students. There are too many contributing variables that were not controlled for to make a legitimate comparison, and in any case, what outcomes would legitimately reflect what students learned about how to leverage networked technologies to move through the world successfully? Rather, I wish to point out the ways that some aspects of global policy reflected or supported what was already happening in classrooms while others seemed to conflict with the very nature of what classrooms are currently designed to do. Some global policies seemed to be more unifying in their effects than others, and how these policies were imagined, implemented, and assessed could contribute to the transformative integration of networked technology in classrooms.

An important question here might be: what is meant by transformative technology? It is a question I purposely avoided in the design of this study, feeling that much of the "transformation" of classrooms evident in research and policy focused on well-resourced districts or positioned networked technology transformations in ways that seemed problematic. For example, it's hard to imagine that a low-income school, struggling with a crumbling infrastructure, high teacher turnover, and low standardized test scores would be able, as the NETP suggested, to create a virtual reality classroom to approximate chemistry and physics labs.

It's difficult to think through all the labor and learning implications of substituting online or distance learning for a classroom teacher in a rural school needing to offer a foreign language class. My participants who attended online school in the middle grades found it unsatisfying on both academic and social levels. Their experiences suggest that there is substantial work to be done to bring online or distance learning up to par with in-person interaction between students and teachers.

At Neptune, students spent the first several minutes of class logging onto the school's network, had daily reminders, which were broadly ignored, not to use their cell phones and headphones, sometimes put their phones in a "cell phone jail" during class and at least gave thought to the worry that their phones might be confiscated, texted their parents and friends, watched videos, conducted research, went down associative rabbit holes looking for images for projects and for fun. They received assurance from the principal that he *would* crack down on them if they stepped out of line. At Sunnydale, where networked devices were treated as commonplace, students charged their phones in class, they conducted research, built presentations, shopped for shirts, texted their friends and parents. They received assurance from the principal that the internet was supposed to be working *for* them and permission from their teacher to use devices as long as they were mindful of others' learning needs. These circumstances meant that there was certainly instructional time lost to technology, both in failures of the network and in students' off-task activities, but my analysis suggests that embracing these aspects of technology use—particularly the interaction with known others which students are most familiar with and which global policy is most silent on—and centering them as an object of inquiry is at the heart of transformative opportunities for learning.

What I propose in Chapter Four and touch on here through a reading of the *ethical frames* implicit in policy documents is a set of conceptual tools for thinking more specifically about what all of these technological mediations, at different levels of relational commitment, mean in and for the classroom. I have no doubt that the fluid use of technology in evidence during that difficult discussion at Sunnydale would have met with the approval of administration and teachers at Neptune had it been enacted there, but that possibility was substantially hindered by a climate that actively worked to constrain students' usual ways of using devices. That climate interfered with their *ethical frames*. For all its appearances as a transformative campus environment that put a device into each students' hands, Neptune could not call on students' latent knowledge and connections in the same way that Sunnydale could because campus policies spent too much time actively policing students' usual ways of using networked devices.

These classrooms were suffused with multiple, sometimes conflicting, activity systems, with different goals and *ethical frames* guiding classroom interactions. The two schools belonged to the same national, state, and district policy contexts. But the activity systems that produced policy designed to unify goals for students and improve access and equity to high-quality materials and instruction were not the only activity systems in play. Neither school professed any engagement with the ISTE, NETP, or state improvement plans. Instead, teachers at each campus looked to the school's curricular commitments as the authoritative activity systems guiding networked devices in the curriculum. At Sunnydale, the teacher felt complete autonomy to integrate networked technologies as needed, and interference from the school district's policy—an activity system focused on containing, surveilling, and controlling students' uses of devices—was minimal. At Neptune, the district had an outsize impact on teachers' daily attitudes toward networked technology and students' fears of being cut off from their everyday digital literacy

practices, which were perceived by campus administration and teachers alike as disruptive the to the traditional, closed classroom network.

Chapter 6: Implications

My research began with questions about how students and teachers negotiated the role of\ technology in classrooms where its presence was policy-driven (mandated) and where both motivation to use networked devices and experience with specific platforms was uneven. Advocates for digital literacy instruction suggest that these conditions offer an opportunity to de-center classroom authority and revitalize the curriculum with projects that leverage students' technology skills and multimedia interests. Opponents suggest that technology use in classrooms constitutes—at best—adding "bells and whistles" to the curriculum, often at the expense of more traditional and traditionally valued academic literacies. At worst, they argue, technology actually interferes with a student's ability to sustain deep engagement with texts and peers, destroying students' ability to think critically and live compassionately.

The twenty-four students and three teachers who participated in this study revealed that these dominant discourses, which frequently take an all-or-nothing approach to technology use, miss much about how networked technology reconfigures the relational space of everyday classrooms. Brief connections through text and social media have been largely dismissed as unworthy sites of investigation for either writing or relationships (Brandt, 2014; Turkle, 2011), but my data suggests that they often mediate meaningful relationships that students and teachers sustain with one another and with those outside the classroom through reading and writing. Because much of the research conducted on young adults' uses of technology relies on survey data that seeks to understand broad patterns of use, one underlying aim of this research was to demonstrate the value of more fine-grained information about what a student's time on screens

actually represents. In this study that turned out to be the blackboxed relationships that give students a sense of security, mobility, and independence. What one participant characterized as "distraction" or evidence of "addiction," another interpreted as answering a commitment to be a particular kind of digital reader and writer for a specific audience.

In exploring the multiple interpretations of networked device use in secondary classrooms and the multiple policies meant to define and guide instruction in such use, this study contributes two key findings that hold relevance for policy and teaching as well as the fields of digital literacy studies and teacher education. First, this study contributes a more detailed understanding of the impact of networked devices on secondary classroom contexts, especially with regard to relationships, maintained by literate activity, both within and beyond the classroom walls. Students at both schools generally felt positive about their teachers and reported knowing that it was important to avoid the pull of other relationships on networked devices when the teacher was talking to them. They rarely positioned their momentary moves to interaction on cell phones or laptops as prompted by a lack of respect or regard for their teachers, although teachers often framed students' behavior in this way, noting that it was discourteous to be off-task. Students felt less protective of their time at school in general, often interpreting lulls in structured activity as time that they could manage in agentic ways that suited their priorities and goals, especially when they felt device use was less disruptive to the classroom crowd than other available activities. In other words, what teachers were sometimes perceiving as distracted or disrespectful behavior was often the result of thoughtful deliberation on the part of students who were trying to make productive use of their time in non-disruptive ways.

When students took a moment during class time to respond to a text from Mom or to reach out to a friend in crisis, or even to buy a shirt or like a friend's prom picture on Instagram,

they were adhering to social norms of the classroom crowd. They were occupying their time in a way that minimized distraction to others while waiting for the teacher to signal a turn to the next activity or for the bell to release them from class. The data analyzed here suggests that they did not feel compelled to engage in these activities and, thus, the language of addiction and dramatic brain re-wiring that obstacle-focused research laments does not reflect a complete picture of the situation. At the same time, they were not actively engaged in continual learning, as the opportunity-focused scholarship tends to argue. Instead, they were making ethical decisions regarding their participation in multiple coextensive visible and virtual networks, maintaining the integrity of the classroom crowd by pursuing their own goals quietly, and managing the relationships that were most important to them.

Second, this study revealed tensions in how standards and policies defined and advocated for the use of networked devices in promoting 21st century literacy skills. These tensions were not a matter of being pro-technology or anti-technology, but rather a product of activity systems with different goals for students. The activity systems represented by standards, plans, and policies were designed to have a unifying effect, but their reach into classroom spaces was uneven, and as these systems came into contact with one another and with classroom practice, different goals and commitments to particular social configurations in the classroom became apparent. International, national, and state standards were consistent with opportunity-focused scholarship that advocates an open *ethical frame* with respect to classrooms and supporting students in building an involved *ethical frame* with respect to society. Policies at the district and campus level were more concerned with maintaining the authority of the teacher to define the boundaries of the classroom, aligning with closed *ethical frames* that make developing involved *ethical frames* in students challenging.

Teachers sought out and implemented standards and policies in ways that were consistent with their own goals for students and their perceptions of their disciplinary responsibilities. At Sunnydale, this meant that Mr. Murdock drew on campus policies insisting on teacher authority and campus curricular commitments to promoting communication, risk-taking, and a global mindset. At Neptune, Mr. Pope and Ms. Murphy were hyper-aware of the district-level constraints and built their technology integration around the New Tech Network's commitment to using its LMS to support project-based learning. Students at Sunnydale likewise adopted Mr. Murdock's attitude that they could use devices to achieve their goals—though they may not have prioritized them as Mr. Murdock would have. Caught between their usual ways of organizing communication, broad policy promises to transform learning, and local policies that were meant to be constraining, but almost impossible to implement in practice, students at Neptune described a constant low-level stress regarding the threat of confrontation or confiscation. The tension between these activity systems and their different objectives limited possibilities for networked technology integration that did anything more than reproduce the traditional closed classroom network. At Sunnydale, there was less contention between activity systems, which opened up space for student goals, teacher goals, campus goals, and global policy goals to work together.

The *ethical frames* proposed in Chapter Four, grounded in students' experiences and implicit in teachers' expectations, reorient our view of the sociomaterial network of the classroom to appreciate the variety of literacy activities present—even those that may not seem aligned with the goals of the activity systems represented by campus, district, state, or national policies. Tracing students' reading and writing habits highlights the relationships that networked devices mediate, which turns our analytical attention to the relationships written into policies that have (or want to have) purchase in classroom activity systems. Relationships were what mattered

most, both in students' talk about reading and writing on networked devices and in teachers' explanations of their how their networked tech integration was connected to their discipline-specific curricular goals. In the sections that follow, I discuss the implications of these findings for policy directed at technology use in schools, for teaching with networked technologies in secondary ELA, for secondary teacher education, and for theories of digital literacies, concluding with directions for future research.

Implications for policy

Taking an *ethical frames* lens to the convergence of these contexts—self, known others, school, and society—raises a number of implications for policies regarding networked technology integration and digital literacy instruction in schools. First and foremost, the findings suggest the need to look beyond the device itself and toward the disciplinary and relational connections that networked devices mediate and remediate. As Chapter Five demonstrated, policies at the international, national, and state level tended to be opportunity-focused and were tightly aligned—referencing one another and adopting the same structure and vocabulary to organize recommendations. However, these policies were not referenced by district, campus, and classroom policies, all of which were more concerned with containing device use in ways that supported disciplinary commitments. This finding has major implications for policy-makers, who frequently acknowledge the importance of including local stakeholders in the development of global policies, but have heretofore not developed structures for carrying global policy regarding technology integration back to local sites of implementation. A model of successful global-to-local policy was the curricular orientation of each campus. Each campus implemented policies that aligned with the curricular design of their respective curricular guides—the International Baccalaureate and New Tech Network models—and each classroom teacher integrated

technology in ways that were consonant with those curricular models. Policies that guided curriculum and course development set the tone for the role that networked device use should play in the classroom more effectively than policies that tried to address technology as a free-standing aspect of education.

Furthermore, teachers often justified their inclusion or exclusion of instruction in specific technologies by pointing out how networked devices fit into a vision of teachers' roles as disciplinary experts. Ms. Murphy insisted that teaching video composition "would be a neat thing but that's not our project, so I'm not." Yet it is not difficult to imagine how teaching students to rhetorically analyze how videos are put together and circulated to have an impact on a target community could be both an important skill in interpreting civic issues and "our project" as teachers of English language arts. While academic journals, such as *Contemporary Issues in Technology and Teacher Education* (CITE) organize their articles around disciplinary explorations of technology, policy does not seem to have followed suit. The findings of this study suggest that encouraging the kind of transformational uses of technology proposed in international, national, and state guidelines might be more effective if technology integration standards and plans were more closely connected with disciplinary commitments.

Finally, understanding how networked devices mediate students' relational patterns and commitments through an *ethical frames* lens should give any policy-maker advocating for cell-phone confiscation pause. The teachers at Neptune were cautious of enforcing the campus/district policy of collecting cell phones, and the students reported conversations with their parents about how to *defend themselves* against adults on campus who attempted to intervene in this relationship by extracting the mediator. The kinds of ethical relationships that Neptune's restrictive policies proposed in writing were often considered unrealistic and

sometimes received as condescending and authoritarian. Students and parents were suspicious of such policies.

Implications for teaching

In its exploration of the ethical commitments implicit in reading and writing in digital environments, this study offers potential new directions in teaching digital literacies. The findings strongly suggest that a better understanding of the interconnected beliefs, values, and attitudes that underlie students' and teachers' approaches to digital literacies in the classroom would provide valuable information for educators who are seeking ways to make digital literacy instruction a more integrated and purposeful part of the ELA curriculum. This could take the form of structuring a curriculum around the writing that students already do, attending explicitly to their digital reading and writing habits and developing a meta-awareness of their motivations for reading and writing and the relationships that those literacy decisions and devices mediate.

For example, an *ethical frames* lens offers multiple possibilities for designing activities that analyze and reflect on daily digital literacy practices, drawing students' attention to both their own reading and writing acumen and to the importance of writing as a relational mediator. An instructor could begin the year with an assignment that has students map their relationships and consider their impact on future goals; or ask students to collect the last ten or twenty posts on the student's preferred social media platform and analyze them according to the relations they were proposing or maintaining—a project that could be delivered as an analytical essay or as a multimedia presentation, or both. Discovering and making students more aware of their preferred *ethical frames* (redactive/archival, protective/responsive, closed/open, detached/involved) could provide both teachers and students a launching point for discussing the kinds of writing assignments that might motivate students.

This kind of personalized learning is not the kind advertised by online schools, which often cut students off from the kinds of in-person social interactions that even introverted young people crave. It makes room for students to follow their multiple paths through literacy and for teachers and peers to value the different relational commitments that students bring with them into the classroom, and in allowing the diversity, it introduces students to new ways of thinking, doing, and relating. It might involve making space for students' networks beyond the classroom to enter, just as teachers currently expect students to spend some of their time at home engaged with academic work—a move that, perhaps uncomfortably, acknowledges the unprotected status of the classroom learning environment and decenters the academic context as a primary identity marker. In other words, inviting students to reflect on and value their daily digital literacy practices might introduce the possibility that some students use their literacy practices to relax, others to address injustices in society, still others to document their lives and maintain connection to their families, and others to practice the skills they might need for their careers. Schooling has traditionally been involved with the last, but there is no reason to think a student's primary identity is bound up with their future profession. The majority of students do not have that luxury, and dismissing the other possibilities cheats young people of much of the value and pleasure of literacy. Considering everyone's actions as potentially justified by their lived realities and ethical commitments relocates the field of engagement for considering what could or should be tolerated in the way of non-school-related networked device use.

Implications for teacher education

As a teacher educator, I've come into contact with many preservice teachers—ostensible "digital natives"—who have extensive experience with social media, but are nervous about how to handle cell phones, tablets, and laptops that seem to be competing with them for students'

attention. When teachers in this study incorporated networked technology, like Ms. Murphy's use of Twitter hashtags, they often reported replicating activities they had been exposed to in college courses, suggesting that methods courses could be an important site of experiential learning for future teachers. Findings regarding disciplinary understandings of digital literacy instruction suggest that stand-alone technology integration courses may not be enough to produce the reading and writing skills necessary to design innovative and effective curriculum. An *ethical frames* lens offers teacher educators a new approach to thinking about training pre-service teachers to leverage high school students' reading and writing during class time as a literacy practice and a resource. This approach recasts off-task literacy practices as an important site of joint student-teacher inquiry, a conceptual move that requires modeling and practice.

In addition, this work draws attention to the intersection of social aspects of networked devices with the peculiar social dynamics of secondary classrooms. As scholars continue to advocate for curriculum that values students' multiliteracy practices in online communities (Itō, et al., 2008; Black, 2009a), push for curriculum that scaffolds participatory structures (Jenkins et al., 2009; boyd, 2014), and promote curriculum that leverages the design theories that make gaming environments so engaging (Gee, 2017; Prensky, 2015), teacher educators will need to be attentive to ways of researching and teaching how these activity systems intersect with educational standards, school policy, and the social relations of the classroom. Cuban's (1986) critique that teachers avoid computers when they perceive them to be disrupting or displacing what teachers find enjoyable about teaching—interacting with students and sharing disciplinary expertise among them—remain pertinent. Until we acknowledge and address the way current discourses obscure the tangled relationships we have with and mediate through networked devices, we will continue to talk past each other regarding the role of technology in classrooms,

especially in literacy classrooms that ostensibly pledge to equip students with communication skills for a networked world.

Implications for digital literacy studies

It is now commonplace to regard literacy as a social practice that is shaped by tools, motives, and contexts; learning has likewise long been understood as social in nature; and online writing environments have held the promise of connection and sociality from the very beginning. The findings of this study suggest that as students bring digital literacies into classroom sites of literacy learning, which have traditionally been guided by the social norms of the institution of school, the contexts, as we traditionally conceive of them, are disrupted. The *ethical frames* lens proposed here implies that some contexts, for students with particular ethical frames, might actually be portable. In other words, digital tools and virtual interlocutors travel with students and change the context of literacy practices everywhere they go. This means that research on the practice of digital literacies will increasingly have to attend to not only the online reading and writing habits of students, but how those habits alter the in-person contexts in which they are practiced.

Information about students' and teachers' beliefs and attitudes, and the discourses and policies that shape them, is crucial to advancing theory for digital literacies. Tracing the connections between these different activity systems has shown that students, teachers, and institutional practices are informed by a variety of—sometimes competing—goals, even as they operate under the cover of unity. This means that research that pushes for better alignment of learning goals, activities, and assessments (Jenkins, et al., 2009; Beach, 2012) should be supplemented with research that attends to the implicit and explicit goals as they are taken up in local contexts. And while research that examines digital literacy learning outcomes is important,

it is essential to integrate students' and teachers' voices into the conversations that circulate about the potential affordances and limitations of integrating technology into the literacy classroom and curriculum. The influences of social factors like the *ethical frames* that I propose here cannot be effectively studied without talking to students and teachers about how their experiences with technology shape their literacy practices and what those technologies and practices mean to them.

Directions for future research

The strength of this study is that it provides insight into the interaction of policies, technologies, and practices in the visible and virtual sociomaterial networks of the classroom. It adds to an understanding of how high school students and teachers perceive and negotiate the role of networked devices as they mediate relationships with each other and with their networks beyond the classroom. This small assay into the complex sociomaterial networks of two 11th grade classrooms suggests that tracing the associations—or lack thereof—between readers and writers, between institutions and individuals, between policies and practices can yield vital information and new vocabularies for launching dialogue about how we build our common classroom experiences together.

Longitudinal research would provide a better understanding of the vertical (mis)alignment between technology integration at the high school and college levels and would contribute to our understanding of digital literacy transfer across academic contexts. All three teachers in this study mentioned that they explicitly drew on their own university experiences to imagine the kinds of internet-supported activities that their students might one day encounter (including vetting sources, making public presentations, and using Twitter hashtags). Teachers

and teacher-educators would benefit from more explicit information about the digital literacies expected (or deflected) in college classrooms.

In addition, students hinted at disciplinary differences in how technology was integrated in their English, history, language, science, and math classes, indicating that a study that explores the disciplinarity of digital literacies would further extend our understanding of how students and teachers view the role of networked technologies from different disciplinary orientations. Attention to the disciplinarity of digital literacies might help resolve some of the disconnect between global technology policies that address holistic characteristics of students and teachers and secondary contexts where academic goals are usually discipline-specific. As Chapter Five demonstrated, international, national, and state standards tended to either avoid locating a disciplinary home for digital literacy instruction or to explicitly frame it as a part of writing standards, and, in fact, Ms. Murphy acknowledged that "as their English teacher," she was the only person talking to students about the importance of maintaining a professional digital footprint (which would require adopting a redactive ethical frame). However, student participants reported using technology across disciplines. Apart from the particular programs that might be associated with learning a foreign language or composing a piece of music, are there social patterns that arise from discipline-specific networked technology use?

Finally, future digital literacy studies research could take up *ethical frames* as a conceptual framework and extend the theorization of *context convergence* in the classroom. Research that collected student-produced texts (on social media and for the classroom) would increase and complicate our understanding of whether and how students materialized their *ethical frames* through writing on devices. Such research would be useful to both teacher educators and writing studies scholars curious about transfer between social media and academic

writing practices. Introducing a process-log that asked students to keep track of their networked device use during and for class would add depth and detail to our descriptions of students' time on screens and would illuminate moments of and motivators for *context convergence*. As my research has shown, the field of digital literacy studies, and the discourses surrounding technology use in everyday communication, could gain much from approaching networked devices as mediators that alter the context of the environments that they inhabit.

The introduction of networked devices, and the increasing replacement of traditional classroom materials (textbooks, school planners, libraries) with access to digital versions, has further complicated the classroom context, raising new questions about the metaphors and discourses that guide practice and shape policy. This dissertation repeatedly confronts an apparent paradox about networked technology—that it expands literacy skills and that it threatens them. This study shows, however, that this opposition directs the conversation away from the metaphorical heart of the matter—the ways that networked devices materialize and mediate our relationships. In an effort to redirect the conversation, this study foregrounds student and teacher voices and their lived experiences in classrooms as a means of better understanding how our devices come to embody and shape our ethical relations to others.

Whether technology improves or threatens literate practice and the classroom contexts that are charged with developing it, then, is not the right question. Instead, the presence of networked devices—and the transcontextualizing power they wield by virtue of the blackboxed relationships they mediate—opens a new set of questions, such as: How do students' personal communicative patterns interact with their academic writing habits? How could calls for engaging broader publics with academic work draw on the social patterns of writing—both connected and contained—that students bring with them to the classroom? What responsibility

do teachers have to directly address issues of reading and writing on digital devices—especially when that writing is informal and social? What would a 21st century curriculum that respected all forms of student reading and writing as acts of agency and identity—worthy of protection and guidance—look like?

These questions are timely as the political climate around teenagers' uses of social media for information, for activism, and for maintaining social relations suggests increasing controversy, rather than increasing consensus, around how technologies intervene in institutional contexts and mediate relations with the self, known others, school, and society. As schools increasingly move to online sources and resources for education, it is important to continue conversations about how the devices that carry so much of our personal and professional communication put us in relation to one another.

Appendices

Appendix A: Recruitment

Student Participant Recruitment Pitch

Good morning/afternoon. My name is Merideth Garcia, and I am a graduate student at the University of Michigan. I am working on a research project for my dissertation, and I am looking for student participants, so I'd like to tell you about my project and see if you'd be interested in participating.

First, how many of you know what qualitative research is? <Wait for student responses, but make sure to explain that qualitative research uses interviews and observations to answer questions about how people do things and how they think about their practices.>

So my research is trying to answer questions about what kinds of reading, writing, and connecting students do through digital technologies, like Facebook, Tumblr, Twitter, Instagram, Snapchat, texting, Google collaborative tools, and even some kinds of video games. I think of all of these platforms, or spaces, as places where people engage in digital literacy practices–that is, they read and write texts and images in order to connect to other people, to participate in communities.

Some questions I'd like to answer are:

- What kinds of reading, writing, and connecting activities are students engaged in outside of school?
- What platforms are students using most and why?
- Where/how do students learn to make things for the platforms they are using?
- What kinds of platforms/technologies have you used to complete classroom assignments?
- How do students understand the connection between these digital composing practices and the kinds of reading, writing, and connecting activities they are asked to engage with in school?

In order to participate in my study, you would need to take home a parent consent form and bring it back with your parent or guardian's signature. I would also provide an assent form for you to sign. Then we would sit down together for a one-hour interview that I would audio record and transcribe. Your name will be replaced with a pseudonym in any records that I keep once all the interviews are complete and the recordings have been transcribed. Depending on how my data collection goes, I might ask you for a follow-up interview to clarify what you've said.

No one is required to participate, and I won't share the data with your teacher, so participation will have no impact on your grade. If you change your mind about participating, you can withdraw from the study at any time. If you do decide to participate, I'll provide $20 as a token

of appreciation for your time.

Are there any questions?

Member Checking Recruitment Pitch

Hi <participant>. I'm contacting you because you participated in an interview study for me in the spring of 2016, and I would like to ask a few follow-up questions and get your feedback on the portions of my manuscript that used data from your interview. If you have time to meet with me for an hour or so to go over those sections and verify whether they meaningfully represent your thoughts at the time, I would be very grateful. You can email me at scriba@umich.edu or text me at 512-917-6058 to set up a time and place, and I can provide $25 as a token of appreciation for your time. Please let me know at your earliest convenience if you are interested.

Appendix B: Informed Consent

Teacher Informed Consent -- Interview Study

Who is doing this study and why?
My name is Merideth Garcia, and I am a doctoral student at the University of Michigan. I have also worked there as a teacher educator in the School of Education. My faculty advisor for this project is Dr. Chandra Alston. She is a professor in the School of Education at the University of Michigan.

I'm inviting you to participate in a research study about how about how teachers and students think about the relationship between technology and the kinds of academic activities typically found in English classes. I want to figure out how teachers' and students' experiences with technology influence their attitudes toward reading, writing, and socializing activities in school. This research is important because we use technology every day to read, write, and participate in social communities. What you have to say on this topic is really important because we still have a lot to learn about how to teach students to use technology effectively.

What will you be asked to do?
In short, answer some questions about your experience and expertise with technology, how you find out about students' experience and expertise with technology, and how you make decisions about using technology in the classroom. If you agree to be part of the research study, I will sit down with you for two interviews, and I'll ask your permission to audio record the interviews. In the first interview in April (75 minutes long), I'll ask you some questions about your students and how they think about different kinds of activities in English class. The questions will be about the students in your class. For example, "How do you find out what students know and can do with technology?" Also, I'll ask some questions about your pedagogy as it relates to technology (e.g. "What kinds of technology practices do you think are important to include in the English curriculum?"). I'll also do some classroom observations to gather background information about the class. In the second interview in June (about 60 minutes), I'll ask you to think out loud about some specific discussions or assignments from class. For example, if we observe that certain students seem to use technology more or differently to complete class assignments, I might ask why you think that is.

How will this benefit you?
A few ways. First, I hope the interviews themselves will be useful as a chance to reflect. This is not a "right answer" situation at all, and I hope it will be interesting to think about the issues involved in this study. Second, once I have a chance to analyze the data from all the classrooms in this study, I'll report back to the class on what I find in general (though not from the interviews of students in *your* class). What kinds of technology experiences and expertise are students bringing with them into classrooms? How are teachers and students using technology to

complete traditional academic tasks and to create new ones? But keep in mind, no one will hear the audio or read the transcript of the interview except me.

Will there be any tokens of appreciation for participating?
Yes, as a small token of my appreciation, you will receive your choice of a $20 gift card or a University of Michigan t-shirt after each interview for the time spent talking about these questions with me.

Are there any risks?
There shouldn't be much risk associated with this study. Of course, I can't guarantee participating will be totally risk free. I'll try to make you as comfortable as possible. You can skip any question you don't feel comfortable with, and we can even stop the interview whenever you want and/or destroy any answers you've already given. I might publish or present the results of this study to other people, but I will remove any information that might identify you or your school (e.g. names). I will not play the audio for other people; only your words will be shared, and your name won't be attached (only a pseudonym). Other people may want to see information you provide as part of the study. This includes organizations responsible for making sure the research is done safely and properly, including the University of Michigan Institutional Review Board.

To keep your information safe, I will store the audio, and written recordings on a computer that is password protected. I will keep the audio long enough to write down what you say. After that (in about two months), I will destroy the recording. The data will not be made available to other researchers for other studies following the completion of this research study.

Is this study voluntary?
Yes. Participating in this study is completely voluntary. Also, even if you decide to participate now, you may change your mind and stop at any time. There will be no negative consequences for doing so.

Who should I contact if I have questions?
If you have any questions about this research study, please feel free to contact Merideth Garcia (scriba@umich.edu) or my faculty advisor Dr. Chandra Alston (clalston@umich.edu) at any time. You are ***always*** welcome to ask any question you might have.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board, 2800 Plymouth Rd. Building 520, Room 1169, Ann Arbor, MI 48109-2800, (734) 936-0933, or toll free, (866) 936-0933, irbhsbs@umich.edu.

If you agree to participate in this study, please sign your name in the space provided below; you will be given a copy of this form for you to keep. Thank you for considering participating in this study!
I agree to participate in the study.

_____

Printed Name

_____ _____

Signature Date

I agree to allow my interview to be audio recorded.

_____ _____

Signature

Parent Permission

The University of Michigan

Parent Permission Form -- Interview Study

Who is doing this study and why?
My name is Merideth Garcia, and I am a doctoral student at the University of Michigan. I have also worked there as a teacher educator in the School of Education. My faculty advisor for this project is Dr. Chandra Alston. She is a professor in the School of Education at the University of Michigan.

I'm inviting your child to participate in a research study about how students think about the relationship between technology and the kinds of academic activities they are asked to do in English classes. I want to figure out how students' experiences with technology influence their attitudes toward reading, writing, and socializing activities in school. This research is important because we use technology every day to read, write, and participate in social communities. What your child has to say on this topic is really important because we still have a lot to learn about how to teach students to use technology effectively.

What will your child be asked to do?
In short, answer some questions about his or her experiences with using technology to read, write, and connect with others. If you give permission to take part in the study (and they also assent), I'll ask your child to fill out a short demographic survey about their personal and educational background. Then, your child and I will sit down for an interview, and I'll ask permission to audio record. The interview should last about 60 minutes, and I'll ask some questions about how your child sees him or herself as a student and how he or she thinks about different kinds of activities in English classes, especially those involving technology. The questions will be about students as individuals, such as "How have you used technology to complete classroom assignments?" and “What is your favorite social media site?” I’ll ask your child to walk me through how he or she uses mobile devices or websites to read, write, and connect with others. I'll also do some classroom observations to gather background information about the class. I'll ask your child to think out loud about some specific discussions or assignments from his or her classes. For example, if we observe that certain students seem to use technology more or differently than others, I might ask why that is. At your request, I will provide a copy of the interview questions before you give permission for your child to participate in the study or at any point afterward.

How will this benefit your child?
A few ways. First, I hope the interviews themselves will be fun! This is not a "right answer" situation at all, and it can be really interesting to think about the issues involved in this study. Second, once I have a chance to analyze the data from all the classrooms in this study, I'll report back to the class on what I find in general (though not from the interviews of students in *your* class). What kinds of technology experiences and expertise are students bringing with them into classrooms? How are teachers and students using technology to complete traditional academic tasks and to create new ones? But keep in mind, no one will hear the audio or read the transcript of the interview except me.

Will your child receive any tokens of appreciation for participating?
Yes, as a token of my appreciation, your child will receive his or her choice of a $20 gift card or a University of Michigan t-shirt for the time spent talking about these questions with me.

Are there any risks?
There shouldn't be much risk associated with this study. Of course, I can't guarantee participating will be totally risk free. For one, being recorded can certainly make anyone feel nervous. I'll try to make students as comfortable as possible. Your child can skip any question he or she doesn't feel comfortable with, and we can even stop the interview at any point and/or destroy any answers you've already given.

I might publish or present the results of this study to other people, but I will remove any information that might identify your child or his or her school (e.g. names). I will not play the audio for other people; only words will be shared, and names won't be attached (only a pseudonym). Other people may want to see information provided as part of the study. This includes organizations responsible for making sure the research is done safely and properly, including the University of Michigan Institutional Review Board.

To keep your child's information safe, I will store the audio, and written recordings on a computer that is protected by a password. I will keep the audio long enough to write down what your child says. After that (in about two months), I will destroy the recording. The data will not be made available to other researchers for other studies following the completion of this research study.

Is this study voluntary?
Yes. Providing permission for your child to participate in this study is completely voluntary. Even if you give permission, your child may still choose not to participate and also may change his or her mind and stop at any time. There will be no negative consequences from the school or on your child's grade in the class.

Who should I contact if I have questions?
If you have any questions about this research study, please feel free to contact me, Merideth Garcia (scriba@umich.edu), or my faculty advisor Dr. Chandra Alston (clalston@umich.edu) at any time. You are ***always*** welcome to ask any question you might have. If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board, 2800 Plymouth Rd. Building 520, Room 1169, Ann Arbor, MI 48109-2800, (734) 936-0933, or toll free, (866) 936-0933.

If you agree to give permission for your child to participate in this study, please sign your name in the space provided below and send it back with your child. Please keep the duplicate copy of this form for your reference. Thank you for considering your child's participation in this study!

I give my child permission to participate in the study.

Parent Printed Name **Student Printed Name**

Signature **Date**

I agree to allow my child's interview to be audio recorded.

Signature

Student Assent

The University of Michigan

INFORMED Assent -- Interview Study

Who is doing this study and why?
My name is Merideth Garcia, and I am a doctoral student at the University of Michigan. I have also worked there as a teacher educator in the School of Education. My faculty advisor for this project is Dr. Chandra Alston. She is a professor in the School of Education at the University of Michigan.

I'm inviting you to participate in a research study about how about how teachers and students think about the relationship between technology and the kinds of academic activities typically found in English classes. I want to figure out how teachers' and students' experiences with technology influence their attitudes toward reading, writing, and socializing activities in school. This research is important because we use technology every day to read, write, and participate in social communities. What you have to say on this topic is really important because we still have a lot to learn about how to teach students to use technology effectively.

What will you be asked to do?
In short, answer some questions about your experiences with using technology to read, write, and connect with others. If you agree to be part of the research study, I will sit down with you for an interview, and I'll ask your permission to audio record. The interview should last about 60 minutes, and I'll ask some questions about how you see yourself as a student and how you think about different kinds of activities in English classes, especially those involving technology. The questions will be about you as an individual, such as "How have you used technology to complete classroom assignments?" and "What is your favorite social media site?" I'll ask you to walk me through how you use mobile devices or websites to read, write, and connect with others. I'll also do some classroom observations to gather background information about the class. I'll ask you to think out loud about some specific discussions or assignments from your classes. For example, if we observe that certain students seem to use technology more or differently than others, I might ask why you think that is.

How will this benefit you?
A few ways. First, I hope the interviews themselves will be fun! This is not a "right answer" situation at all, and it can be really interesting to think about the issues involved in this study. Second, once I have a chance to analyze the data from all the classrooms in this study, I'll report back to the class on what I find in general (though not from the interviews of students in *your* class). What kinds of technology experiences and expertise are students bringing with them into classrooms? How are teachers and students using technology to complete traditional academic tasks and to create new ones? But keep in mind, no one will hear the audio or read the transcript of the interview except me.

Will there be any tokens of appreciation for participating?

Yes, as a small token of my appreciation, you will receive your choice of a $20 gift card or a University of Michigan t-shirt after each interview for the time spent talking about these questions with me.

Are there any risks?
There shouldn't be much risk associated with this study. Of course, I can't guarantee participating will be totally risk free. For one, being recorded can certainly make anyone feel nervous. I'll try to make you as comfortable as possible. You can skip any question you don't feel comfortable with, and we can even stop the interview whenever you want and/or destroy any answers you've already given.

I might publish or present the results of this study to other people, but I will remove any information that might identify you or your school (e.g. names). I will not play the audio for other people; only your words will be shared, and your name won't be attached (only a pseudonym). Other people may want to see information you provide as part of the study. This includes organizations responsible for making sure the research is done safely and properly, including the University of Michigan Institutional Review Board.

To keep your information safe, I will store the audio, and written recordings on a computer that is protected by a password. I will keep the audio long enough to write down what you say. After that (in about two months), I will destroy the recording. The data will not be made available to other researchers for other studies following the completion of this research study.

Is this study voluntary?
Yes. Participating in this study is completely voluntary. Your parents have given you permission to participate, but participation is still *your* choice. Also, even if you decide to participate now, you may change your mind and stop at any time. There will be no negative consequences from your school or on your grade in the class.

Who should I contact if I have questions?
If you have any questions about this research study, please feel free to contact Merideth Garcia (scriba@umich.edu) or my faculty advisor Dr. Chandra Alston (clalston@umich.edu) at any time. You are ***always*** welcome to ask any question you might have.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board, 2800 Plymouth Rd. Building 520, Room 1169, Ann Arbor, MI 48109-2800, (734) 936-0933, or toll free, (866) 936-0933.

If you agree to participate in this study, please sign your name in the space provided below; you will be given a copy of this form for you to keep. Thank you for considering participating in this study!

I agree to participate in the study.

Printed Name

Signature **Date**

I agree to allow my interview to be audio recorded.

Signature

Member Checking Informed Consent

The University of Michigan
Informed Consent – Member Checking

My name is Merideth Garcia, and I am a doctoral student at the University of Michigan. I have also worked there as a teacher educator in the School of Education. My faculty advisor for this project is Dr. Chandra Alston. She is a professor in the School of Education at the University of Michigan.

I'm inviting you to participate in member checking for a research study that you participated in two years ago about how teachers and students think about the relationship between technology and the kinds of academic activities typically found in English classes. If you agree to participate, we'll arrange a time to meet, I'll provide you with data from my report to look over and respond to, and I'll ask a few follow up questions. I'll record our conversation, which should take less than an hour. As a small token of my appreciation, you'll receive $25 in cash.

IRB has approved this study and identified it as involving minimal risk. Any data I collect from you will be made confidential and stored in password-protected files. This study is completely voluntary, and you may change your mind and stop at any time.

If you have any questions about this research study, please feel free to contact Merideth Garcia (scriba@umich.edu) or my faculty advisor Dr. Chandra Alston (clalston@umich.edu) at any time. You are ***always*** welcome to ask any question you might have.

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board, 2800 Plymouth Rd. Building 520, Room 1169, Ann Arbor, MI 48109-2800, (734) 936-0933, or toll free, (866) 936-0933.

If you agree to participate in this study, please sign your name in the space provided below; you will be given a copy of this form for you to keep. Thank you for considering participating in this study!

I agree to participate in the study.

Printed Name

Signature **Date**

Email **Phone**

Appendix C: Student Questionnaire

Demographic Info

Age:

Grade:

Race:

Gender:

Other languages spoken at home:

Do you qualify for free or reduced lunch?

Do you have any Disability identification/affiliation (diagnosed or not)?

1. Who lives with you at your house (relationship/age)?
2. What do the adults you live with do for a living?
3. Would you identify yourself as a low, medium, or high user of technology? Explain why.
4. Would you say that your teacher knows as much (or more, or less) about technology as you do? How do you know?
5. What kinds of things do you like to read?
6. If you had to choose a favorite book, what would it be? Why that book?
7. Do you read things on a computer/screen?
8. If so, what kinds of things?
9. What is the longest thing you have ever read on a screen? (it's okay to guess/approximate or use categories like "an article," "a chapter," "a novel," etc.)
10. Do you read the same kinds of things on screens that you do in print? Explain in as much detail as you can what the similarities and differences are.
11. Do you prefer to read in print or on a screen? If the experiences are different for you, explain the difference.
12. Do you write/compose on a computer/screen?
13. What kinds of things?
14. What platforms do you post on (for example, Facebook, Twitter, Instagram, Snapchat, DeviantArt, etc.)
15. Are the things you write on screens (cell phones, computers, tablets) the same as the kinds of things you write by hand? Explain in as much detail as you can what the similarities and differences are.
16. Do you ever post about grades or things that happen at school online? Why or why not?
17. Have you ever gotten in an argument online? Explain (either how you avoid them, or what happened during a memorable argument.)
18. When do you think technology helps you learn?

19. When does technology interfere with your learning?
20. What do you like best about technology?
21. What do you not like about technology?
22. What kinds of technology do you use at home/with your family/with friends?
23. What kinds of technology have you used to complete classroom projects

Appendix D: Interview Protocols

High School Student Interview Protocol

Brief: Thank you again for agreeing to interview with me. As I mentioned in our conversation, I'm interested in learning more about how students think about technology use for social and academic purposes. We'll start by talking a little bit about your experiences with technology at home and then move to your experiences at school and then to your thoughts on how they might or might not be related. Do you have any questions before we get started?

Domains of expertise

1. What devices (hardware) do you use most often?
    a. How often would you say you use (your computer, your phone, your tablet)?
    b. What do you use your devices for?
    c. Which ones do you use in class? Are they the same as the ones you use at home? If so, is there a difference in the way you use them?
2. What programs (software, platforms) do you use most often?
    a. How often would you say you use those programs?
    b. What do you use them for?
    c. Are there programs that you use only in class or only outside of class? What is the difference between them?

3. Tell me about a time when you taught someone to use a piece of technology or a software program.

Specific Social technology practices

4. Tell me about the first time you remember using technology for social reasons.
5. What social media sites do you read, write, or repost on?
    a. Take me to the site you feel most comfortable with. Tell me what you like about it.
    b. How did you learn to use this site/platform?
    c. Are you connected to people you know in person on this (these) site(s)? Who?
6. Take me to a recent post that you particularly like or that got a lot of attention and talk me through your decision-making process.
    a. Who did you expect to read it?
    b. How did you decide whether to include visual elements or not?
    c. What concerns (if any) did you have when posting it?
7. Does your family have rules for how and when and how much technology you use?
    a. How do you feel about the rules/lack of rules in your family?
    b. What rules would you make?

Specific Academic technology practices

8. Tell me about the first time you remember using technology for academic reasons.
9. What kinds of technology have you used to complete classroom projects?
10. Tell me about a specific example of a time when you used technology to complete an academic task.
    a. How did that technology become part of the project? Did the teacher suggest it, or did you?
    b. How did you learn to use the technology that you used for that assignment?
    c. Did you have access to the tools (hardware and software) you needed to complete the project at home, or did you have to use them somewhere else?
11. What makes a classroom technology project is "good" or "successful"?
    a. Tell me about a specific time you used technology for a classroom project that you thought was un/successful.
    b. How did you know it was good?
    c. How did the teacher grade it?
    d. Were you satisfied with the feedback you got from your teacher (or your peers)?
    e. What kind of feedback would you have liked to receive?
12. Tell me about the cell phone and technology policies at your school.
    a. How do you feel about the policies in place?
    b. How do you think they are the same or different from policies at other schools?
    c. How do you use your cell phone during class?
    d. Tell me about the apps that you or your teachers use.

Connecting Social and Academic

13. Describe the quality of technology and technology instruction at your school.
14. Have you ever taken a technology class?
    a. If so, tell me about what you learned and what kind of activities you did.
    b. If not, what would you like to learn in a technology class?
15. When you think about the kinds of writing/posts that you make for texts and social media, how does it compare to the kinds of writing you are asked to do in class?
    a. How do you think about your reader or audience in each situation?
    b. How do you think about your topic?
    c. How do you decide when to post?
    d. What do you need to compose successfully in each situation?
16. What is the purpose of composing for texts, email, and social media? Is it similar (in purpose) to the kind of composing you do for academic projects?
    a. Has anyone ever explicitly taught you how? If so, who?
    b. Who do you go to when you need help with a technology problem?
17. Do you think boys and girls use technology differently? If so, how?
18. How will you use technology and/or online writing as part of your future career? What might that look like?
19. What talents and skills do you feel like you have as a user of technology?
20. What talents and skills would you like to develop as a user of technology?
21. What else should I be asking teenagers about their use of technology?

High School Teacher Interview Protocol

Brief: Thank you again for agreeing to interview with me. As I mentioned in our conversation, I'm interested in learning more about how students think about technology use in the classroom. I'm hoping to help students and teachers think about what kinds of conversations to have about composing with technology for both classroom and broader audiences. We'll start by talking a little bit about your experiences with technology and then move to your understanding of what technology skills students are using on their own and what technology or digital literacy practices are important for students to learn at school.

1. What social media sites do you read, write, or repost on?
2. Take me to the site you feel most comfortable with. Talk me through an example of your composing process.
3. How did you learn to use this site/platform?
4. Are you connected to people you know in person on this (these) site(s)? Who?
5. Are there apps on your phone that help you compose (in text or pictures) on the go? Which ones do you use most?
6. What kinds of technology do you have available in your classroom? At your school?
7. What technologies do you use most frequently?
8. What kinds of technology have you assigned for classroom projects?
9. Describe a specific example of a time students used technology to complete an assignment in your class.
10. How did that technology become part of the project? Did you suggest it, or did the students?
11. How did you learn to use the technology that you used for that –or other- assignment(s)?
12. How did you grade the student assignments when they were finished?
13. Were you satisfied with the work that students produced?
14. When you think about the kinds of writing/posts that students make for texts and social media, how does it compare to the kinds of writing you assign in class?
15. Do you think it is important to know how to compose for texts, email, and social media? Why or why not?
16. Does your school/department/grade level discuss the necessity of teaching students how to use technology to compose?
17. If so, where does that suggestion come from?

18. Do you think students will use technology and/or online writing as part of their future careers? What might that look like?
19. What do you feel like you already know about how to teach about reading/writing for screen texts and images?
20. What do you feel like you still need to learn as a teacher of readers/writers of screen texts and images?

Member-check and Follow up protocol

Thank you so much for agreeing to read over the parts of my dissertation that use data you provided. This process is called member-checking, and its purpose is two-fold: to make sure that the facts I have about you were accurate at the time of data collection and to ensure that I properly understood and interpreted what you meant in your responses. I will correct any factual errors, and we can discuss my interpretations. I may not alter text that you disagree with, but if that is the case, I will register your disagreement in the document. Do you have any questions for me at this point?

1. Here is the participant profile with pseudonym and demographic data. Is the pseudonym acceptable and the data accurate? <provide print copy of participant profile>
2. Here are the sections of the manuscript that deal with your data. Do these interpretations seem reasonable to you? Is there anything you'd like to add, expand, or complicate? <provide print copy of participant's data in the manuscript>
3. What are you doing now (going to school? Working?). What are your plans for the next few years?
4. In your interview, you indicated that you used <insert platform names> the most. Are these still your preferred platforms? Tell me a little about why you like them or why you've changed.
5. How do you decide what to read and write on networked devices now?
6. In your present context, do you think you use technology as much/more/less compared to when you participated in the study?
    a. What would you say you use technology for the most?
    b. If the rate or types of technology you use have changed, describe the changes
7. Have you participated in any of the recent social media exchanges regarding current events (such as the election, Black Lives Matter, or the #metoo movement)?
    a. If so, what did your engagement look like?
    b. If not, do you have reasons or strategies for opting out?
8. How do you follow current events? If it includes a social media feed, how did you decide to use that one, and how do you know that site you are visiting is credible?
9. How did your high school classes prepare you to navigate online platforms?
    a. If they didn't, how did you learn?
    b. If they did, what was most useful?
10. Is there anything else you'd like to tell me about your use of networked devices in your daily life?

Appendix E: Participant Profiles

Neptune Participants

Ms. Murphy (Teacher) went through a traditional teacher training program where she observed and taught at the middle school level. She then took a job out of state where she taught 11th grade American literature at "a very traditional school." She describes that first teaching experience as highly collaborative and coordinated, based on shared texts and textbooks. She left that school after one year to take a job closer to her mother, who had been diagnosed with breast cancer. She was hired to teach at Neptune just a week before school started, and she's been teaching at Neptune for the past five years, developing interdisciplinary project-based lessons and experimenting with different approaches to technology integration. She was on disability leave for part of this school year as she recovered from surgery and chemotherapy for colon cancer, and she describes meeting with her co-teacher, Mr. Pope, weekly to lesson plan together. She explains that "Project based learning is so time consuming… We spent hours trying to figure out what we need to teach and why." Her early experiences with teaching students to make videos convinced her that the time investment for such projects was not always worth the payoff, and she expresses concern that "the technology [based] finished products are sloppy" and that students are "missing that critical aspect of their education" when they use technology as a shortcut to replace attention to design details and re-reading strategies. At the same time, she used Jing, a screencasting program, to make instructional videos for students while she was on leave, and she experimented with having students use Twitter hashtags because she "wanted to emulate what I was doing in my grad class." She reports that "I'm the only one telling them, as their English teacher," that they need to attend to the expectations of their audience(s) and the self-presentation that they are developing as they write online and speak in-person. She also recognizes that technology-mediated projects and presentations often allow students an opportunity to engage deeply with a topic in ways that writing essays doesn't always capture.

Mr. Pope (Teacher) began teaching in his early thirties after spending some years as a mortgage consultant and then as a customer service manager. He went back to school to obtain his post-bac certification and taught for six years at the local comprehensive high school before moving to Neptune 4 years ago. He describes one-to-one schooling as being focused on inquiry, explaining that "you can go so much deeper here. Instead of my telling them the answer, they can go look for it." In his view, the technology pushes the curriculum toward learning how to find reliable information and sources rather than presenting reliable information selected by the teacher. At the same time, he struggles with the tension between depth and breadth of content coverage, complaining that the focus on inquiry means that "I get through maybe, maybe two-thirds of the curriculum I used to get through." Mr. Pope understands these approaches as competing for classroom time. Using class time to facilitate student exploration and experimentation with research strategies pushes out—by his reckoning—one third of the content we might otherwise

cover. He views technology as both contributing to and distracting from these projects. Ultimately, he argues, "I've come to the realization that students these days have grown up with it in their hand. I think it's better to try and figure out how to teach around it. You're not going to win the battle."

Kylie is a 16-year-old African-American female in 11th grade at Neptune High. She identifies as low-income and as a high user of technology. She carries her phone, headphones, and laptop all day. She uses a tablet or kindle for entertainment. She mostly uses her phone throughout the day for music. She is dual-enrolled in high school classes and in aviation technician classes at a community college in a nearby town (a 30 minutes commute). She is a highly motivated student, goal-oriented, active in church youth leadership, and an organized team member in group projects. She is also an artist and participant (reader) in fan communities, especially Steven Universe.

Jamila is a 17-year-old African-American female in 11th grade at Neptune High. She qualifies for free lunch and identifies herself as a medium user of technology. She says her life is "not eventful" and that she spends most of her time at school or studying. She describes herself as hard-working, and she tries to keep a low profile in class. Overall, the way she describes her experiences with technology implies that her academic experiences have been mostly negative. (for example, a video project that she didn't like, SAT drill in every class). She is concerned with the consequences of technology and keeps her posts limited to people she knows in person, posting mostly on snapchat, where the post doesn't remain for long, and where she can see when and how people respond to her posts.

Julian is a 16-year-old African-American female in 11th grade at Neptune High school who qualifies for Free/Reduced lunch. She is hearing impaired and identifies herself as a medium/high user of technology, saying that her phone is her most frequently used device. She takes classes at the local community college in Aviation and is thinking of being an economist or a teacher. She describes herself as a voracious reader, and she uses her phone to read stories posted to WattPad in many different genres. She is an inquisitive and self-motivated learner, researching theories that interest her, but describes herself as "not a writer." She uses SnapChat as her preferred platform and worries that relying on a phone too much is a bad habit – shouldn't be dependent on it.

Saira is a 16-year-old African-American female in 11th grade at Neptune High. She twin who describes herself as advanced in technology as a result of her homeschooling experience. Her mother chose homeschooling for her to avoid the perceived toxic environment of the public schools available. She considers herself an introvert and likes learning new things through interactive activities with peers and online. She is Muslim and wears a hijab. She likes "learning and learning and learning" and reads Arabic on her phone to enhance her language skills. She is enrolled in college classes and helps care for younger siblings and a schizophrenic grandparent. She also works with a local youth group to address issues important to teenagers and collects data to conduct focus groups on topics such as "safety in the community" and "LGBTQ+" issues.

Zaira is a 16-year-old African-American female in 11th grade at Neptune High. She is a twin who describes herself as a medium user of technology and a good student who is interested in

research and community organizations. She identifies "reaching out to many people,to different types of social groups, and to check up on people" as her main uses for technology. She doesn't post often on personal social media sites and though she reads messages and feeds from others, she doesn't often reply. She and her twin sister are planning careers in social work and are active in their school and faith communities.

Paulo is a 16-year-old Hispanic male in 11th grade at Neptune High. He considers himself a high user of technology who dabbles in code and describes himself as an "an introvert at heart" who "practices [his] social skills with others, so [he has] quite the number of friends." He has all A's and takes his education pretty seriously. He sometimes plays soccer and draws, and also takes time to think and imagine and relax. He is dual enrolled in courses that give him college credit in Abnormal Psychology and Philosophy. He feels confident that he has the skills to use technology as "a device for adaptation in a new career." He is a leader in class and was elected the president of Civilit when students wrote their own constitution.

Sylvia is a 16-year-old African American female in 11th grade at Neptune High. She identifies as a high user of technology and was unique in this study as a student who had transferred from Sunnydale to Neptune between her sophomore and junior years. She describes herself as a student who tries hard to get good grades and who enjoys playing sports and "learning about history that makes up how we are; why we are like this today in society." She was active on Twitter, though she expressed a suspicion of its value. She struggled with wanting to be well-informed on current events and issues and not trusting the news to represent events without bias.

Jay is a 16-year-old African-American male in 11th grade at Neptune high. He qualifies for free lunch and identifies as a high user of technology, mostly for music and games. He avoids posting about controversial topics online and uses technology mostly to maintain connections with family and friends. He describes his social media and computer use as diminishing as he progresses through school, becoming more focused on the tasks he needs to accomplish rather than finding ways to avoid tasks.

Antonio is a 16-year-old Hispanic male in 11th grade at Neptune High. He qualifies for free lunch and identifies as a high user of technology. Most of his uses of technology revolve around gaming. He has a Facebook and a Snapchat to keep up with friends, but rarely posts, and he describes himself as having "a history of doing videos for school projects when given the choice." He sees reading and playing video games as fairly comparable intellectual activities and writing for school and online as similarly focused on trying to express opinions and persuade people.

Megan is a 16-year-old White female in 11th grade at Neptune high. She qualifies for free lunch and identifies as a medium user of technology. She describes herself as being more invested in doing well in school now that she's taking community college classes and attributes the change, in part, to feeling more challenged. She plays softball for her assigned high school and hopes to continue playing in college. She reports using her computer mostly for school work and stays off of her phone most of the day, especially when she is in class or playing sports.

Michael is a 16-year-old African-American male in 11th grade at Neptune High. He qualifies for free lunch and identifies as a high user of technology. He describes his technology use as "24/7" because of his interest in listening to and writing music. He reports trying to restrict his use of his phone and tablet during class but admits that he'll pull them out if he's not doing anything, "just to pass the time." He gets a great deal of encouragement and satisfaction from posting his music online and has followers who are fans.

Harrison is a 16-year-old White male in 11th grade at Neptune High. He identifies as a high user of technology and describes himself as an A-B student after less successful freshman and sophomore years. He does some computer programming and has taken community college courses in desktop publishing and computer languages. He participates in ROTC and marching band at his local high school and uses networked devices mostly for listening to music and gaming.

Sunnydale Participants

Mr. Murdock (Teacher) is an Army veteran who completed his MA with teacher certification in English and history after returning from his second tour of duty in Iraq. Sunnydale is his first teaching job, and he was in the course of his second year there at the time of this study. He is a committed and disciplined writer who, on his second deployment, "drag[ged] around a 7-and-a-half pound laptop with me everywhere I went, and I wrote 700 words every single day no matter what conditions it was. Most of the time, the conditions were 120 degrees and filthy." As a writer, and as a teacher, he focuses on process, and though he clearly values the convenience that digital technologies provide for writers, he says that "one of the limitations that I feel about digital media is that it's easy to lose sight of how much work goes into crafting prose."
He works to balance helping students develop skills that he believes will be transferrable with providing space for them to suggest their own solutions. He focuses on building good habits, scheduling peer feedback and revision frequently, even when students protest that they "think we should only do this once every six weeks." He's experimented with a variety of tech-based assignments, including video projects, powerpoint presentations, history timeline software, class blogs, podcasts, google docs and Turnitin.com. He draws on what he experienced and observed in his masters program to inform what he thinks high school students need to learn about academic writing. He approaches assessment in a holistic way, "I mostly graded effort. I try not to grade tech savvy. Although, inevitably, what I end up grading is not so much tech savvy but more of a metacognitive awareness." He goes on to explain,"So I'm trying not to grade what they know about tech. I am trying to, if I grade it at all, grade their self-awareness about tech." this attention to habits and self-awareness is at the core of his concerns regarding technology. He has hope that technology can assist students in their time management and study skills, but also worries that it just as often interferes with those processes.[Member-checked]

May is a 16 year old Asian American in 11th grade at Sunnydale. She identifies as a high user of technology, explaining, "I always have my phone on me and typically I'll also have my laptop with me. I tend to use technology whenever I can although I do sometimes enjoy doing things the "traditional" way like taking notes in a notebook." She prefers reading books in print, but articles, schoolwork, or text messages on screen. May is a lively conversationalist

with expressive gestures and a quick smile. She is adopted and considers herself ethnically Chinese, but culturally German. She is fluent in German, has lived in and has relatives in Germany. [Member checked]

Nelly is a 17-year-old Asian-White female in 11th grade at Sunnydale High School. She identifies as a medium user of technology and has an interest in the working with animals. She prefers hands-on learning and likes to spend her free time outdoors. She has contributed to citizen science projects involved with tracking bird populations, but she shies away from posting much in online spaces. She was adopted from Russia as a child and is uncertain of her ancestry but identifies herself as Asian/Caucasian and believes herself to have Korean origins. [Member checked]

Idris is a 16-year-old South Asian male in 11th grade at Sunnydale High. He identifies as a medium user of technology and his main passions are basketball and travel. He has relatives in Canada that he sees almost every other weekend. He rarely uses his phone in class—only to answer his parents or friends or to look up something quickly without going through the process of opening his laptop and connecting to the network. He keeps his technology use fairly low-key, checking it only when he is not involved in activities with other people.

Jalil is a 16-year-old South Asian male in 11th grade at Sunnydale High. He identifies as a medium user of technology and describes himself as "a pretty average high school student" and "pretty standard when it comes to using technology as a student." He enjoys playing basketball with his friends and going out to eat with his family in his spare time. He uses his technology mostly when he isn't engaged in other activities and sees no reason to worry about replying to a text quickly in class but draws a line when it takes up too much time.

Kadeen is a 16-year-old South Asian male in 11th grade at Sunnydale High. He qualifies for free lunch and identifies as a high user of technology. His hobbies including reading, playing tennis and playing board games, and he describes using technology mostly for communication with friends and family, sometimes for taking notes or recording lectures. He monitors his technology use by "set[ting] certain times when I would use social media so I would balance my homework and my use of social media."

Haroun is a 16-year-old White male of Arab descent in 11th grade at Sunnydale High. He identifies as a medium user of technology, explaining that he attended a religious school up until high school that de-emphasized technology and asked for handwritten work and handmade visual aids for presentations. At home, he used technology mostly for gaming and entertainment "since school didn't want us to use it." Once he started attending high school, this balance shifted and now he uses technology less for entertainment and more for academics. Je loves sports and set up a ping pong club at his school.

Nihaar is a 16-year-old South Asian male in 11th grade at Sunnydale High. He identifies as a high user of technology and describes himself as a good student, though not necessarily a hard-working one. He plays multiple sports—tennis for his neighborhood school, soccer in extra-curricular leagues, and swimming with an independent coach. He participates in Model UN and uses technology mostly for music and staying connected to friends and family, including

grandparents who live in India. He organizes his time around activities and interests, using networked devices both at school and at home to connect to others when he finds himself between activities that interest him. [Member-checked]

Mark is a 16-year-old male of Japanese and German descent in 11th grade at Sunnydale High. He identifies as a high user of technology. He participates in forensics competitions and is a teaching assistant in the communications class, and he enjoys spending time outdoors. He uses his laptop mostly for school and keeps his phone put away in class unless it is an independent work day. At first his parents were concerned that having a phone would decrease the amount of time he spent interacting with people in real life, but he explains, "I make a lot of plans on my phone as well, to meet up with people, to hang out, so they realized that, this is like my tool to help me stay connected to people and keep connected with them in real life as well."

Emily is a 16-year-old White female in 11th grade at Sunnydale High. She identifies as a high user of technology. She describes herself as a hands-on learner who enjoys "actually working with things" in music, literature, and biology lab. She uses her laptop routinely in about half of her classes, especially when she's taking continuous notes or working on projects, and she usually keeps her phone in her pocket during class. She doesn't use it, but finds it reassuring to know where it is. She is an active reader of YA lit and follows fan sites relevant to her interests, but only maintains an account of Facebook where she maintains connections to friends and family.

Via is a 17-year-old African American female in 11th grade at Sunnydale High school. She identifies as a medium user of technology who prefers print to screens for reading and shies away from posting personal or school-related things online. She's used technology applications in her math, science, history, and English classes. She describes her use of Snapchat, Instagram, and text as fairly infrequent, but does think about gathering likes and maintaining Snapchat streaks or ongoing text exchanges, which she ascribes to her competitive nature. She's a highly organized and high-performing student who competes on the track team at her neighborhood school and has an interest in studying engineering.

Nour is a 17-year-old Indian female in 11th grade at Sunnydale. She describes herself as a high user of technology, using it "on a daily basis for communication, reading, school (hw), and social media," noting that it is a necessity for most of her classes and "to stay connected with the world." She likes reading and prefers books in print; she plays piano, flute, trumpet, and saxophone; and she enjoys "hanging out with friends, going out to the movies, the usual, hanging out with family." She was born in India and has lived in France and still has family and friends there. She explains: "My roots are 100% Indian. I am the first in my, at least what I know of, family to take college in the US." [Member checked]

Appendix F: Codebook for Data Analysis

In this Appendix, I offer an abridged codebook with examples of student data receiving each code.

Table 6: Codebook excerpt

Ethical Frames: These are the dynamic and flexible orientations to reading and writing opportunities—both in and beyond the classroom— that bound the relational opportunities that study participants reported trying to maintain or manage. They are frequently "I" statements, such as "I'm the kind of person who..." or "I need to be able to..."			
Category	Code	Definition	Examples
Connected		*Ethical frames* that privilege networked interaction	
	• Archival	Connected *ethical frames* that privilege keeping data online rather than deleting it. Expresses a relation to self.	**Merideth:** All right. How will you use technology or online writing as part of your future career? What might that look like? What do you think you'll do? What are your plans right now? **Jay:** It'll definitely be to keep information. If somehow I end up pursuing a career in music, that will probably be a lot of where my music is so I don't lose it. Right now, I keep it all on my phone. I use technology to use my phone- **Merideth:**Like an archive to hold all your things. **Jay**:Yeah, it's an archive. I don't know if it's easier to find, it's easier to read because my penmanship's not the greatest. Plus I keep my phone with me at all times. Even if I find something that inspires me, I can instantly just hop on my phone and get typing. I think, as far as what I do now, if I pursue a career in it, it would just help me further enhance it. **Merideth:** Do you ever go back and delete those posts now or do you just let them stay out there? **Jay:** I feel like now there ain't no point. It's the past. Then again, you know how they always say, "if it's on the internet, it's never gone permanently." There's no point really. I don't know. I mean, I've thought about it. There's been a few that I probably have, but as far as a general fact, I usually keep everything. Sometimes, I do like to go back and go, "I remember this." Stuff like that, you know. I like dwelling on my own past.
	• Responsive	Connected *ethical frames* that focus on the importance of responding when hailed. Expresses a relation to (usually	**May:** My parents are like don't lose your phone. Whatever you do, don't destroy it, don't lose it, have it on you at all times so we can contact you if something happens. When I don't have it, I feel like something bad happened to it. It's like my child but not to that extent. I feel like because it's the way that I talk to people when

		known) others.	I don't see them face to face, so I'm like if I don't have it I kind of feel like what if I need it? What am I going to do? Idris: Typically if it's a text from my mom or dad asking what time should they pick me up from school, if I have anything after school, I try to respond so they know and if it's an urgent text from my friend I'll try to respond but if it's something like a Snapchat or something I'll just wait until the end of class. Jalil: Usually I'm checking for text messages and stuff. If I'm in a situation where there's not much going on around me, I just put up, watch a video on my phone or play a game on my phone or something. Merideth: Do you ever use your phone in class to text people in class? Jalil: Yes, but not like a lot. I don't try to do it a lot, but it's hard to stop yourself sometimes. Merideth: What is it that causes you to do that. What circumstances make it seem like this is an okay thing? Jalil: I feel like it's a really short action. You just pull out your phone, not even a minute, couple seconds. You just text to reply and you put it back in your pocket. Teacher usually doesn't even notice or care. If it's that then I think it's fine. If you're on your phone just texting away throughout the class, then I think that's where you go to draw the line. That's probably where you should put your phone away. Nihaar: t's just become so integrated into me studying that it doesn't hinder me from doing anything anymore, but it keeps me talking to people which is always good. I know it can be a distraction at times, but I think putting your phone in a caddy in Spanish class or biology class is a little bit of a stretch. Merideth: Yeah. What do you mean by a little bit of a stretch? Nihaar: It's just inevitable that kids will use their phones to text. Honestly, I use my computer to text from bio and Spanish, so why are they just making it more difficult for me?
	• Open	Connected *ethical frames* that open the classroom to content and conversation partners that	**Jamila:** Um, I'm actually guilty of calling my mom in the middle of class, haha. **Harrison:** I might text my family members. Speaking of which, I might need to do that. But, uh, to like see if can get a ride or something. **Kylie:** most of us use our phones during class time for specific projects they ask us to do, like the Twitter thing that I had talked about before. There are emergencies. There's so many other things as well. I'm a dual-enrolled student, and I have to call my ride to

			come and get me, it's probably gonna be here in the next few minutes, but I can't use my phone. What if I'm like in extreme danger, or something like that? **Julian:** Um, it depends. In class, I usually only use my phone if my mom texts me or if my friend texts me. But I don't always answer my friend because she always answers me, so it's like… M: It would start the ball is rolling… MJ_Neptune: <laughter> yeah. I use my phone in class if I can for headphones so I can listen to music, or if we are allowed to look up stuff because we can't always look up everything on our laptops because there are some websites that are blocked. **Saira:** My mom. If I really need to. Like "hey mom I forgot lunch" or something. **Jay:** Majority of time I use it for music. If that's not the case, I maybe talking to somebody. Specifically, 99% of the time, I'm talking to my cousin because he's like the closest person to me. We'll talk about everything and talk about what's going on during the day or try to make plans after school. That's usually what it is.
	• Involved	Connected *ethical frames* that seek interaction from a broader public. Expresses an ethical relation to society.	**Nelly:** My computer, I use a lot of Google apps, so I use Docs, just other things that I only use for school work. That's pretty much all I really use. Then maybe researched based, I go to different websites on my phone. I tend to use more so I use the apps, so I have many apps. I have birding apps. When I'm out on the field I use those so I'm not lugging around a huge textbook or field guide. **Merideth:**That just helps you identify birds that you see in the wild? **Nelly:** Yeah, or there's one that Cornell has where I helped do census of birds. **Merideth:**That's cool. **Nelly:** Then if I find one, I can say, "Hey, I found this bird. Here's where it is. Here's what it was doing." Then that immediately goes to the data base. Then the ornithologists at Cornell University take that data, and they're able to sort of use it to figure out the populations of birds and the migration. **Merideth:** It's sort of a digital tagging. **Saira:** So, I have various things. I either go to my college classes, I go home and help babysit, or I am at or I am, oh I am at other groups as well. I'm in outside of school groups, like YLC and I help collect data like within the community and things like that. **Merideth:** That's cool. What's YLC? **Saira:** YLC is the Youth Leadership Council of Ypsilanti and we collect data on issues that the kids feel within the community and we can help improve them and have summits and have meetings with like officials

			or like higher, people in higher power and tell them about what the community thinks of the youth. Our focuses are adolescents. **Merideth:** That's amazing. Saira:Yeah. Merideth: What, uh, how do you collect that data? Saira: We um do, what are they called? Focus groups? M: Yep. Saira: Ok great. They're called focus groups, but before we do focus groups there's so much work. We have to have many workshops because you have to even have a workshop on your language about how you say certain things because other people might take that as offense. It just depends on the project we're focusing on. So, last year it was about the safety within the community, this year it's the LGBTQ+ community and we're just collecting data, data, data because we want to help make this community better for the people, many minorities, just people within the community!
Contained:	*Ethical frames* that deflect networked interaction.		
	• Redactive	Contained *ethical frame* that self-censors or deletes posts or accounts to bring an online performance in line with desired in-person identity. Expresses a relation to self.	**Nelly:** My user name is something that reminds me every time I go on that beware, please think about what you're doing, because it could affect my future. **Ms. Murphy:** If you're afraid to have me or your mom or anybody else and you're afraid to have them look at your profile or your Twitter handle and what you're posting, then there's a problem. There's a problem, so either make a separate one for your professional life, which is here at school, or you just need to rethink how and what you're posting. **Jamila**: Like, some people on Instagram and Twitter will be posting their whole life story on there. It's not necessary. You don't need people; you don't need strangers to know your family business or your emotional distress that you're going through.
	• Protective	Contained *ethical frame* that takes action to prevent interaction in specified times and places. Expresses a relation to others.	**Nelly:** Yeah, I try to keep to a guideline of, again, not using my computer unless it's school work, or unless I need to view something that I can't view on my phone. Then I tend to only when I get home, I will only pretty much use it maybe at bed time or something. When I get home, that's pretty much my down time. I like to spend that not on technology, if I've spend my entire day looking at a screen, doing a prepared reading, or doing something that I'm doing for school, because I'm usually on my computer during school for at least maybe three hours. Like I said, my down time usually consists of going outside and not being in front of a screen. **Saira:** See I think it's this whole thing that I get to see when you're typing or like when you've read it type thing. Yeah, that's why I hate it.

			Merideth: Yeah I don't like that either. **Saira:** And phones are starting this new thing that even through messages they can see when you're typing, yeah. Read or typing, I'm like come on now! **Merideth:** And then, tell me, I have reasons I don't like that. You wanna tell me why you don't like that? **Saira:** Because, because I'm the person that will read it and just not text you. And easy to be like "I didn't see it, sorry!" And then they're like, and now it's just like "Oh you read my message" and I'm like "Oh did I?" **Mr. Pope**: When we're out to eat I put my phone away. When we're eating dinner it's away. If my wife's talking to me I put it down and give her eye contact. For [my son] it's when we need him to pause it for something. We don't like it when he's eating. For myself, it's pretty normal, I think. Pretty normal adult like that. Merideth: Are there situations where you're like, "I just put the phone away. I'm not going to answer, even if it's an emergency. It's going to have to wait." **Megan:** Softball, we're not allowed. Any time I'm in sports, so during practice it's away, during games it's away. If I were having a double-header, usually girls pull them out in between. I don't even like doing that because if I was to look at something or somebody texting me something, or were telling me some information that got me thinking about something different ... In my mind, that takes me away from the game. If it were to upset me, I don't want to be thinking about that when I'm supposed to be out playing a game. I'd rather be focused on what I'm doing. I usually wait until I get on the bus home or wait until I am home to start looking through my things. Then ... Another time? I do try and stay off it mostly during school unless I know someone's been texting me all day. A specific person. During my WCC classes though I do put my phone away the whole time because there's no way I can listen to what the professor's lecturing and be looking at my phone or whatever. I do keep my phone during all of my WCC classes. **Mark:** I at least get as much as I can ... If I finish my homework at like 8, I'll be on my phone until like 11. If I finish my homework at like midnight, I'm not going to use my phone. I'm going to go straight to bed. On weekends, I might stay up later doing whatever with my friends and whatnot, but usually I'm not on my phone
	• Closed	Contained *ethical frame* that views technology as a tool that duplicates or	**Mr. Pope**: I only want you to have this open. When that's finished to a high-quality standard, then you can move onto something else.

		reinforces the boundaries of the traditional classroom	**Julian:** The websites that the school board thinks are distracting, so basically Instagram, Twitter, Facebook, and other entertainment apps. Like they block really weird websites for some reasons I don't know. And they also block some music streaming apps. If not, they might let you have them, but they block the songs on there so that is weird. **Ms. Murphy:** I think that project based learning is cool because we're integrating those Google Docs where they can collaborate a lot easier. I think that's the one we use the most, or Google Docs only because you can collaborate and all four or three or however many people are in a group can type in at the same time. That's the cool thing about it and that's what we probably utilize the most in our agenda. Mr. Murdock: I shouldn't have said what I said, but videotaping teachers without—videotaping people in school without telling them you are doing that: not cool. It's a quasi-public forum, but still.The video of me was online in like ten minutes."
	• Detached	Contained *ethical frame* that avoids posting or joining. Expresses a relation to society.	**Nihaar:** I do academic work more efficiently than I text and stuff, because if I'm scrolling through social media, I don't pay much attention, I'll just do quick swipes and be done with it. That's the extent of how much I use social media, I won't go in depth, read out comments or anything, but actually thorough academic work. **Jay:** Yeah. I know not to post anything too extreme, or anything that could get me into trouble. I know not to post things of that nature, and I stay away from ... what's the word ... more subject oriented, as far as politics, race. Merideth: I gotcha. Jay: Gender. Merideth: You stay out of controversial stuff. Jay: Controversial, I try to steer clear of that because I don't really like speaking on it, me personally. I don't like speaking on it through social media. Me personally, I feel like, as far as most of that, especially gender-wise, if you're happy that's all that really matters. **Merideth:** Do you have internal guidelines like rules for yourself that you kind of adhere to? **Idris:** Not to post anything inappropriate or anything controversial that will stir up a lot of tension. Things like that. **Merideth**: How do you know something's going to be in appropriate? **Idris:** First off you hear a lot of people talking about it. Especially a lot of of people who have Snapchat are from school so something like inappropriate or controversial on someone's story. You'd probably hear

			people talking about it during school.

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