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SECONDARY ELA TEACHERS' PERCEPTIONS OF CLASSROOM DYNAMICS IN A TECHNOLOGY-RICH LEARNING ENVIRONMENT

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ABSTRACT

SECONDARY ELA TEACHERS' PERCEPTIONS OF CLASSROOM DYNAMICS IN A TECHNOLOGY-RICH LEARNING ENVIRONMENT

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The purpose of this narrative study was to explore secondary ELA teachers' perceptions of teaching and learning in a technology-rich educational environment. This study was conducted in a central high school district in New York state across four school buildings. Though the central high school district provides uniform guidance and material for the instructional programs in all high school buildings, the execution of instruction and teacher development happens daily in the buildings themselves. Though one district, each building serves distinct communities with pronounced school cultures stemming from varying student and faculty demographics, as well as building leadership. The researcher explored the lived experiences of teachers in these different settings through narrative inquiry methods. The researcher interviewed eight participants through three rounds of semi-structured interviews. In this study, which explored teacher perceptions of the use of educational technology and their relationship to the profession because of the incorporation of educational technology in their secondary ELA classrooms, the researcher found that intentional planning at the district, building, and individual level improves quality of instruction. Though this finding may seem self-evident, the experience of teachers suggests that it is not necessarily practiced when incorporating digital technology into classroom instruction. The researcher suggests that

districts take a subtractive approach to implementing digital technology, so teachers can plan and execute intentional lessons that make the strongest use of all instructional tools.

DEDICATION

I dedicate this to the many inspirational students I've had the pleasure of learning alongside over the past twelve years at both Chaminade High School and New Hyde Park Memorial High School. My students are the reason I entered the field. They're the reason I wake up each day excited for more. They're a constant rebuttal to any concerns we have about the future.

I dedicate this work to the many enlightened colleagues I've had the good fortune of working with over the course of my career including Mr. Gregory Kay, Mr. Robert Paul, Mr. Robert O'Keefe, and Dr. Michael Strandberg.

I dedicate this work to my family. Families share many bonds, and I'm fortunate that one of the values binding my family is an insistence upon the importance of education. This study, the capstone to many years of formal education, is a manifestation of that ethos. I include the members of my family who are no longer with us but remain with me every day: William Stibitz; Millie and Ralph Massimo; Peggy and John Cullinane; and John and Arlene Otton.

I dedicate this to my grandmother Phyllis Stibitz. Grandma, you have always been one of my most steadfast supporters. Your love and encouragement throughout this process have been vital to its completion.

I dedicate this to my parents, Daniel and Margaret Otton. You have both sacrificed much to provide me and Kelsey with every opportunity—personally and educationally. You were my first teachers, and the ones from whom I've learned the most. Thank you for your unwavering support now and always.

I dedicate this to my children, Millie and Whit Otton. As I tell you each night: I love you, I'm proud of you, and I'm lucky to be your dad. Thanks for understanding my absence on certain nights and weekends, as I completed this work. I'm eager to make up for all that time.

Finally, I dedicate this to my wife and best friend, Laura. There are lots of things we can do to set ourselves up for future success. Finding a partner who is gracious, understanding, supportive, and loving is maybe the best of those. In you, I have that and more. Thank you for all you've sacrificed to help me reach this goal. Each day spent with you makes me a happier, more fulfilled person.

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CHAPTER 1 INTRODUCTION

The American education system predates the founding of the republic. Education is a mirror held up to society, a place where socio-cultural beliefs are expressed and reified. Education, therefore, is a worthy lens through which to view any societal issue, including the development and adoption of new technology. The purpose of this study is to understand the perspective of educators teaching in a technology-rich environment. Throughout American history, the purpose of education has been cast in different and often competing terms. Labaree (1997) categorized these competing terms as "democratic equality (schools should focus on preparing citizens), social efficiency (they should focus on training workers), and social mobility (they should prepare individuals to compete for social positions)" (p. 39). In the 21st-century, policymakers and business leaders have heralded the use of digital technology as a transformative tool for serving the needs of technology-driven industry and uplifting individual educational achievement (Roumell & Salajan, 2016). These purposes (social efficiency and social mobility) stand in conflict with the development of a cohesive, supportive, well-informed democratic citizenry (democratic equality). Since antiquity, study of the humanities has liberated students and strengthened the polis by imbuing students' perspectives with celebrated complexity and developing their capacity to critically interpret and shape their lives. (Dewey, 1997; Adler, 1982). By developing empathetic leaders, encouraging listening as much as speaking, and connecting students to universally important ideas and experiences across space and time, the humanities have been the fertile ground in which the seeds of participatory democracy have been sown. Shifting imperatives have changed the nature of education, perhaps most of all in the humanities (Deresiewicz, 2014; Rushkoff, 2019;

Postman, 1992). Secondary English language arts teachers working in a technology-rich learning environment find themselves at the intersection of these competing interests; their classrooms are where these shifting imperatives are most pronounced. In this light, it is important to understand their perspective on teaching and learning during this period of technological adoption (Tucker, 2019).

Researchers have studied the use of digital technology on discrete skills within a variety of classroom settings, including secondary ELA classrooms (Mulet et al., 2019). This study aimed to understand the environmental changes to teaching and learning that result from the incorporation of digital learning programs, particularly after the periods of remote and hybrid instruction necessitated by the Covid-19 pandemic. Students learn much more than what the curriculum suggests (Dewey, 1963). Therefore, the incorporation of digital technology into any classroom not only changes the mode of instruction and learning but also the collateral learning that takes place. There is a shift in embedded assumptions and priorities that accompanies the change from pen and paper to mouse and screen.

As of 2018—before the pandemic-related school closures—88% of eighth-grade students reported using digital technology in school either every day or at least once per week (Hemphill et al., 2020). Though data is scarce on national use of digital technology for learning since the return to full in-person instruction, the availability of hardware and software purchased by districts for remote learning and the increased familiarity with digital tools because of remote instruction, suggests that usage increased. Regardless, the Covid-19 pandemic changed our relationship to digital technology, and that change will manifest in our classrooms (Reich, 2020).

The researcher sought to understand the collateral learning changes to secondary ELA classrooms resulting from the incorporation of digital technology, as our teachers perceive them.

Purpose of the Study

The purpose of this study was to investigate how secondary ELA teachers perceive the pedagogical changes that result from the use of educational technology in their classrooms. Understanding the stories of teachers working with educational technology will help us understand the current and future state of education. Though gaps persist in home access to educational technology and the internet, the importance of educational technology became even more pronounced during the Covid-19 pandemic (Reich, 2020). As students and teachers have returned to the classroom, the experiences of teaching and learning have been further inflected through the wider adoption of educational technology. Among the many factors that combine to produce a learning environment is teacher perception of teaching and learning. The present study focused on 9th and 10th grade ELA teachers. The study sites were junior-senior high schools with students enrolled from grades 7 through 12. The researcher selected teachers of grades 9 and 10 because students in those classes had already been in the school for two years, reducing the confound of unfamiliarity with the school learning environment. Additionally, students in grades 9 and 10 had not yet been tracked into Advanced Placement English courses, which are only offered at the site schools in 11th and 12th grades. Finally, the New York State Next Generation Learning Standards for English Language Arts (2017) yoke together the 9th and 10th grades.

Theoretical Framework

This study was conducted through the prism of three intersecting ideas: John Dewey's inquiry-driven learning theory (1963), Larry Cuban's theory of educational reform (2013), and Neil Postman's theory of media ecology (1986). Dewey is curious about what students are doing when in school; he focuses on the learner's activity. He insists that every gesture in a classroom is taken in as part of a student's learning experience. In other words, for Dewey, individual experience can be charted on a continuum with older experiences informing newer experiences. The poet Walt Whitman (2005) offers a lyrical interpretation of this theory:

> There was a child went forth every day,
>
> And the first object he looked upon and received with wonder or pity or love or dread, that object he became,
>
> And that object became part of him for the day or a certain part of the day . . . or for many years or stretching cycles of years.

Whether observing lilacs—the first object that Whitman's lyrical child takes in—studying the curriculum of a secondary ELA course, or using a tablet to compose one's poem, all experiences shape future experiences. For Dewey (1997), this was particularly pronounced in the classroom. His view insists upon our attending not just to the content delivered in a classroom, but the methods used to deliver it. He termed this collateral learning and asserted that all collateral learning should be in the service of cultivating a positive attitude about learning in students, thereby producing more learning in the future. This study aims to understand the collateral learning that takes place as a result of digital technology in the classroom.

Dewey's notion of collateral learning informs the work of Larry Cuban (2013), who identifies four layers of curriculum implementation: the official curriculum, the applied curriculum, the learned curriculum, and the tested curriculum. Curriculum, which is often spoken of as a single phenomenon, has numerous components, which may or may not be aligned at any given moment. Cuban calls this *the black box of education reform*, suggesting that the classroom, where teachers and students actualize the curriculum, stymies any serious efforts to change curriculum and instruction. This is due to the decentralized nature of the education system. Still, Cuban (2018) suggests that the use of digital technology may be different compared to previous reform efforts. It may be that digital technology can shift practice.

Postman (1986) theorizes that our media environments change the way we perceive reality. In his view, a class taught with paper and chalkboards is materially different than a class taught with iPads and a television because every technology is pre-loaded with assumptions about transfers of information. Postman, like Cuban, echoes Dewey, when he asserts that our activity is not only what we do but who we are. Learning through digital means, therefore, necessarily shapes who we are as learners. This study aims to understand the nascent returns on that shift, as more classroom instruction is mediated through digital technology.

Significance of the Study

The digitalization of society has been a decades-long process that presents a fundamental shift in the way we process our world. From interpersonal communication to information creation and consumption, digital technologies have and will continue to remake the world, especially after the Covid-19 pandemic necessitated digital

replacements for in-person activities. Education has not been reserved from this transformation. This study springs from that recognition and holds significance for researchers in the field and educators in the classroom. It will explore the centrality of literacy in an increasingly aliterate world, as understood by the praetorian guards of reading and writing—secondary ELA teachers. In the last decade, school districts, with the help of state and federal funding, have wired their schools with internet access and put digital devices in the hands of teachers and students (Snyder et al., 2019; Xie et al., 2020).

Prior research has focused on the impact of digital technology on specific sets of skills like reading comprehension (Escueta et al., 2020; Mulet et al., 2019) but gaps exist in terms of understanding the collective experience of teaching and learning in classroom environments mediated by digital technology. The logic of implementation has insisted that because students live in a digital world, they must be educated in a digital learning environment. Research has not yet considered the results of this conclusion. This study explored the perceptions that secondary ELA teachers have of teaching and learning in a digital environment. The results will inform practice, future research, and district policy.

Connection with Social Justice and Vincentian Mission in Education

Achievement gaps persist in education. Digital technology, which once promised to be a democratizing force in education has not yet met that charge. In fact, education gaps have in some cases been exacerbated by inequities in home access and teacher proficiency with digital technology (Reich, 2020). This study aimed to understand the pedagogical and collateral learning changes that attend technology-rich secondary ELA classrooms. The site afforded the researcher some understanding of this dynamic.

Although all four schools are in the same district, two of the schools receive Title I funding, while two of the schools do not.

Research Design and Research Questions

The researcher used a narrative methodology for this study. Narrative inquiry, according to Clandinin and Connelly (2000), allows a researcher to co-construct an understanding of the participants' lived experiences. The researcher endeavored to understand the perception that secondary ELA teachers have of using digital technology in their classrooms. The study was guided by the following research questions:

1. How do teachers perceive students' responses to ELA learning activities mediated through a digital device?

2. How do secondary ELA teachers perceive the effect of using digital devices for learning on classroom dynamics?

3. How do secondary ELA teachers define success in teaching and learning in the context of a 1:1 digital learning program?

Definition of Terms

The researcher will use the following key terms in the study:

1:1 Digital Learning Program:

A learning environment in which all students and faculty have access to a personal computing device or tablet, which is used for academic activities (Higgins & BuShell, 2018)

National Education Technology Plans:

A series of documents issued by the United States Department of Education since 1996, which detail the aspirations and development of e-learning policy across the country (Roumell & Salajan, 2016).

Collateral Learning:

The learning that students do beyond the intended lesson objectives. Students not only learn the intended curriculum, but they internalize attitudes about their learning environment that shapes future behavior. (Dewey, 1963).

21st Century Skills:

These are skills and competencies like collaboration, communication, creativity, digital literacy, and self-directed learning, often including the use of technology like one-to-one computing (Varier et al., 2017).

CHAPTER 2 REVIEW OF RELATED LITERATURE

The literature reviewed in this chapter comes from peer-reviewed journals, namely those dedicated to the study of the field of education. It begins with the conveyance of a theoretical framework centering on Dewey's inquiry-driven learning and collateral learning, Larry Cuban's theory of educational reform, and Neil Postman's theory of media ecology. The literature review highlights several key perspectives on the use of educational technology in the secondary English classroom. The chapter begins with a review of the policy history around the implementation of educational technology before moving to a review of the adoption of educational technology in schools, particularly in the form of 1:1 device programs. Finally, it addresses student and teacher perceptions of educational technology. After discussing the body of research on those topics, the chapter concludes with an articulation of the research gaps in the existing literature which the researcher addresses in the study.

Theoretical Frameworks

The incorporation of digital technology into the classroom represents a material shift in the way teachers teach and the way students learn (Kong et al., 2014). With schools forced into remote schooling due to the COVID-19 pandemic, the incorporation of educational technology hastened; it became integral to education (Xie et al., 2020). Though an observer may walk into a classroom today and observe learning activities that resemble those from a prior generation, access to digital technology, particularly on a 1:1 student and teacher basis alters the alchemy of classroom practice. Often heralded as a necessary change to prepare students for the future of work, the boundaries of digital technology in the classroom have not yet been fixed, and researchers are only just

articulating the effects of digital technology on teaching and learning (U.S. Department of Education, 2017; Escueta et al., 2020; Escueta et al., 2017; Council of Economic Advisers, 2011). Incorporating John Dewey's (1997, 1963) theory of inquiry-driven learning with a focus on his concept of collateral learning, Larry Cuban's (2013) theory of educational reform, and Neil Postman's (1986) theory of media ecology, the researcher has reviewed the literature through a lens that considers the purpose of education amid the stubbornness of educational practice and the environmental changes that digital technology brings to the classroom and society.

Inquiry-Driven Learning and Collateral Learning

John Dewey (1963; Hildebrand, 2016) asserted that all experiences are educative (or miseducative), that regardless of the quality of an experience, it shapes the participant. In Dewey's view, individuals are an evolving accretion of prior experience. Those experiences fall along a continuous line with the past informing the present, the present informing the future. Looking to the formal, societal process of experience—the experience of schooling—Dewey maintains that society's destiny rests in the quality of public education. Taken as a system, education forms a subset of experiences that Americans have decided to fund at public expense. In *Democracy and Education* (1997), Dewey held that in a democratic society, freedom of the learner is the goal of education. Just as a democracy is the form of government that provides the most freedom for the individual, a progressive education is the form of schooling that provides the most freedom to the student. To educate students by a different theory of education is to prepare them for something other than the town hall, something other than the ballot box, and absolutely something other than the expansive exploration of a life lived

meaningfully. This study will consider how the incorporation of educational technology contributes to or inhibits the freedom of the learner. It asks how digital technology affects the experience of teaching and learning.

The result of the educative process should be further learning. Any experience that arrests or distorts future growth is miseducative. The finite amount of schooling, therefore, demands that we attend purposefully to every possible moment in school. With the introduction of educational technology, we incorporate another dimension of experience, a new medium for learning. In *Experience and Education* (1963), Dewey outlines the principles of continuity and interaction, which assert that growth in one area affects other areas and that external and internal situations mingle to create an experience. Considering these principles, we should recognize that several new considerations enter any educational-technology-integrated classroom. Regarding objective factors, we have new media for information transmission and interpersonal communication. We also bring to the classroom new internal conditions for students and teachers—for example, self-efficacy concerns, ready opportunities for distraction, limitless access to information, and the opportunity for global connection. In other words, the potential variance for learning experiences has increased with educational technology (Coulter, 2018). The aim of this study is to observe and describe that variance and to understand how the incorporation of digital tools into the learning landscape has altered it.

Dewey (1963) criticizes traditional education for ignoring the internal portion of student experience. The introduction of educational technology presents a new challenge to understanding the internal conditions of the learner and the teacher. As he notes, it is a fallacy to aver that students only learn the subject taught. Collateral learning accounts for

much of what students take away from the classroom (Dewey 1997, 1963). It is not the colorful set of presentation slides or the perfectly formatted multiple choice exam that students remember years later; it is how they felt as learners in a community with their peers and teachers that they take with them. In a classroom infused with educational technology, a new edge of collateral learning has been drawn. In Dewey's (1963) estimation, the end of collateral learning should be the cultivation of an attitude toward more learning. Educators must consider how digital technology affects the attainment of that goal. Further, the goal of education should be a meaningful present experience. Preparation for a distant, abstract mode of living should not be the end of education; it should remain a byproduct. Dewey (1997) notes that if "preparation is made the controlling end, then the potentialities of the presents are sacrificed to a suppositious future" (p. 49). Therefore, the use of educational technology must serve a present function. That function should be primarily concerned with active learning because progressive education depends on the active engagement of the learner in constructing purposes and knowledge. If, as Dewey (1997) asserts, transmission is society and communication is community, then classroom discourse is the vital component of classroom learning. Educational technology changes the character of classroom discourse and therefore changes education itself.

Accustomed to using digital technology in their daily lives, students—the logic proceeds—will flock to lessons in chemistry, literature, and history solely because of its presentation in digital form (Coulter, 2018). This is a formulation that has led educational technology to be developed and mandated by those outside the classroom (Holdren & Lander, 2010). The suggestion is that a tech-dependent world should educate future

generations in a tech-dependent environment, but through Dewey's lens, this is not self-evident. The educative processes necessary for cultural transmission are not necessarily future-oriented simply because they have a digital valence. Additionally, the future-oriented goals of policymakers may hasten students toward more and more complex study without considering necessary priors. Formal education is a process of bringing the young of society into harmony (Dewey, 1997). Digital technology has remade adult society, so it necessarily follows that we must also remake schools. This study aims to understand the current state of that transformation and the best steps forward for educating students in a digital world.

The Black Box of Educational Reform

Amid a steady drumbeat of concern for American geopolitical standing since the publication of *A Nation at Risk* (1983), policymakers and business leaders have called for fundamental school reform to sharpen American competitiveness in an increasingly global, complex world. Putting aside challenges to the idea that the end of education is social efficiency, Cuban asserts that their logic of school reform is misguided. That a change in school structures will lead to desired outcomes as stated by policymakers (e.g., scores on international exams like PISA), assume a causal link between structures, practice, and outcomes. Cuban (2013), however, asserts that schools are defined by their "dynamic conservatism" (p. 3). Despite many reforms over the last century, classroom practices have remained largely the same—primarily teacher-centered and textbook-driven. The implementation of educational technology fits into this pattern of adapting innovative teaching practices to traditional methods of instruction. In his study of the Las Montanas school, Cuban (2013) found much early enthusiasm for the introduction of

educational technology, though the lion's share of use was limited to 25% of the faculty. Despite enthusiasm from administrators, teachers, and policymakers, there was no fundamental reform. Teaching practice remained consistent.

In *Inside the Black Box of Classroom Practice*, Cuban (2013) posits a model of curriculum implementation comprising four layers. The first layer is the official curriculum as dictated by national, state, and district-wide mandates. Teachers are the second layer, as they apply the official curriculum as the taught curriculum. Third is the learned curriculum, which includes Dewey's notion of collateral learning. This is what students take from the curriculum—the actual learning that happens. Finally, there is the tested curriculum, which purports to measure the official curriculum as taught and learned. This model gives representation to the difficulty of school reform like the integration of educational technology. A theoretical curriculum is applied by many different teachers according to their preferences, styles, and understanding. Students, carrying a vast array of prior experiences and affective conditions, undergo the experience of the taught curriculum, before finally submitting to measurements of the intended curriculum, which will impose their own biases despite even the best efforts at psychometric calibration. The result is that any imposition of an intended curriculum passes through what Cuban calls the black box of classroom practice. By this telling, it should be unsurprising that the contours of large-scale reforms often fail to map onto policymakers' original intentions—at least not exactly.

Cuban (2018) employs another metaphor in a more recent study: School reform more closely resembles the flight of a butterfly than the path of a bullet. This is an optimistic reframing of school reform. While many reforms will not achieve the stated

goal of educational transformation, they can advance practice incrementally. According to Cuban (2013), policymakers make two faulty assumptions about school reform. First, they believe that changing structures will fundamentally alter teaching and learning. They do not, however, always consider what hasn't changed by the reform. Legacy structures like the age-graded classroom, Carnegie units, and governance models limit the range of reform. Second, policymakers view classrooms as complicated structures rather than complex structures. In other words, policymakers fail to understand that it is more complicated to change classroom practice than to launch a rocket into orbit. At least with the rocket, the steps are linear and measurable. The complexity of human endeavors cannot be studied in controlled, single-variable environments. Education is chaos theory observed on a classroom and societal scale, and the implementation of educational technology has introduced another node of complexity to the model. Educational technology is another beat of the butterfly's wings.

The implementation of educational technology develops within a conflicting framework of educational goals. As has been the case since the early 20th century, schools have been tasked with promoting a base level of development for all students while catalyzing economic and technical excellence for a portion of college-bound students. Schools have been tasked with raising the level of achievement for all students on standardized state, national, and international assessments, while also guaranteeing widespread preparation for the 21st century information economy (Tyack & Cuban, 1995). As a set of 21st century tools, digital technology can present as a catalyst for 21st-century learning. This logic, however, inverts the means of education and its end. The tools themselves cannot change practice. Teachers are the primary implementers of

policy, and they maintain considerable autonomy in the classroom. Asked to implement new tools, they can choose minimalist implementation strategies, which do not challenge their notion of school. There can be, in other words, wide terrain between compliance and adoption. This is an ungenerous framing, however. It assumes that progress and change are synonymous. It ignores the vast challenges of teaching under any conditions, let alone directives to implement new methods. The mandate for fundamental change is passed easily, but it is teachers who are tasked with executing it, and as educational reform tends toward student-centered practices, it requires ever more complex attention and training from educators. Combined with the other structural factors mentioned, the result is incremental change in instructional practice (Tyack & Cuban, 1995). In this study, the researcher will consider how the incorporation of digital technology in the classroom has shifted instructional practice. As Cuban notes, new technologies have been introduced into schools repeatedly over the last century with each heralded as revolutionary (p. 157). It may be that this instance is different; that the character of digital technology does change instructional practice. The researcher intends to explore this possibility.

Classroom Media Ecology

Postman (1986) asserts that entertainment has become the primary virtue in all public experiences. This has bled into the schools. If we accept Dewey's (1997) claim that communication is community—in other words, that the transmission of ideas and values is where meaning resides—then the nature of communication is fundamental to the practice of education. Our collective institutions are shaped by the nature of our conversations. Digital technologies like computers and tablets continue the tradition of shifting society's primary symbols of transmission from language to images while

accelerating the information flow itself. Postman's theory of media ecology demands that we wonder if education can even be completed with the medium of computers at the center. I write this on a tablet, which allows immediate access to texts, quick sharing with colleagues, and the creation of searchable notes. If educational technology were only used this way, it would represent some potential upgrade over a physical pen and paper, but would it be worth the investment? But this is not representative of the sole use of educational technology. This study considers that change on an environmental, classroom level with special attention to the collateral learning effects.

The metaphors we take from our media do nothing less than impose the limitations and capabilities of the medium on our reality. They "classify the world for us, sequence it, frame it, enlarge it, reduce it, color it, argue a case for what the world is like" (Postman, 1986, p. 10). Importantly for this study, these impositions are seldom observed and much less frequently considered. Educational technology, like all media, masks processes even as it embeds itself in our conception of the educational landscape. In our drive for educational efficiency and improved academic achievement, it may be that we have lost the forest for the trees. In other words, educational technology as a vehicle for reform may improve every aspect of the field except the thing itself. We may measure some marker of learning more closely, process information more quickly, and communicate over further stretches, but the teaching and learning itself will undoubtedly be changed and may even be diminished.

The choice of medium for our educative processes is not a neutral one. Truth, according to Postman, does not come to us without attachment. Postman (1986) theorizes that "every medium of communication…has resonance, for resonance is metaphor writ

large. Whatever the original and limited context of its use may have been, a medium has the power to fly far beyond that context into new and unexpected ones" (p. 18). Therefore, as society and education shift from print-based epistemologies to digital epistemologies, we must consider the attendant effects. A shift in media may or may not necessitate a shift in pedagogical and learning practices, but at the very least, it necessitates an investigation. By merely asking questions about a particular technology, unintended consequences can be avoided. As Postman (1986) notes, "only through a deep and unfailing awareness of the structure and effects of information, through a demystification of media, is there any hope of our gaining some measure of control over television, or the computer, or any other medium" (p. 161). What does that examination reveal? In Postman's telling, the most glaring change wrought by our loving embrace of technology is that of our metaphors. We map the world through language, so the shift from a text-based society (or educational system) to one that infuses increasingly visual components, is fundamental yet primarily unnoticed (Postman, 1992).

Postman (1986) is concerned that a technocratic society may lose its narratives. In our current information ecosystem, ideas and information are delivered discreetly, as easily digestible bits. Postman invokes Dewey to point out that the content of our lessons is their least significant quality. It is collateral learning that lasts because we are what we do. In this light, we must consider the lasting attitudes created by an educational environment that prizes speed, efficiency, and reach. The content is worth considering as well, though. When policymakers decide that educational technology will be incorporated, teachers must figure out how to incorporate it. There are some areas that will benefit from its inclusion. There are other portions of the curriculum, though, that

may not. It may be that we are asking the wrong questions about educational technology implementation. Are we fitting the technology to the course content or the other way around? To this, the tech enthusiast may respond with a shrug and the castigating assertion that the technology is here, so it needs to be used. Our institutions and daily lives will be remade, and education is no different. This tech determinism elides any questions of why we should incorporate educational technology, focusing solely on how to incorporate it.

More importantly, Postman (1992) notes that technocratic societies avoid the question of purpose. What is the end of education? Hyper-focused on process, policymakers avoid consideration of the purpose. In other words, the research questions that animate this study may be entirely beside the point. The question is not necessarily how the implementation affects teaching or learning practices, but how it shifts our understanding of the purpose of education. Even subliminally, the incorporation of educational technology drives us toward the things that digital technologies carry in spades: speed, efficiency, and reach. At its best, digital technology promotes collaboration, information sharing, global perspectives, and creative opportunities for learners. In its worst application, however, technology allows us to inhabit the world without experiencing it—or, in Dewey's (1963) terms, to experience it through exclusively passive means. Digital technology may be the apotheosis of the educational process. Its incorporation, however, does not necessarily say anything about why we educate our students. Though the technology carries embedded assumptions, policymakers do not explicitly take these up in debates about 21st-century learning and mandates to increase computer literacy.

Postman characterizes American society as a technopoly. In a technopoly, information is elevated to

> a metaphysical status: information as both the means and end of human creativity. In Technopoly, we are driven to fill our lives with the quest to 'access' information. For what purpose or with what limitations, it is not for us to ask…The world has never before been confronted with information glut and has hardly had time to reflect on its consequences. (Postman, 1992, p. 54)

As schools control the formalized flow of societal information, they are "in short, a means of governing the ecology of information" (Postman, 1992, p. 55). A technopoly is a society in which "the tie between information and human purpose has been severed" (61). The consequences for education are stark. Education in a technopoly is reduced to the transfer of information without value. The applied metaphor is that the human mind is like a computer, merely an information-processing organ (Dyson, 2020). In this assessment, society "rejects the idea that the mind is a biological phenomenon" when the "plain fact is that humans have a unique, biologically rooted, intangible mental life which in some limited respects can be simulated by a machine but can never be duplicated" (Postman, 1992, p. 94). If only meant to become our surrogates, then machines devalue human judgment and subjectivity, while proposing ready access to information as the solution to any problem. Technology transforms ideas into things, it challenges Dewey's (1997) theory that transmission—an act—is what matters. In an English classroom, reading comprehension stands in for the understanding of a text because it is reducible to a measurable outcome, namely an answer on a multiple-choice exam, so "its fundamental subjectivity will become invisible, and the objective number itself will become reified"

(Postman, 1992, p.109). In other words, the profound humanity of a text and the more profound human response to a text are reduced to a set of numbers.

All technology comes loaded with its own biases. Consider the computer in an educational environment. It comes with a "predisposition to construct the world as one thing rather than another, to value one thing over another, to amplify one sense or skill or attitude more loudly than another" (Postman, 1992, p. 16). Further, "new technologies alter the structure of our interests: the things we think *about.* They alter the character of our symbols: the things we think *with.* And they alter the nature of community: the arena in which thoughts develop (Postman, 1992, p. 16). An education completed increasingly through a digital medium assumes a different character than one processed through the analog of paper, pencil, and static textbooks.

We may have already passed the moment when educational technology can be investigated as a method of education. It may be too sharply ingrained in the grammar of schooling. In fairness to educators, the ubiquity of digital technology makes it seem natural for inclusion in schools. But if the figure and ground of methods and purpose have reversed with regard to educational technology, then we will surrender the immense potential of education to liberate a student's mind, particularly in the humanities. As Postman (1992) notes, "Technopoly wishes to solve, once and for all, the dilemma of subjectivity," where "[d]iversity, complexity, and ambiguity of human judgment are enemies of technique" (p.131). In education, the incorporation of technology has, by Postman's view, been justified solely on the grounds of efficiency and interest without consideration of the purpose of learning. This is a technical answer, an answer of means, that shuts us off to the ends of education. There is no philosophy of education that

undergirds the incorporation of educational technology. After all, what transcendence is there in the speed of information flow?

This study aims to examine how the rapid implementation of digital technology into classrooms and schools has influenced secondary English education. Inspired by calls to prepare our students for the 21st century, education reform of recent decades has typically taken on a digital character. Educative experiences are dependent on the environment. As Dewey (1964) asserts, every educative experience "takes place through the intermediary of the environment" (p. 38). Cuban theorizes that education reform almost exclusively happens on the level of incremental change—what he would term first-order changes—but all at once digital technology has remade our schools. Though teaching practices are largely the same, as Postman (1986) theorizes, digital technology has fundamentally altered the nature of teaching and learning. In this study, the researcher will document and analyze that change.

Review of Related Literature

Drawing upon theoretical and research-based findings, this section will consider the history of policymaking around educational technology as well as the resulting and continuously changing perceptions of educational technology among teachers and students in the secondary English classroom. The researcher used the ERIC (EBSCO) database to perform a comprehensive search of the literature in these areas. Limiting empirical research to those studies published no earlier than 2017, the researcher complemented recent scholarship with longer-standing theoretical work and policy documents. The researcher used a combination of keywords such as *educational technology, secondary English, secondary humanities, implementation, perception,*

student, teacher, Covid, pandemic, and *remote learning.* The researcher cataloged findings and annotated articles within the Zotero research application, using the computer-based and web-based interfaces.

Within the context of the theoretical framework, the review of the literature revealed several themes. First, the promise of technology to reform and improve educational outcomes has a long but middling history with meteoric promises giving way to pedestrian practices. Still, policymakers have continued to push for the incorporation of new technologies into schools. This push, particularly over the last forty years, has been accompanied by a reframing of educational purpose from civic development with a grounding in a liberal arts education to a market-driven impetus, where students develop skills, so they may aid industry. Second, the incorporation of educational technology has been a disruptive force in America's classrooms. It has altered—for better or worse—the social and educational fabric of everyday instruction. Teachers and students have offered much on this shift. Finally, the Covid-19 pandemic changed the discourse around educational technology. Though research is still emerging on the ways in which instructional and learning practices have changed as a result, there is a widespread belief that the uneven years of education and the necessity of digital learning have made lasting differences to education.

Implementation Policy

The United States has long imagined and asserted a romance between education and technology. Discussions about technology's inevitable, transformative power over education is often viewed as a present phenomenon, but the utopian celebration dates to at least the 1820s with the widespread distribution of printed education material. Since

then, with the emergence of successive technologies including the radio, television, and computers, policymakers have repeatedly sensed burgeoning educational revolution with the promise of remaking society (Cohen, 1987).

The publication of *A Nation at Risk* in 1983 gave concerned articulation to the importance of the relationship between technology and schools. In it, policymakers lamented the growing gap between the needs of the American economy and the quality of technical training given by the schools. Amid its calls to reform a failing education system with more rigorous standards and practices, *A Nation at Risk* yoked education and technology more forcefully than ever before. Amidst the rapid growth of computing technology, the report insisted on methods of teaching and learning that used technology to their greatest instructional effect (Allen, 2008).

The 2001 reauthorization of the Every Student Succeeds Act (ESSA) apportioned Title II and Title IV funding to support the effective use of technology including provisions for purchasing hardware and software in service of professional learning aimed at personalizing learning, finding and implementing "high-quality educational resources," incorporating "computer-based assessments and blended learning strategies" and developing strategies "to inform instruction, support teacher collaboration, and personalize learning" (U.S. Department of Education, 2001). The provision was included with the explicit message to schools that using technology in the classroom was an educational imperative. This call to reform education through the implementation of technology came at the same moment that the federal government codified the school accountability movement. Through the same reauthorization of the ESSA (called in 2001, *No Child Left Behind*), the federal government mandated accountability measures

targeted at underperforming schools according to four "common-sense pillars: accountability for results; an emphasis on doing what works based on scientific research; expanded parental options; and expanded local control and flexibility" (U.S. Department of Education, 2005).

Since 1996, the U.S. Department of Education has issued a series of four National Education Technology Plans (NETP). These documents auger the future of national education policy as it relates to educational technology. Roumell and Salajan (2016) completed a dialectical content analysis of the NETP documents from 1996, 2000, 2004, and 2010. Operationalizing e-learning as "the informed integration of ICT into teaching and learning…as an amalgamation of tangible and intangible elements of infrastructural development, policy formulation, and educational planning working in concert for the systematic incorporation of ICT into education systems," they note that "e-learning policies are steeped in general rhetoric regarding global competition and the development of Human Resources as a means to the end of economic innovation and competition" (368). They identify several meta narratives astride the educational technology policy documents.

First is global competition. All the documents lament, usually in stark language, the loss or potential loss of American geopolitical standing. They note that a "sense of urgency is communicated in the development of e-learning policy and general education reform over time throughout each of the NETP documents" (386). Paradoxically, they find, as the state loses standing and central authority diminishes, it also pushes for greater control of educational initiatives. In a globalized milieu of declining central political authority and increasing influence from multinational corporate interests, education

institutions become more dependent on foundations and private enterprises for funding, which pushes an economic-centric view of education, further reinforcing the loss of central political authority. Though the NETP documents imply a central set of policies, they are published for a decentralized system of schools with their own goals and interests.

The economic dialectic manifests as a call for lifelong learning and 21st-century skill development as preparation for an uncertain and changing future of work. The authors note that the incorporation of educational technology "is seen as a means to equip individuals to learn with more flexibility, spontaneity, innovation, and to more effective ends, to prepare them to become productive and successful members of the economy" (388). Therefore, while educational technology is marketed as a transformational tool, it is pushed in service of the current neoliberal market system.

The NETP documents also posit greater inclusion, while championing meritocratic advancement—another contradiction of purposes. They herald technology as a balm for persistent inequality. Through connected access to personalized education and a closing of the digital divide, the documents suggest social convergence through the wider use of technology. Still framed in economic terms, however, the goal of inclusion ultimately conflicts with the neoliberal drive for market efficiency in a knowledge economy. Further, this framing sets technology as a tool for individual uplift rather than collective change—a comfortable arrangement to maintain the socioeconomic status quo, while purporting to change social policy.

Finally, Roumell and Salajan (2016) address the throughlines of education reform in the NETP documents. Though present in all of them, it's the 2010 iteration that most

sharply articulates the transformative power of technology in education. This document treats educational technology implementation as the vehicle for educational reform—a departure from previous documents that viewed educational technology as a support-structure for educational reform.

Published only one year after the 2016 NETP, the 2017 NETP dispensed with five-year installment periods, as the Office of Educational Technology acknowledged the rapid pace of change in the use of educational technology. The 2017 NETP asserts the following goals: to use technology to increase equity and accessibility in education, to promote teacher training that yields technology enriched classrooms, to promote systemic changed centered around "a shared vision for how technology best can meet the needs of all learners," (U.S. Department of Education, 2017) to develop formative assessment measures using technology to inform teaching and learning, and to promote infrastructure investments that will allow for the first four goals (U.S. Department of Education, 2017).

Still, in reform efforts, the question remains: What is meant by transformative educational practice, and how will it be measured? As Labaree (2014) laments, the era of accountability has ushered in a host of educational measurements that have narrowed the vision of education. International and national measures of educational achievement are necessarily abstracted from the daily happenings of classroom instruction. He writes, "Both PISA and NCLB represent radically reductionist visions of education. They both reduce education to learning; and they both reduce learning to the small subset of knowledge and skill that is seen to be economically relevant" (p. 10).

As Roberts-Mahoney, Means, and Garrison (2016) detail in their content analysis of US Department of Education reports, personalized learning advocacy, and published

research monographs, the American public is witnessing a transfer of decision-making about educational aims from elected officials, public employees, and community stakeholders to private corporations. They write that "in their current form, personalized learning technologies reflect narrow corporate-driven educational policies and priorities such as privatization, standardization, high-stakes assessment, and systems of corporate management and accountability" (p. 406). Through a content analysis using purposive sampling, the researchers evaluated documents representing prominent academic, government, and corporate advocates of personalized learning. Echoing Labaree, the researchers identified two emergent themes: that education is meant to train workers and that education be customizable. In their estimation, this reduces educators to nothing more than a facilitator in the classroom, monitoring students as they move through algorithms of learning. Despite the advocacy for personalized learning, "none of the reports offered concrete proof that personalized learning technology delivers a more complete, robust and nuanced understanding of students than those held by experienced teachers" (p. 417). Therefore, they conclude, the best way "to support critical thinking, creativity, innovation, perseverance, tenacity, and any other advanced cognitive and non-cognitive capacities is simply to invest in schools, communities and young people in order to create the social conditions in which these capacities can develop and flourish" (p. 418). Put another way, look to each other rather than a Silicon Valley savior.

One need only look to the President's Council of Economic Advisers report on educational technology (2011) to understand the connections between market forces and educational technology. The report, entitled *Unleashing the Potential of Educational Technology* speaks not to the transformative power of education, nor to the individual

growth and liberty that will become the birthright of every American student through the adoption of digital technology in education. No, it writes of the unprecedented opportunities for market expansion into the world of education through the proliferation of digital technology.

The language of educational technology implementation throughout national policy documents falls into two broad categories as defined by David Labaree (1997): social efficiency and social mobility. In surveying the literature on educational technology adoption, it is clear to the researcher that the promise of educational technology is offered as a path to international economic competitiveness and individual uplift. In other words, educational technology enthusiasts echo the language of modern educational reformers in general. Advocates claim that by structuring an ever-widening meritocratic system of achievement and reward, individual improvement will yield economic gains at the national level.

Mirra and Garcia (2020) went in search of a definition of 21st-century learning in U.S. K-12 classrooms. Through a systematic review of the literature, which included 57 articles, the researchers identified key themes that emerged in their understanding of 21st-century learning. First, they found that the primary expression of digital technology in the classroom came in the form of composition. Though the researchers note that their use of *literacy* as a secondary search term necessarily led to over representation of ELA classrooms in their study, they also pointed to the general attention on writing and communication. In general, the researchers found that educators at all grade levels and across all core subject areas are seeking to engage with 21st-century learning, which speaks to the cross-disciplinary appeal and urgency of the concept; however, it also

became clear very quickly that literacy is the concept's foundational disciplinary home. Composition was the primary classroom practice associated with 21st-century learning. (p. 491)

Mirra and Garcia (2020) found that many of the studies marked the incorporation of ICT as foundational to 21st-century learning. According to these frameworks, there is no learning without the incorporation of digital technologies. Further, the researchers found bounded opportunities for collaboration. Whereas digital technology is heralded as giving students the opportunity to break through the walls of the classroom, the literature suggests that collaboration is often limited to the class itself. In short, they note a disconnect between the promises of 21st-century learning and its application in classrooms. This concern, however, was secondary for the researchers. Primary among their interpreted concerns is the narrowing language of 21st-century learning, which reduces education to a jobs-training program, replacing a view of education as civic preparation and engagement with an economic imperative to increase utility in the workforce.

The proliferation of digital technology, as well as the turn toward analytics in education threatens what Lundie (2017) terms the *"*givenness of human subjective experience" (p. 4). Education and learning are not synonyms, though educational technology corporations and policy makers driving the adoption of digital technology increasingly suggest as much. However, as Coulter (2018) notes:

> Fortunately, there are many positive models of technology use that enable rich learning opportunities, and which counter the generational separation. With careful planning, digital tools can be an integral part of a fertile, experience-based

> learning environment. Used in the right context and for pedagogically sound reasons (and not simply for their own sake in pursuit of some vague idea of being a 'twenty-first-century learner'). (p. 22)

The history of educational technology policymaking mirrors general trends in how Americans view the purpose of education. Over the last forty years—since the election of Ronald Reagan—American schools have become rich in educational technology hardware and software as policymakers have attempted to remedy concerns (perceived or actual) that diminished American geopolitical standing could be improved through technology-rich education geared toward technical fields. In the next section of the review of the literature, the researcher surveys empirical research on the results of that trend.

Digital Learning Environment

The previous section of the literature review documented the long-term enthusiasm among policymakers for incorporating educational technology into the classroom. They are not alone. Administrators, teachers, and students have often shared their excitement for using technology to teach and learn (Weller, 2018; Twenge et al., 2019; Escueta et al., 2020). That excitement is at times, however, tempered and even confused by the reality of implementation, which demands answers to the question of how educational technology should be used in the classroom and to what end (Ritzhaupt et al., 2020; Cuban, 2001; Cuban, 2013; Ng, 2012; Knox, 2016; Riegel & Mete, 2017; Gee, 2018).

In his 2018 review of educational technology across the previous twenty years, Martin Weller noted that educational technology enthusiasts approach the adoption of

new technologies as ends in and of themselves. Pointing to curiosity around the incorporation of blockchain technology to education—for meritocratic badging systems or the tracking of e-portfolios—he writes that educational technology evangelists "desire its adoption as an end goal in itself, rather than as an appropriate solution to a specific problem" (2018). The enthusiasm for using technology in education has a long history (Cuban, 2013; Weller, 2018). The excitement around the transformative power of educational technology has accelerated in recent years, as a slurry of political and social forces have accelerated the professed need for educational technology adoption. In the previous section, the researcher documented the national push for the adoption of educational technology. For the past several decades, policymakers and researchers have measured educational technology by the level of adoption (Cuban, 2013; Weller, 2018). Over the past twenty years, digital access has increased not only at schools but also at home for many of the nation's students (Weller, 2018). During the COVID-19 pandemic, as schools shifted to distance learning, 91% of students enrolled in schools across the country reported that computers were always or usually available for educational purposes (*Impact of the Coronavirus Pandemic on the Elementary and Secondary Education System*, 2020). However, policymakers have been turning to consideration of a different metric: With national access to digital technologies achieved, researchers and policymakers have begun to consider how the use of these digital technologies for teaching and learning may create new digital divides (Ritzhaupt et al., 2020; U.S. Department of Education, 2017). The underlying assumption is that while educational technology has been heralded in the policy literature as a bulwark against increasing social inequality, new technologies in education have a history of exacerbating

inequalities (Reich, 2020). Despite the recent appearance in policy literature, researchers have noted the paradox of access and use for at least twenty years. As Larry Cuban (2001) remarked in *Oversold and Underused*, "we need to know how often students turn on computers in school, we also need to know what they do when the screen lights up" (p. 75).

The modern metaphor relating students and technology is that they are digital natives, a generation that has grown up with technology and on social media. Therefore, the sometimes-applied logic is that students should be educated according to the information environments they import to schools from their daily lives and that they will require little explicit training in learning through digital means. Research has shown, however, that despite widespread use of digital media, students are not necessarily adept at transferring their informal media habits to formal learning environments (Ng, 2012; Knox, 2016; Riegel & Mete, 2017). Even learning using digital media in informal learning spaces cannot easily be imported to formal education environments (Gee, 2018).

Twenge et al. (2019) used data from Monitoring the Future (MtF) surveys to understand the use of digital technology by 8th, 10th, and 12th grade students over a period of forty years from 1976-2016. Responding to the claim that digital media has served as a complement to traditional media in terms of adolescent consumption, the researchers show that the accelerating adoption of digital media has displaced the use of legacy media by all adolescent groups. As the researchers articulate, by 2016, the average American 12th-grader was spending six hours per day online and texting with friends. Additionally, the researchers found that not only do adolescents increasingly prefer

digital media to traditional media, but they are finding engagement with extended texts like novels to be a steadily more painful experience.

Escueta et al. (2020) conducted a review of the literature on educational technology interventions to understand best practices within the wide field. The researchers aimed to evaluate the effectiveness of digital technology in education, noting that over the past several years, products have come to market (and to classrooms) much quicker than researchers can evaluate them. Their review of the literature–as comprehensive a review of educational technology interventions as has been conducted–yielded several conclusions. First, they noted that just providing access to technology for students in a K-12 setting did not improve cognitive skills, though it did predict greater computer proficiency. In fact, access to technology without purposeful integration may lead to student distraction. On the other hand, the researchers did find that certain computer-assisted-learning (CAL) technologies offered promise. Particularly in heterogeneous learning environments, CAL programs offered positive impacts on subjects like math and language, though they noted the importance of the quality of implementation. Their most important finding in this comprehensive review of the literature is that many educational technology interventions have not yet been studied.

Despite its documented ubiquity in schools, current practices in educational practice are only just beginning to be codified, researched, and understood. It remains too early to dismiss the promise of educational technology, but administrators, teachers, students, and researchers have enough in front of them to understand that educational technology is not necessarily an unmitigated good. Further research, particularly qualitative research that seeks to understand the experiences and perspectives of students

and teachers with educational technology will be required to yield recommendations for best practices in the incorporation of educational technology.

Student Perspectives

The literature on student perceptions of digital learning programs demonstrates that educational technology programs have been difficult to isolate as interventions (Byers et al., 2018; Stone, 2016). Students, though adept at using technology to communicate with peers, often struggle to translate their technology use to the classroom (Ge et al., 2021; Mulet et al., 2019; Selwyn et al., 2017; Sage et al., 2019). Still, some research has shown that adoption of 1:1 digital learning programs have yielded increases in student motivation and shifts toward student-centered learning (Varier et al., 2017; Baron, Calixte, and Havewala, 2017; Lubniewshi and Kiraly, 2020)

Ge et al. (2021) completed a case study in concert with a district evaluation project designed to gauge student perceptions of their 1:1 iPad computing program implementation. The researchers constructed a survey instrument with open- and closed-ended questions. The researchers sought emerging patterns and relationships in the data based on Saldaña's three-cycle coding procedure. Emerging from the data were three themes of student perception of adoption: engagement, inclusivity, and learning. All three themes had a diversity of student responses within. Regarding engagement, students reported increased interaction with peers and teachers, while also reporting increased distraction. Some students even expressed a desire for limitations on their use, to rein in distractions. For inclusivity, students positively reported easy access to information, particularly educational resources outside the classroom that aid them in their learning. Without the devices, they would not have had access to those resources. Further, they

reported being able to remain connected to their class and work while absent. They did, however, report feeling more disconnected from their peers while in the classroom, as two screens reinforce the space between partners. In terms of learning, impressions were also mixed. Students reported that the pace of learning was faster. They access information quickly, but teachers also expect quick completion of assignments. Some noted that access to limitless information limited critical thinking, as passable answers were always quickly available. Very few students explicitly connected the 1:1 program to learning outcomes. Overall, they viewed the devices as helpful in some areas and limiting in other areas. The researchers conclude that the presence of self-regulated learning strategies marked positive student perceptions of 1:1 iPad use.

Mulet et al. (2019) completed a critical literary review on the perception of tablet adoption in primary and secondary classrooms. Surveying 41 quantitative and qualitative studies, the researchers aimed to understand student perceptions of using tablets for learning. The selected studies offered a heterogeneous sampling of theoretical frameworks and methodologies. Their analysis revealed several positive and negative associations for students and tablet adoption in the classroom. Overall, students had a positive impression of tablets in the classroom. They found that tablets are easy to use, students can adapt them to several learning tasks, and they have a favorable attitude towards their use. However, further analysis, particularly in the qualitative studies, revealed a more nuanced picture. While students found the tablets easy to use, their perceived ease of use was task dependent. While reading on tablets is easy, writing and typing on tablets can be more complicated. Even when introduced to handwriting applications that improve the digital writing experience, the perception is of an arson-

firefighter. The device solves a problem of its own making. Further, the researchers found that the favorability of tablet adoption was age-dependent with younger students responding more favorably to tablet implementation than older students. Some qualitative studies suggest the importance of teacher competence in student perceptions of adoption. Finally, the researchers note the importance of both quantitative and qualitative studies in understanding student perceptions of tablet implementation for learning tasks. The complementary relationship between methodological approaches allows easily generalizable results to be augmented with details that articulate the subtle variation in student perception. For example, though students broadly report favorable task productivity perceptions on a tablet in quantitative studies, their experience of task productivity is not uniform across all learning tasks—a point that emerges in qualitative studies.

Recognizing that additional factors like physical classroom layout play a role in any learning environment—analog or digital—Byers et al. (2018) studied student perceptions of 1:1 digital learning environments using a quasi-experimental, Single Subject research design. They found that "different spatial configurations had "a measurable effect on how students perceived the effectiveness of the affordances of digital technology, with improvements often linked to new generation learning spaces. However, the evidence suggests that a change in learning space alone will not increase learning" (153). Pointing to Tyack and Tobin's (1994) concept of the grammar of schooling, they identify the physical classroom space as a stubborn legacy of education, noting that many schools adopt digital technology, including 1:1 programs, within the space of traditional classrooms. They hypothesized that the adoption of new generation

learning spaces (NGLS), informed by the ubiquity of technology and the thrust for collaborative learning, would produce different pedagogical practices than those of a traditional classroom.

If presented as a single intervention to drive the adoption of 21st-century teaching and learning, 1:1 digital technology programs are destined to struggle. Stone (2016) conducted a year-long evaluation of a 1:1 laptop computing program in a suburban high school, focusing on student perceptions of the program. The study concludes that myriad factors contribute to the potential success of a 1:1 program, including certain factors that are predictive of the level of impact a 1:1 program has on student perceptions of the initiatives. The researcher acknowledges the competing interests of schools, where digital technology is heralded as a transformative technology, while students and teachers have been enculturated by a system of high-stakes testing and accountability measures. According to the researcher, these are cross purposes. Despite the frequent rallying cries around 21st-century skills development, the researcher notes that there has been little guidance from federal and state officials about how to develop those skills in teachers and students. Instead, schools have frequently turned to 1:1 programs with the expected benefits of increased student engagement, preparation for a 21st-century economy, increased writing skills, and deeper learning outcomes brought about by exposure to more information and perspectives. In this case study, the researcher twice collected student survey data, once at the beginning of the school year and once at the end of the school year. Additionally, two student focus groups were held at the same interval. Multivariate analysis found that the number of classes in which students actively used the laptops for learning purposes predicted more positive student perceptions of the 1:1

program. The researchers found declining enthusiasm for the program with students citing concerns about grades, distractions, and a desire to return to traditional methods of education. Additionally, the analysis found that a lack of professional training and IT infrastructure increased frustrations among the student body. The researchers concluded that widespread integration of digital technology programs is dependent on student perceptions, which are influenced by the frequency of use, ease of use, and the need for longer exposure among students.

Varier et al. (2017) completed a qualitative study of 18 elementary, middle, and high school classrooms in a socioeconomically diverse school district to understand teacher and student perceptions of 1:1 digital technology programs implemented in service of promoting 21st-century learning environments. Drawing on semi-structured teacher interviews, teacher reflection logs, classroom observations, and student focus groups, the researchers explored how teachers integrated the 1:1 program into their instruction, how they promoted 21st-century learning activities with the devices, and how the implementation of the 1:1 program affected student motivation and engagement. The researchers evaluated several different 1:1 devices across the different classrooms but emerged with conclusions that ran through the entire study. They observed shifts toward student-centered learning and instruction, an increase in student-to-student engagement including more collaborative academic work, and an increase in teacher feedback from formative assessments. Though concerns remained about how much screen time students should have, and frustrations with technical issues led to some negative perceptions of the program, the researchers found that the implementation of the 1:1 program led to an increase in student motivation.

In a mixed-methods study of college students' preferred reading medium, Baron, Calixte, and Havewala (2017) found a preference for print. Despite the ease of availability and reduced cost associated with digital texts, survey data overwhelmingly suggested that students prefer print because they can concentrate best while reading in that medium. In addition to better concentration while reading in print, the students also reported stronger self-regulated learning strategies while reading in print. They reported being more likely to re-read portions of the printed text, while they acknowledged often being distracted by multitasking in a digital format. In the qualitative analysis, researchers found that students preferred the tactile properties of print and the ease of annotation.

When schools bring digital technology into the classroom, whether through 1:1 school initiatives or through bring-your-own-device policies, the changes are often heralded as transformative opportunities for students and teachers. As implementation continues, teachers, parents, and administrators often note concerns about inappropriate technology usage. However, Selwyn et al. (2017) consider the possibility that educational technology integration presents a much more mundane set of changes to the classroom. In their paper, the researchers draw upon three ethnographic studies of high schools in Victoria, Australia. Stemming from Australia's "Digital Education Revolution" program, researchers noted that the three high schools each adopted different approaches to bring about their 1:1 programs. The most permissive allowed students to bring any device. The most restrictive allowed students to purchase one of four devices to be managed by the school during the term. In their study, the researchers found that students primarily worked through their devices, rarely sharing a device with a classmate or engaging in a

whole-class exercise. Teachers used programs like Nearpod to monitor student activity. They could easily make quick sweeps of the classroom to see that students were making progress in their writing. In terms of classroom management, the result was that students were rewarded for keeping their gaze on the device. Whether on task or off, students keeping their heads down stood in for their being engaged. Most importantly, the researchers concluded that the work was unremarkable. Classes with devices were the same as classes without devices, at least in terms of the quality and scope of the student work. The variety of devices presented challenges as well. For example, students using smartphones struggled to type. This study focused not just on student activity while engaged with the devices. Instead, it focused on all aspects of a 1:1 classroom as changed by the introduction of educational technology. They found that the pre-existing structures and relationships that students had with their own devices subsumed any initiatives at school. For example, students often listened to music or watched videos during class. The researchers conclude that the novelty effect of having devices in schools during the early 2010s has worn off. Instead, devices led to routine classroom practices. Though 1:1 educational technology programs have often been heralded as opportunities for personalized learning, they found that technology drove teachers to reinforce traditional patterns of schooling, albeit with more efficiency. The promise of personalized and self-directed learning that accompanied the introduction of 1:1 initiative had not necessarily come to fruition as far as the researchers could tell. Finally, the researchers noted that school leadership allowed students and teachers to direct 1:1 implementation. The adoption process they observed was an ad hoc system without continuity or guidance from school leadership.

As schools adopt educational technology, the medium of reading changes. Though schools maintain textbooks and paper handouts as resources, the availability of digital texts and PDFs for reading assignments presents a changing reading environment. Sage et al. (2019) completed a mixed-methods study to understand the preference undergraduate students evinced for digital or print reading. Switching from print to digital reading presents unique challenges and advantages, an understanding of which the researchers aimed to contribute to with their study. Additionally, the researchers considered the difference within digital media, comparing established digital media—computers and laptops— to emerging media—tablets. The researchers also hypothesized that the physical text would be more favorable in an environment where the students had continuous access to the text, as they would have physical markers to rely on. Previous research indicated similar outcomes for students who used print resources compared to students who used digital resources. Pointing to further research that suggests students may prefer digital media for shorter readings but print for longer readings, the researchers selected for use a common learning experience, reading an academic article. In addition to studying student perceptions of the different media, researchers also considered the levels of comprehension and timing. Participants read an article before completing a series of multiple-choice questions. Half of the participants were allowed to use the article to answer the questions, while the other half had the resource taken away. The researchers measured the time it took participants to complete the activity, and they surveyed participants on their perceptions of cognitive load, difficulty, and confidence level. Participants were randomly assigned to the print, computer, and tablet groups. They were also randomly assigned to the open and closed quiz groups. Researchers completed

a between-subjects MANOVA analysis because they intended to include multiple independent and dependent variables in the same analysis. The analysis determined students' comprehension, timing, and perceptions of the task. They found no statistically significant difference in outcomes across reading media. Students did not differ in their comprehension following the open or closed quiz. The more satisfied the students were with the task—a measure that varied according to individual student preference—the more confident they felt in completing it. The researchers concluded that comprehension was equivalent across different platforms. Further, they found that students learned equally well with an open quiz compared to a closed quiz. However, they note one limitation, which was that the comprehension task only involved a short reading article. Most significantly, the researchers found that preference and perception were closely linked. Those students who felt in control of the task felt more confident in their ability to complete the task. Though the participants in the study preferred reading in print compared to digital platforms, the researchers found that student preference may be evolving as more students are introduced to digital media at an earlier stage. In survey data, the researchers found that there were noted advantages to both digital and print media. For example, students appreciated the tactile nature of print media but appreciated the convenience of digital media. Though both are practical options for study, further consideration should be given to how best to implement the mixed media available in the classroom.

Ferguson (2016) conducted a study of students in grades 6, 7, and 8, who had recently been part of a 1:1 iPad initiative rollout. After soliciting 676 student responses to a series of questions about satisfaction with the iPad as a learning device, the researcher

completed an ANOVA analysis to measure differences among groups. The researcher concluded that effective adoption takes time and good, sustained technical support. Furthermore, the researcher found that moving to an all-digital learning environment was inhibiting rather than liberating; students expressed the most satisfaction in learning environments that blended digital and traditional activities.

Lubniewski and Kiraly (2020) studied the level of cognitive engagement students exhibited in a 1:1 digital learning environment. Throughout the study, the researchers measured the Instructional Practices Inventory (IPI) through teacher peer observation, SAMR technology use as noted by teacher observation, as well as a self-reported student measure of engagement. The researchers found that in a 1:1 environment, there were optimal lesson configurations leading to high engagement. Lessons that challenged students with relevant technology-imbued activities and gave students a sense of agency were the most engaging. In other words, they found that the purposeful inclusion of digital technology into lessons, which allowed students to complete learning activities that they would not have been able to complete without the digital technology led to the strongest engagement outcomes.

A student's experience of using digital technology depends upon the support that schools offer learners. With intentional deployment and continuous aid, educational technology programs can lead to meaningful educational improvement. However, implementing educational technology programs without clear guidance and training for students can result in distraction and confusion.

Teacher and System Perspectives

Recent instructional initiatives have shifted the focus of classroom activity from the teacher to the learner. However, it is still the teacher who sets the instructional course. When teachers work within a system that affords them decisional capital (Hargreaves & Fullan, 2012), a collaborative environment (Keane & Keane, 2016), and regular, coherent training (Regan et al., 2019; Cole & Sauers, 2018; Flanagan & Shoffner, 2013), change initiatives, particularly those involving new technologies may take meaningful hold. When those factors are absent, change initiatives will be much more difficult to sustain (Lamb & Weiner, 2018; Higgins & BuShell, 2017). But the introduction of educational technology is not a simple, targeted classroom intervention. It changes the assumptions of the classroom, as it displaces the teacher and textbook as the central site of information (Tang & Chaw, 2016; Hallman, 2019; Xu and Zhu, 2020).

Among the most ambitious 1:1 learning device initiatives was the 2013 adoption of a 1:1 iPad program by the Los Angeles Unified School District. Lamb and Weiner (2018) completed a case study to understand the "relationship between the institutional context and the phenomenon of the failure of the iPad initiative" (141). By reviewing a variety of newspaper stories, magazine articles, and research documents, the researchers were able to create a case study focused on the institution. Employing institutional isomorphism as their conceptual framework, the researchers found that the policy choices surrounding the implementation of the iPad program had issues from the start. Like many innovation programs, technology was at the center, but it was linked to a broader push for school improvement. As the researchers point out, the adoption of digital technology in education is often seen as a signal that a school is undertaking innovative practices. The

researchers conclude that several attendant factors led to implementation difficulties and that successful implementations will consider "national and district policy, the individuals and teams that make large scale decisions, and the support provided for the implementation of those decisions matter for successful rollout, adoption, and implementation of iPad initiatives" (149).

In a mixed-methods longitudinal study, Keane and Keane (2016) examined a one student to one computer (1:1) implementation in a school that had not been considered technologically sophisticated before the program's initiation. Through qualitative interview data and quantitative survey results, the researchers found mixed implementation results among the five student cohorts they studied. The three cohorts that had successful implementations were characterized by "delegated leadership, collaborative professional learning and supportive teachers" (1037). When teachers were brought into the leadership fold, empowered to make professional decisions while collaborating with colleagues, they were more likely to link their work to the shared vision of the school. Additionally, the researchers noted that a stable digital infrastructure was necessary but not sufficient for successful implementation. The infrastructure of professional capital depends upon the digital infrastructure and is vital to successful implementation. The study defined success in a few ways. Teachers of the successful implementations reported feeling more like facilitators, capable of turning work over to student direction. Students reported that they used the devices to build new presentation formats, to communicate electronically, and to research on the internet. Teachers and students in the successful implementation cohorts celebrated frequent usage as a mark of success.

Tang and Chaw (2016) connect the proliferation of computing devices in education settings with the rise of learning management systems and other digital infrastructure that have become part of the fabric of primary, secondary, and higher education. As they note, students are adept at using digital media for social networking and other common personal tasks, but they assert that digital proficiency is context-dependent, and as digital technology changes, students must continuously be re-educated in digital literacy. The researchers employed a conceptual framework with four constructs combining for effective learning. Those constructs are "underpinnings, background knowledge, central competence, and attitudes and perspectives" (57). Based on a pretest questionnaire and literature review, the researchers built a 5-item scale for each construct. They collected survey responses from university students at a school where a blended learning environment had been adopted. Their exploratory factor analysis informed the reconstruction of the conceptual model to include three constructs: underpinnings, experiential learning, and searching. Their analysis concluded that these three constructs "account for more than half of the learning effectiveness of respondents in a blended learning environment" (62). They conclude that educators and administrators need training in the model components of digital literacy capacities of students before effective learning can take place in a blended learning environment.

Higgins and BuShell (2017) explored the changing dynamic between students and teachers when a 1:1 technology program is introduced. In this embedded case study, the researchers used the self-system theory of motivation as a theoretical framework to observe and analyze four classroom teachers and 207 public high school students in a suburban New Jersey high school. Through teacher interviews, classroom observations,

student surveys, and a student focus group, the researchers found a substantial change in the connectivity between teachers and their students both at school and while at home. Primarily, they found that the relationship changed in a positive direction, but only if the teacher was able to engage with the technology in a productive manner. The connection between teacher and student extended beyond the classroom, and the introduction of technology demanded an increased competency among all classroom participants, so the level of engagement necessarily increased. Among their findings is that teachers trusted their students to complete independent work more than before the implementation of the 1:1 program. With the 1:1 program, students have more access to information and fewer excuses for missing work. However, in classrooms where high levels of trust did not flourish, the positive benefit of the 1:1 program was diminished. The researchers also observed an increased emphasis on interpersonal relationships. A significant majority of the students noted that the teacher remained vital to their learning process. The researchers concluded that the capacity for student-teacher relationships increases because they are no longer bound by the time and space of the classroom. This capacity is governed, however, by the ability and intentionality of the teachers and students to use the technology to the end of increased engagement.

Hallman (2019) explores the neoliberal tenets of personalized learning in a 1:1 technology initiative through a case study following a novice teacher's introduction to personalized learning. Though the research admits to the potential benefits of personalized learning available through educational technology, she considers with concern the shifting relationship between the student and teacher as well as "the position of knowledge in schools and classrooms" (p. 299). In a review of the literature, Hallman

notes that the last several decades of public policy have changed the aims of public programs to value the development of human capital in service of global economic competition over any other end. The result is a view of education as a business rather than a journey; education comes to emphasize test scores rather than student growth. Hallman identifies 1:1 technology programs as a particular strain of neoliberal policies affecting education. Technology implementation, she asserts, has been viewed as an uncontroversial school policy, but insists that educational technology should be seen as a tool with its value determined by the relational effects it brings to the classroom. The case study presented draws from a "larger, multi-case study that was focused on learning to teach in neoliberal times" (p. 304). Following one of the teachers from that case study, the researcher conducted in-depth, semi-structured interviews and written reflections from the novice teacher. Using narrative methodologies, the researcher examined the novice teacher's writing and used the four semi-structured interviews and 11 email exchanges to produce a narrative that she triangulated with additional narratives from the teacher's second and third years and the initial questionnaire that all participants had completed at the start of the multi-case study. The researcher analyzed the narratives for textual elements and coded the narratives with inductive and deductive codes. The inductive analysis recognized the "interconnected and overlapping layers of how [the novice teacher] thought about personalized learning through 1:1 technology initiatives" (p. 306). The deductive analysis analyzed the data through the "lenses of neoliberalism, personalized learning, and technology initiatives in classrooms and schools" (p. 306). Through her analysis, the researcher identified three themes: the tension between rhetoric and reality in 1:1 initiatives, technology as the agent shifting education from knowledge

seeking to knowledge assessing, and the changing role of the teacher in a personalized learning environment. The researcher concludes that although technology implementation is billed as an opportunity to expand students' access to information, it actually narrows the type of information that students have access to. More importantly, it changes the mindset students have in relation to knowledge, moving them from creators or seekers of knowledge to consumers of knowledge; this is a shift that articulates the broader societal trends wrought by neoliberalism. Technology has become the first destination for knowledge in students' minds, displacing the teacher and the students themselves as sources for knowledge. Hallman notes that the novice teacher eventually came to recognize "her teacher-self inside her classroom with an agentive stance toward the effects of neoliberal policies" (p. 314).

Flanagan and Shoffner (2013) explored the generational divide of educational technology implementation in a qualitative study of two ELA teachers—one novice and one experienced—as they integrated digital technology into their classrooms. The researchers considered the use of technology in the secondary ELA classroom in terms of planning, execution, and teacher beliefs about technology's role in classroom instruction. The researchers conducted classroom observations, individual interviews with each teacher, and member checking with the participants. Teachers were observed ten times each with the researchers focusing on the following criteria: "the process of the process of introducing and delivering instruction; the observable benefits and challenges of the different modes of instruction; students' responses to instruction; transitions between instructional activities; classroom dynamics; and teacher characteristics" (p. 247). In addition to the observations, the researchers also interviewed each participant three times.

Analysis revealed four themes: planning for technology use, using technology in the classroom, the benefits of educational technology, and the drawbacks of educational technology. The researchers concluded that there is a strong need for pre-service and in-service training to optimize the benefits of educational technology use in the ELA classroom. Additionally, they found that regardless of pre-service training or experience, use of the technological-pedagogical-content knowledge (TPCK) framework effectively grounded the participants' understanding of the role of educational technology in the classroom. Finally, they found that the challenges of using educational technology were balanced by the benefits of student motivation, engagement, and efficiency.

Even before the Covid-19 pandemic necessitated remote learning and broader adoption of educational technology, the trend of using digital learning tools for instruction in school systems around the globe had been increasing (Regan, et al., 2019). Despite that trend, the researchers observe that teachers may not be meaningfully integrating technology into writing instruction. To analyze this trend, they conducted a qualitative study of 47 middle school teachers across the language arts, science, and social studies content areas in schools with low-achievement scores in writing. Of the 47 participants, 44 self-identified as users of technology. Participants completed an initial survey followed by semi-structured interviews of between 30 and 60 minutes each. The researchers' initial, collaborative analysis led to 10 categories, which they then used to analyze all transcripts. Regardless of teachers' self-reported use of technology, all teachers reported writing as a weakness for their 6^{th}-8^{th} grade students. The researchers found that the teachers used technology much more frequently than their students. When students did use technology across all content areas, the researchers found that it was

primarily for completing research and for creating multi-media presentations. Though some participants noted that students used technology to collaborate in programs like Google Docs, teachers rarely if ever used technology to aid in writing instruction. In short, the use of technology was more traditional than innovative. The teachers reported a defeatist attitude regarding technology and writing instruction. Furthermore, teachers reported that test preparation was a limiting factor in using technology, as precious class time was reserved for standardized test preparation. The researchers concluded that time was a crucial factor in technology integration, pointing to the increased implementation of technology in schools where teachers had longer blocks of time for instruction. They also note that the primary barrier to technology integration is teachers' perception of technology use in the classroom. Though teachers acknowledge the importance of using technology in the classroom, frustrations with the technology maintain low levels of integration.

Teacher perceptions are only one lens for consideration in the adoption and continuation of 1:1 computing initiatives. Cole and Sauers (2018) conducted a qualitative analysis of the perception of 1:1 initiatives from the superintendent's perspective. Using a phenomenological design, the researchers selected a purposive sampling of superintendents from Iowa, where a long history of 1:1 adoption, as well as thorough record keeping around the computing programs. The researchers sought to understand from the superintendents' perspectives which factors contributed to the successful adoption and sustainment of 1:1 computing initiatives. For the purposes of this researcher's study, the most interesting finding was that the superintendents widely reported that one of the drivers of 1:1 adoption was to change the way that teachers teach,

and students learn. The superintendents reported that personalized learning, collaboration, student engagement, and authentic projects had all increased because of the 1:1 initiative. Additionally, the participants reported that a crucial factor in the adoption of 1:1 programs was the need to prepare students for the world into which they would be graduating.

Xu and Zhu (2020) considered the global push for computing in education, as they created a model for understanding the factors associated with teachers' adoption of mobile devices in teaching. Noting that teachers are the "designers, organizers, and managers of educational activities. They dominate the educational process and control the teaching and learning activities" (p. 293). Therefore, through a survey of the literature, they proposed a research model that shows the factors influencing teachers' mobile device adoption. 132 participants completed a questionnaire from which the researchers concluded that the key factors in adoption were self-efficacy and technology beliefs. If teachers understood how to use the technology and felt supported in their implementation, they would be more likely to adopt mobile technology in the classroom.

In 2019, the RAND Corporation conducted a study on digital instructional materials to determine which digital tools teachers were using and which barriers existed to further adoption (Tosh et al., 2020).. With 5,969 respondents, the researchers found that teachers widely use digital resources in planning lessons. No less than 95% of teachers reported using digital tools to find resources and to deliver instruction. However, the researchers also found that teachers used digital tools to supplement the comprehensive curriculum. Surprisingly, the researchers found that the crucial factor in whether a teacher would use digital materials to deliver instruction was based on the type

of teacher preparation training the participant had received. Those who attended "district or charter management organization-run teacher preparation programs were more likely to use digital materials" (p. 6) as compared to those who went through traditional training in schools of education. In other words, schools and districts that set clear guidelines and offer training around usage according to those guidelines will see more widespread adoption of digital tools for planning and instruction.

Kolikant (2019) notes that research on information-communication technology (ICT) in schools often focuses on the use of technology itself rather than the broader usage context, which includes the development of 21st-century schools. Through interviews with sixteen educators, including five principals in a large-city public junior-senior high school in Israel, he sought to understand the educators' perspectives of "the challenges that educating the current generation for the twenty-first century poses" (p. 291), as well as the role that technology plays. The results suggest at least one important paradox. While teachers sense that the world has changed and that ICT has an important role to play in this new world, they expressed concern about the adverse effects of digital technology including potential social issues and distractions in the classroom.

Like all change initiatives, the incorporation of educational technology demands deliberate introduction and sustained support for educators. Coinciding with broader adoption efforts and an increase in teacher familiarity with educational technology was the onset of the Covid-19 Pandemic, which disrupted global education and necessitated a greater turn toward the use of educational technology.

Education During and After COVID-19

The onset of the COVID-19 pandemic in the United States hastened the national drive to implement educational technology. With 2/3 of schools closed for full-time, in-person instruction, students and teachers connected through digital means (Irwin et al., 2020). The pandemic seemed to assert the importance of digital learning, as school buildings were vacated, teaching and learning happened at home. While the effects of this global education disruption will be felt and measured for years to come, the immediate emergence from this at-scale experiment with digital learning offers several lessons about teacher's professional self-efficacy, the recalibration of educational values based on the experience of remote teaching, and the necessity of training and support for any change initiative in schools (Reich et al., 2020; Kraft, Simon & Lyon, 2021; Tackie, 2022; Jones et al., 2022; Johnson et al., 2022).

Reich et al. (2020) conducted interviews with forty educators across the country throughout the early portions of the school shutdown. They found three core themes: teachers expressed decreased student engagement during virtual schooling, they noted a loss of professional identity, and they worried about increasing inequality. Most of all, though, the researchers found that teachers felt ineffective, as they could not draw on prior experiences to improve engagement and learning outcomes.

Kraft, Simon, and Lyon (2021) also measured teachers' experiences during the emergency remote learning period during the spring of 2020. Drawing on survey data from the Upbeat *Teacher Engagement* survey and the *Teaching from Home* addendum, the researchers compiled a representative sample of teachers across nine geographically diverse states. To construct a measure of working conditions, the researchers used survey

data from 2019 and 2020 to gauge the change in workplace conditions for teachers during the pandemic, primarily measuring "the relationship between teacher's remote working conditions and changes in teachers' sense of success" (p. 27). They found that organizational practices were vitally important to the sense of success teachers feel in their work. Teachers faced a series of challenges including professional isolation, the demand of learning new technologies, and general disengagement among their students. The researchers found that teachers who reported supportive organizational structures were more likely to rate their own teaching as successful. This finding, brought about in extreme circumstances, builds upon the body of research already suggesting that professional challenges for teachers are best tackled through capacity building in supportive organizational structures. Open communication, transparent decision making, and opportunities for formal and informal collaboration lead to a perception of professional success by teachers.

Tackie's (2022) thematic analysis of Chicago teachers' experiences during virtual schooling showed the relational challenges and opportunities that teachers faced during the pandemic. Teachers struggled without face-to-face interactions, which promote a richer learning environment for them and their students. However, the researcher identified several positive trends that suggest lessons for post-pandemic education. Despite losing the opportunity for in-person schooling, some teachers were able to increase individualized attention by scheduling small-group and one-on-one meetings. Furthermore, teachers reported a more holistic approach to educating their students, as well as experimentation with a variety of instructional strategies to engage all students.

Jones et al. (2022) complement these findings with their research on how teachers spent their time during remote schooling compared to how they spent it before the pandemic. Using the day reconstruction method (DRM), the researchers were able to construct a comprehensive account of how the teachers participating in the survey spent their time before and during remote schooling, which they compared to the teacher's emotional affect on a positive-negative scale. With a sample of 131 teachers in a large suburban district, the researchers found that during remote schooling, teachers spent more time on planning, grading, as well as meeting with parents and administrators, while spending less time on instruction, non-instruction with students, and professional development. This is an important finding because the teacher's emotional affect was most positive during instruction–during COVID and before. In other words, one crude summary of their work is that teachers did less of what they enjoy as professional educators during remote schooling. They argue that teacher-student relationships are crucial to a teacher's sense of professional success. Furthermore, Johnson and her colleagues (2022) suggest through a systematic review of literature that there are several compounding factors that increased the difficulty of teachers transitioning to online learning–chief among them was the lack of teacher training around online and digital learning.

Research is only just emerging on the lasting impacts of teacher perception of educational technology in a post-pandemic schooling environment. As Short et al. (2021) found in a systematic review of the literature, pre-service training is insufficiently focused on teaching in a blended environment. Through a review of 88 articles published between 2007 and 2019, they found that very little work had been done to understand the

practice in practical terms. Much of the literature focused on theoretical models for teacher preparation programs but lacked attention to the implications of the practice in the classroom. The researchers conclude that more work is to be done in training and researching blended-teaching practices.

The Secondary English Classroom

The broad concern of this study is the attendant instructional and environmental changes that result from the incorporation of educational technology. In particular, the researcher will consider this shift within the secondary English language arts classroom. To understand the shifts, it is necessary to review general trends in the high school ELA classroom that have led to this moment in time. The focus on 21st-century learning is often framed with science, technology, engineering, and mathematics (STEM) subjects in mind, but the competencies that policymakers demand have greater resonance in the ELA classroom (Mirra & Garcia, 2020; McConn & Blaine, 2018). The primary skills within the discipline—reading, writing, and discussion—have taken on new subsets of expression with the digital learning landscape (Higgs, 2020; Smith, 2019; Williams and Beam, 2019).

As Mirra and Garcia (2020) demonstrate, the expectations of 21st-century learning are often situated in ELA classrooms. This study aims to understand the use of digital technology in the secondary ELA classroom. McConn and Blaine (2018) offer a useful content analysis of historical documents that have shaped the teaching of literature. They employ a "conceptual perspective of how the language of the standards represents ideologies and aims in education that influence our thinking as researchers and English educators" (p. 135). In it, they identify three core tensions in the discipline, all of which

echo general concerns about the purpose of education: college preparatory v. workforce preparatory programs; skills v. content; and student-centered v. teacher-centered. Their analysis culminates with a discussion of the Common Core State Standards (CCSS), the most recent document that they consider. Through their coded analysis, the researchers suggest that in two of the three tension-matrixes listed, the CCSS represent a shift toward essentialism and away from progressivism in the English language arts. The CCSS reflect an intense focus on career readiness instead of college or civic preparation, and they represent a shift from content-orientation to skills-orientation. In their analysis, they suggest a broader tension in education: despite stated support for student-centered learning, the current educational zeitgeist has moved toward a teacher-driven curriculum in which the students' experience with literature is of less concern than the development of skills. The students are not the agents of education but the products of education.

Higgs (2020) offers an analysis of how teachers' understanding of digital discourse shapes the learning opportunities available to students. Beginning with a traditional view of classroom discourse as opportunities for socially constructed understanding, Higgs notes that dialogic practices in ELA classrooms have aided reading comprehension, encouraged creative writing ideas, fostered argument literacy, and supported equitable learning. In this mixed-methods study, the researcher distributed a national survey to K-12 ELA teachers and coupled those 552 respondents' results with a case study of the use of a digital discourse tool called Subtext in an 11th-grade ELA classroom. Higgs found that teachers reported using Subtext as a "student tool that offered novel and improved dialogic opportunities for students, particularly for those who were reluctant to participate in face-to-face classroom talk," (p. 49-50) but found that

most teachers using the tool were using it for teacher-directed practices like embedding questions in the e-reader. Importantly, teachers were not reluctant to adopt the technology, but they were unfamiliar with how to use it to its most promising ends.

Applebee et al. (2003) emphasize the importance of discussion-based approaches to literature. In their exploration of the nature of teaching and learning, the researchers selected 64 secondary ELA classrooms from five different states. In a series of four observations in each class, the researchers' team measured and analyzed classroom discussions, focusing on question types, materials, and interpersonal interactions. Through their analysis, the researchers found that high expectations and the use of discussion-based approaches to instruction correlated with higher student achievement. In particular, the researchers point to the fact that the study did not focus on instructional strategies but the general inclusion of discussion as a tool for understanding. They point to the importance of "spontaneous scaffolding" (p. 722), which reflects the importance of adaptability in reading comprehension.

Smith (2019) notes that English educators have been called to continue the work of teaching students literary interpretation and analysis while also expanding the view of literacy to include teaching students to be producers and consumers of multi-modal texts. Smith's study included four 10th-grade classes in an urban Title 1 charter high school. Using purposeful sampling, the researcher selected a representative group of students to complete two different projects: a hypertext literary analysis project and a video literary analysis project. Recording students' literary interpretation processes via research laptops, Smith tracked mouse movements, websites visited, and media selected and edited. Coupled with observational field data, the researcher identified three central ways

that students interpreted literature in this digital projects unit: "conceptualizing literary themes, constructing multilevel connections to literature, and elucidating literary meaning" (p. 209). The researcher concludes that multimodal conceptualization aided interpretation, particularly when students found themselves failing to make progress. Students learned through the composing process, which is not necessarily unlike how students learn through traditional means of composition, but it does suggest more avenues by which students can enter the thoroughfare of analysis and interpretation. Overall, it suggests that alternative approaches to meaning making in the secondary ELA classroom can be effective.

Williams and Beam (2019) completed a conventional content analysis to examine the use of digital technology in writing instruction. They found several recurring benefits in the research including general improvements in student writing at all levels, an increase in the "recursive phases of the writing process" (p. 239), as well as improvements in students' sequencing, analysis, synthesis, interpretive, problem solving, and generative thinking skills. They also found that using ICT-mediated writing instruction increased motivation, more frequent social interactions, and increased support for reluctant writers. The researchers note that these documented benefits were concomitant with professional learning environments that were committed to strong professional learning. Teachers in these studies expressed a need for continuous professional development and support.

As in all subject areas, instruction in the English language arts classroom has shifted with the adoption of digital learning technology and in response to the changing needs of industry and the citizenry. Teachers continue to navigate that changing

instructional landscape, particularly in this period of post-Covid resumption of schooling.

Summary

The introduction of educational technology on a broad scale has shifted the grammar of schooling. Students and teachers bring a different set of prior experiences to their teaching and learning. With the disruption to education from the Covid-19 Pandemic, teachers and students adjusted to using educational technology as a substitute for face-to-face instruction, but now that schools have resumed in-person instruction, the task has fallen to teachers and administrators to determine how best to use educational technology for future instruction. The first step in that process is surveying the educational landscape to understand current practices. Research suggests that success with any instructional change initiative is dependent on the support that teachers are given and the vision that they create. In a post-Covid 19 educational world, there is a paucity of research in this area. I am to fill that gap with my research by focusing on teachers' perceptions of the environmental and instructional shifts brought about using educational technology in the secondary ELA classroom.

CHAPTER 3 METHOD

Introduction

This chapter will detail the research methodology and procedures for the data collection and analysis of data for this study. The previous chapter established a gap in the current research around the implementation of educational technology initiatives in the secondary ELA classroom. Building upon the theoretical framework for this study, the researcher assumed that the incorporation of educational technology will have several effects on instruction and collateral learning, shifting the instructional center of the classroom (Postman, 1986). The goal of this qualitative study was to understand the perception teachers have about the use of educational technology in the ELA classroom in terms of the classroom learning environment, the discipline's principal skill-development goals, and the organizational structures that have accompanied the adoption of educational technology.

Research Design

The researcher used a narrative study design for this study as a way of understanding the experience of individuals and how they perceive themselves in this context (Creswell & Poth, 2018). As Clandinin and Connelly (2000) assert, we have evolved to understand the world and our places in it through narrative, so a study that uses narrative is suited to delivering a rich interpretation of individual experience. Furthermore, Clandinin and Connelly (2000) point out that a core feature of narrative is temporality. Our lives unfold on a temporal continuum—past, present, and future—but so do our memories of those experiences. In that way, narrative not only seeks out personal history but continuously lived experience. In this context, it's not enough to understand a

teacher's experience at one moment in time, but it is useful to understand their remembering selves (Kahnemann, 2011), because a teacher's current practices, attitudes, and motivations will be guided by the narrative framing of their prior experiences.

This narrative inquiry was conducted through a series of semi-structured interviews to develop an understanding of teachers' lived experiences using educational technology in the secondary ELA classroom. Clandinin and Connelly (2000) draw on "Dewey's theory of experience, specifically...his notions of situation, continuity, and interaction" (p. 50) to frame their approach to narrative. They bring these notions together in four directions for any inquiry: "inward and outward, backward and forward" (p. 50). The inward focus draws on personal attributes including hopes and concerns. By outward, they mean the environment in which this experience is had. Backward and forward relate to temporality—an expression of experience in the past, present, and future.

Using a narrative methodology allowed the researcher to understand the lived experiences of teachers using educational technology in the secondary ELA classroom. Using three rounds of semi-structured, open-ended interviews, the researcher collected data. Narrative research is about collecting stories from individuals and related sources to chronicle a tale of lived experience (Creswell & Poth, 2018). In narrative research, the researcher will co-construct understanding with the research participants, as they aim to understand how the participants see themselves within the context of teaching in a technology-rich secondary ELA classroom. Narrative inquiry was appropriate for the purpose of this study because it aims to understand and articulate the perceptions that teachers have of themselves in a secondary ELA classroom environment that has been

altered by the introduction and continued use of educational technology. According to Clandidnin and Connelly (2000), people are the embodiment of lived narrative, mutually shaping and being shaped by the social narratives of which they are a part.

Research Questions

This study explored teachers' perceptions of the environmental changes to the learning environment in a secondary ELA classroom through the incorporation of a 1:1 educational technology program. The following research questions were used:

How do teachers perceive students' responses to ELA learning activities mediated through a digital device?

How do secondary ELA teachers perceive the effect of using digital devices for learning on classroom dynamics?

How do secondary ELA teachers define success in teaching and learning in the context of a 1:1 digital learning program?

Methods and Procedures

Setting

The researcher used purposeful and convenience sampling to select a multi-building central high school district from which to draw study participants. Creswell and Poth (2018) note that purposeful sampling is when a researcher relies on his judgment to select participants. The five-building central high school district in a northeast state provides uniform structures for all building administrators, teachers, and students, but leaves the execution of central plans to the individual buildings. The central high school district spans four different communities with approximately 135,000 residents. Established in the early part of the 20th century as a single school, the district expanded

rapidly in the post-WWII suburban population boom, adding four additional schools to serve the influx of residents. Over 8,200 students in grades 7-12 attend a district school. However, each of the five district high schools has a distinct character, influenced by community demographics, leadership teams, and faculty experience. This context is important to understanding the lived experiences of the teacher participants. To maintain anonymity, the high schools will be referred to as High School 1, High School 2, High School 3, and High School 4. High School 5 will not be included in the study as the researcher serves in a supervisory capacity at that school. The table below highlights core features of each school from which the study participants will be drawn.

Table 1

Study Participant High Schools

	High School 1	High School 2	High School 3	High School 4
Total Number of Students	1,572	1, 666	1,621	1,363
Student Population	67% Black or African American; 18% Hispanic or Latino; 12% Asian; 2% White; 2% Multiracial	29% Black or African American; 35% Hispanic or Latino; 25% Asian; 9% White; 2% Multiracial	2% Black or African American; 20% Hispanic or Latino; 12% Asian; 64% White; 1% Multiracial	12% Black or African American; 17% Hispanic or Latino; 20% Asian; 51% White; 1% Multiracial
Additional Student Sub-Groups	5% English Language Learners; 10% Students with Disabilities; 56% Economically Disadvantaged; 1% Homeless	7% English Language Learners; 12% Students with Disabilities; 57% Economically Disadvantaged; 1% Homeless	2% English Language Learners; 12% Students with Disabilities; 21% Economically Disadvantaged; 1% Homeless	2% English Language Learners; 15% Students with Disabilities; 23% Economically Disadvantaged
4-Year Graduation Rate	73% Students Earning Advanced Regents Diplomas; 99% Earning Regents Diploma	68% Students Earning Advanced Regents Diplomas; 99% Earning Regents Diploma	80% Students Earning Advanced Regents Diplomas; 100% Earning Regents Diplomas	65% Students Earning Advanced Regents Diplomas; 100% Earning Regents Diplomas
Graduating Students Continuing Education	89%	85%	96%	98%
Title I Funding	Yes	Yes	No	No

Participants

The researcher used purposeful sampling to conduct this narrative study. According to Creswell and Poth (2018), purposeful sampling "will intentionally sample a group of people that can best inform the researcher about the research problem under examination" (p. 148). The researcher selected eight participants from four schools. Participants were only selected if they had a minimum of four years teaching experience. Given the magnitude of the Covid-19 pandemic's disruption to teaching and learning and the recent proliferation of educational technology, the researcher only wanted to draw from the experience of teachers who had taught both before and after the pandemic-related closures. The teachers' experiences parallel the district's increased use of educational technology in secondary ELA classrooms since the 1:1 iPad program began in the 2016-2017 school year.

Data Collection Procedures

The researcher employed a narrative methodology for this study because it allowed for "fluid inquiry, not...[a] set of procedures or linear steps to be followed" (Clandinin, 2013 as cited in Creswell & Poth, 2018). In other words, narrative inquiry allowed for adaptive, collaborative inquiry between researcher and participant as we examined the lived experience of teachers in this changing educational environment. The participants all work within a central high-school district in a mid-Atlantic suburb, just outside the geographic boundaries of a major metropolis. The district was selected for its socio-economic and racial diversity not within but across schools. Recruitment emails were sent to English teachers on their official school email accounts. The teachers each participated in three rounds of semi-structured interviews. Interviews were conducted

using WebEx. The researcher had each participant confirm that they understood the interview protocol and signed a consent form to participate.

The researcher interviewed eight participants over a six-week period with two weeks in between each round of interviews, so the participants could linger on the processing of their experiences. The first interview explored participants' educational philosophies, professional backgrounds, and general perceptions of digital technology. The second interview explored their perception of the use of educational technology in the secondary ELA classroom before and during remote and hybrid instruction during the 2019-2020 and 2020-2021 school years. Finally, the third interview focused on their perceptions of the use of educational technology since students and teachers returned to the classroom after the pandemic-related school closures and disruptions. It also explored their perception of the future use of educational technology in the secondary ELA classroom. Each interview consisted of about 15 short, open-ended questions provided by the researcher. Each session took approximately 30-45 minutes. Audio was recorded on the researcher's computer through WebEx. The period between interviews allowed for data analysis and transcription.

Table 2

Interview Timeline and Connection to Research Questions

Interview Session	Theme of Interview Questions	Timeline of Interviews	Connection to Research Questions
Interview Session I	Professional histories of participants. Will explore the reasons participants became teachers, their general relationship to technology, and their sense of the purpose of ELA instruction. Will explore their perceptions of district educational technology initiatives.	Week 1	Q1. How do students respond to ELA learning activities mediated through a digital device? Q2. How do secondary ELA teachers perceive the effect of using digital devices for learning on classroom dynamics?
Interview Session II	Instruction since the incorporation of educational technology. Will also discuss the experience of remote teaching and learning.	Week 3	Q1. How do students respond to ELA learning activities mediated through a digital device?
Interview Session III	After and beyond the pandemic-related school closures. Will discuss the use of educational technology since the pandemic-related school closures and hopes for future instruction in the secondary ELA classroom using educational technology. Will explore participants' professional self-perceptions within a technology-rich learning environment.	Week 5	Q2. How do secondary ELA teachers perceive the effect of using digital devices for learning on classroom dynamics? Q3. How do secondary ELA teachers define success in teaching and learning in the context of a 1:1 digital learning program?

Data Analysis Approach

The purpose of this study was to understand teacher perceptions of their role as secondary ELA educators in a technology-rich learning environment. The researcher simultaneously collected and analyzed data, processing field texts into research texts, amidst the negotiation of how the researcher relates to the participants. This process

guarded against the field texts speaking for themselves; instead, the process allowed the researcher to interpret the field texts within the context of personal histories, environmental factors like district policy, and the temporal nature of a narrative inquiry (Clandinin & Connelly, 2000). The researcher analyzed the field texts by uploading transcripts to Atlas before reading and rereading them "in order to construct a chronicled or summarized account of what is contained within different sets of field texts (Clandinin & Connelly, 2000, p. 131). The researcher used In Vivo coding, emotion coding, and values coding to honor the participants' voices and to pick up on matters of perspective and identity as themes and intersecting story lines emerge. Miles, Huberman and Saldaña (2014) define In Vivo coding as a process by which the researcher draws "words or short phrases from the participant's own language (p. 74). By paying attention to repeated words and phrases, the researcher identified patterns. Emotion coding helped the researcher categorize the field texts in a way that centers participants' "perspectives, worldviews, and life conditions" (p. 75). Values coding considers values, beliefs, and attitudes, which will signal participants' sense of identity within their work. By repeatedly asking questions about meaning and social significance, the researcher developed interpreted research texts from the descriptive field texts.

Once the interview transcripts were analyzed and narrative themes emerged, the researcher began the process of reorganizing the stories into a general framework through the process of *restorying* (Creswell & Poth, 2018). Narrative inquiry produces narratives, with features like those in Freytag's Pyramid. There is a beginning, middle, and end to the story with a conflict that demands resolution, even if the story doesn't offer one. The

researcher constructed a description of the story and its themes that have been co-constructed by the researcher and the participants.

Trustworthiness of the Design

Miles, Huberman and Saldaña (2014) note that "qualitative analyses can be evocative, illuminating, masterful—and wrong" (p. 293). As such, it is necessary to ensure the validity of the study. The researcher used strategies for validation in qualitative research including clarifying researcher bias, triangulation, and member checking, thereby promoting validation through two lenses: the researcher's and the participants'. The researcher started by acknowledging biases brought to the study. I am a practitioner in the field. My own experience as a secondary ELA teacher working during this time of technology incorporation informed my research. Throughout the research process, I acknowledged and explored my own biases through journaling (Creswell & Poth, 2018).

The selection of and collaboration with participants also increased the validity of the study. By selecting eight participants across different buildings and conducting three semi-structured interviews with each participant, the researcher triangulated by data source—including several different participants and interviewing each across a span of three interview sessions (Miles, Huberman & Saldaña, 2014). In a narrative study, soliciting feedback and corroborating understanding is essential. Through member checking, the researcher brought analyses and interpretations back to the participants to have them verify the accuracy of their representation. In asking participants to provide feedback throughout the process, the researcher sought general feedback and suggestions

for language revision that most accurately reflects the participants' perspective (Miles, Huberman & Saldaña, 2014; Creswell & Poth, 2018).

Table 3

Strategies for Establishing Reliability, Validity, and Credibility

Strategy	Procedure and Rationale
Researcher Reflexivity	The researcher will examine personal experience and bias throughout the research process by means including but not limited to journaling.
Triangulation	The researcher will recruit eight participants of varied professional experience (years in the field, courses taught, education and training) and conduct three semi-structured interviews with each participant across a span of six weeks.
Member Checking	Provide participants with analyses and interpretations, seeking feedback, language revision, and confirmation of reporting.

Note. Strategies adapted from Creswell & Poth, 2018; Miles, Huberman & Saldaña, 2014.

Research Ethics

The researcher gained access to the site by emailing the district's central administrators, before contacting building principals and English department chairs to ensure that the district and building stakeholders are supportive of the study. After securing approval from decisionmakers, the researcher sent a recruitment email to request participation from secondary ELA teachers. The study was situated within a five-building central high school district. The researcher is a supervisor within one of the buildings, so I selected the other four buildings from which to draw my participants because I have no supervisory authority over teachers in other buildings. In my research, I clearly articulated the differences between my role as researcher and my role as department chair within the district. I chose to include teachers who have been teaching in the district since

the 2016-2017 school year, so participants could reflect on the rollout of the iPad program within the district. This also eliminated inclusion of non-tenured teachers. Although I have no supervisory authority over non-tenured teachers in other buildings, the nature of their status may have distorted their sense of free participation in the study with a district chairperson acting as researcher. Though I have no direct supervisory role with any teachers in the other districts, I have a professional, collaborative relationship with the English and Library chairs in the other buildings. I did not want to put any pressure on participants, even though they are not directly under my supervision. It was made clear to all potential participants that there was no expectation of participation from the researcher or any member of the district or building administration.

Once participants were recruited, the researcher sent and collected consent forms from all participants before beginning the data collection process. The researcher requested electronic signatures on all forms. This was also be a time to introduce participants to the study. They were informed that participation would take place through a series of WebEx interviews. Participants' identities have been fully protected. Data has been kept on a personal computer, which is password protected. It has also been kept in a secure, personal Google Drive account, which requires two-factor authentication for access. Data was uploaded to Atlas, which is also password protected. The participants faced no risk for participating in the study. They may, however, have gained insight into their professional experience, and their participation will inform the body of research investigating their professional domain (Miles, Huberman & Saldaña, 2014).

Researcher Role

I have been teaching for more than twelve years. My time as an educator has coincided with the rise of educational technology, as well as the broader incursion of technology into every aspect of our lives. I was a sophomore in college when Steve Jobs put a computer in everyone's pocket. I graduated from college the same year Mark Zuckerberg introduced the Like Button on Facebook. I was a second-year teacher when Twitter took flight. My first administrative role was as Director of Digital Learning, when my school began to introduce its 1:1 iPad program. The last decade of my life has been touched by the proliferation of digital technology in my personal and professional life. In conducting this study, I brought my own sense of how educational technology has shaped me as an educator, so it was necessary for me to acknowledge and evaluate my own biases as I collected, analyzed, and interpreted the data. Throughout the process I kept a journal to document and externalize my personal connections to the research.

Embedded in qualitative research is a paradox that calls upon researchers to maintain objectivity about a research topic, while also coming to the study of that topic as a human individual with lived experiences, culturally embedded biases, and presumably a passion for (or at least an interest in) the subject matter. Qualitative researchers can strive for dispassionate analysis, but they are brought to their topics by passion. They can strive for objectivity, but they are subjective in their meaning-making. These are not flaws of the researcher, but principles to understand the role of the researcher and to guide his methods. Banks (1998) refers to the quest for objectivity. Researchers have values and experiences that shape their world views and will affect their interpretation of data. By making these views explicit and noting that knowledge is made of subjective and

objective parts, the researcher can move forward on his quest for objectivity. The quest for objectivity is made more difficult when the researcher is a member of the community he is studying. In this study, the researcher is an indigenous-outsider (Banks, 1998, p. 8). As a department chair within the district, the researcher has been assimilated by the same work culture that runs through the district, but that assimilation has happened within a different role than that of the teachers.

I also had to separate my role as a district employee from my role as the researcher. Some of the figures that are referenced in my study are people with whom I have a professional relationship; I hold *a priori* opinions of them, the district, and the individual buildings. By rigorously documenting the data and member checking my analyses and interpretations, I promoted the participants' voices rather than my own. This relationship to the study is the reason I selected a narrative inquiry. Narrative encourages co-ownership over the story. The mutually informative process is well suited to my status as researcher and practitioner.

Conclusion

This chapter has provided an overview of the narrative methodology I used in conducting this inquiry. It highlights the structure of data collection including the three rounds of semi-structured interviews that informed the study's understanding of how teachers perceive teaching and learning in a technology-rich secondary ELA classroom. It includes details about how I increased the validity of the study, as well as the study's ethical considerations and my role as a researcher.

CHAPTER 4 FINDINGS

This narrative study explored secondary ELA teachers' perceptions of classroom dynamics in a 1:1 digital learning environment. Tracking their understanding of the district's digital learning initiative from the 2016 school year, through the pandemic-related school closures and associated hybrid learning environment, up to the present, the teachers spoke to changes of varying scope that the shift to a digital learning environment have wrought. The overarching theme of their responses is that over time, they have moved along a continuum of implementation. Their story chronicles a sequence that began with the nearly absolute substitution of digital learning tools for analog ones, continues with the necessity of digital tools during the pandemic, and arrives at a moment of intentionality regarding digital devices. This study aimed to capture their understanding of the shifting learning environment, the effect of digital change on their students, and their sense of the profession–both today and into the future.

The researcher used a qualitative approach to interview eight participants in the study. Across the span of six weeks, each participant was interviewed three times using a semi-structured interview protocol. The interviews all drove at the changes to instruction brought on by the shift to a digital learning environment, but temporally, they progressed from the implementation of the 1:1 digital device program to the experience of teaching and learning during the pandemic to the return to full in-person instruction. Four themes emerged: (a) the media ecology of a 1:1 secondary ELA classroom, (b) students' sympathetic relationship with their digital learning devices, (c) a re-examination of the purpose of the English language arts in a post-pandemic, digital world, and (d) the intentional use of digital tools.

Table 4

Themes and Sub-Themes

Main Theme	Sub-theme 1	Sub-theme 2	Sub-theme 3	Sub-theme 4
The Media Ecology of a 1:1 Secondary ELA Classroom	Speed and Efficiency	Distraction	Collaboration and Creativity	Higher Ceiling, Lower Floor
Students' Sympathetic Relationships with their Devices	Processing Information Digitally	What is Lost?		
Questioning the Purpose of Education	Practice and Purpose during the Pandemic	ELA Skills and Competencies for Students	Uncertainty about the Future	The Primacy of Relationships
Intentional Use of Digital Tools				

Participants

The voices of the participant teachers propelled this study. The following section contains a brief biography of each participant, focusing on their teaching experience and educational philosophy.

Dylan

Dylan attended a private college in New York State, double majoring in English and secondary education. She began teaching in her current district as a leave replacement, and after a term, was offered a full-time position. While teaching, Dylan pursued further education, earning a master's degree in Teaching English to Speakers of Other Languages (TESOL) before also earning a doctorate in administrative and instructional leadership. Her academic journey points to a desire to provide instructional

excellence for all students. She has taught courses to students in grades 7 through 12, including Regents-level courses and Advanced Placement (AP) courses. Her commitment to her students' growth and success is deeply rooted in her own experiences as a student, where the influence of several inspiring teachers propelled her to approach education through the lens of a student-centered educator. For Dylan, education is the cornerstone of success in the modern world. She firmly believes that formal education equips individuals with the essential skills of reading and writing, enabling them to navigate the complexities of modern life. She emphasizes the power of words, teaching her students that effective communication is vital in any future endeavor.

Emmylou

Emmylou's educational journey is a fascinating blend of fields and experiences. Initially aspiring to be a science teacher, she started her academic path in science but later transitioned to double-majoring in English and psychology with a minor in philosophy. Emmylou's commitment to continuous learning led her to earn a master's in literacy from a State University of New York (SUNY) school. This was remarkable for the time, as the program was entirely online, reflecting her adaptability to evolving teaching methods. Her teaching career in the district began in 2001, spanning various grades and subjects, from ninth and tenth grade integrated co-teaching elective courses like journalism and creative writing. The driving force behind Emmylou's journey into education was her love for dance and her experience as a dance teacher. Witnessing the transformation of a timid child who overcame her fear of performing on stage profoundly influenced her decision to become a teacher. In her view, education is a catalyst for change, offering students the opportunity to pursue new opportunities, to think critically, to yearn for

knowledge, and ultimately to contribute to society's growth and progress. Her passion for teaching, inspired by her belief in the transformative power of education, shapes her dedication to making a positive impact on her students' lives.

Garth

Garth has been teaching for eleven years. He has predominantly taught Regents-level courses to students in grades nine through twelve, particularly special education integrated co-teach. His educational journey began with a dual major in English and secondary education. The desire to become a teacher was deeply rooted in his love for personal interaction and a genuine desire to help others. This inclination was evident even during his high school years when he engaged in tutoring and coached younger students. He found fulfillment in these roles. Garth's love for literature and language, his affinity for reading, and his own writing practice have made teaching a means to share his passion with students. Garth's vision of education is both inspiring and profound. He views education as a tool for empowering students to envision a world beyond their current circumstances, promoting growth and the realization of untapped potential.

He believes education instills in students the ability to transcend their own perspectives, fostering empathy and a broader understanding of the world through literature and discourse. He recognizes education as a cornerstone for building an informed citizenry. In his view, it equips individuals with critical thinking skills, the ability to reason, and a sense of civic responsibility. As a teacher in the public school system, he acknowledges the vital role education plays in preparing students for active participation in a democratic society. Ultimately, Garth is committed to nurturing

thoughtful, engaged, and empowered individuals who positively shape their own lives and improve their communities and society-at-large.

Joni

Joni was the only participant in the study who neither grew up in New York nor attended college in the state. She majored in English as an undergraduate student before eventually earning a master's degree in secondary English education. She also has an administrative certification, though she has remained a full-time teacher. Throughout her career, Joni's passion for teaching has shone brightly. Her initial two years were spent in a large, urban school district as a reading teacher. Since then, she has taught English Language Arts from grades seven through twelve. Joni is a versatile educator, who has taught a range of classes, from remedial programs to advanced courses, adapting her teaching approach to cater to diverse student needs. Joni's journey into education was guided by a profound connection with children and a deep-rooted love for reading and writing. Her educational philosophy centers on equipping students with not only essential skills but also a burning curiosity to explore and investigate their worlds. Joni strives to instill in her students a love for learning, literature, and knowledge. She believes in fostering a generation of individuals who are not just skilled but also compassionate, community-minded, and enthusiastic about contributing positively to society. As an English teacher, Joni revels in the subject's flexibility, enabling her to provide a diverse array of materials to her students. This diversity allows her to facilitate their exploration of various topics to which her students can relate. For Joni, education isn't just about reaching predefined points but about nurturing young minds to be inquisitive, adaptable, and empathetic individuals, fostering a brighter future for themselves and others.

Levon

Levon, a veteran teacher of 25 years, is not just a teacher but a dreamer. In his classroom, Levon strikes a delicate balance between seriousness and light-heartedness. He has taught a range of courses from 9th-grade to AP English Literature and Composition. Levon is not just an educator; he's also a poet and musician. His love for literature and the written word permeates his teaching, infusing his lessons with the magic of poetry and storytelling. Levon says that he belongs to his students. He believes that education connects people in the moment and unlocks students' potential for the future.

Mavis

Mavis majored in English education for grades 7 through 12. Her career in the district began as a teaching assistant, as she provided individualized support to students. After a semester as a teaching assistant, she was offered a full-time position, which has led to her teaching mostly upper-level English courses–regents-level and AP-level. Mavis's passion for teaching traces back to her childhood, when she served as teacher to her first students–her younger siblings. For Mavis, the purpose of education has evolved over time. Initially, she believed it was about imparting knowledge and having students demonstrate comprehension. However, her perspective has shifted towards fostering students' self-confidence, helping them discover their identities, and preparing them for a rapidly changing world. She emphasizes the importance of education in promoting empathy, critical thinking, and effective communication, counteracting what she sees as a growing societal trend of isolation and disconnect.

Rick

Rick has been a teacher for nearly 30 years. In that time, he has taught a range of courses, but his recent teaching has been with seventh-grade students in an Academic Intervention Services (AIS) reading class and twelfth graders in composition and literature courses. Rick recently completed his doctorate in education, focusing on the most effective approaches to teacher professional development. He believes firmly in the importance of building a student-centered, engaging classroom, where students can emerge as empowered writers and readers. He wants his students to develop an identity as readers and writers, he wants his students to feel cared for in his classroom, and he wants to engage with his colleagues in common professional pursuits.

Yvonne

Yvonne has been teaching for twenty-three years. In that time, she has left her mark across various levels and subjects. At the high school level, she has tackled English in all its forms, from regents-level courses to upper-level electives and advanced classes. Her passion for literature and storytelling is evident, and she takes great delight in using stories as vehicles for teaching profound life lessons. Yvonne's love for literature and her dedication to working with students are the cornerstones of her teaching philosophy. She believes that literature has the power to inspire critical thinking, instill independence, and nurture creativity in young minds. She views these skills as essential for students. In the broader context of society, Yvonne emphasizes the role of education in setting and maintaining standards of achievement. Strong writing skills are paramount in her view, as they enable effective self-expression and ensure that individuals are taken seriously in the

world. She recognizes the invaluable lessons that stories and characters offer. For Yvonne, each lesson learned from literature is a precious asset that enriches our lives.

Results and Findings

The Media Ecology of a 1:1 Secondary ELA Classroom

To outline the findings for the theme of media ecology, the researcher categorized four sub-themes: (a) speed and efficiency, (b) distraction, and (c) collaboration and creativity, and (d) higher ceiling, lower floor.

Speed and Efficiency. Digital tools are embedded with priorities for activity. All of the participants remarked at some point about how their daily preparation for class has been altered through the introduction of the 1:1 digital iPad program. They all mentioned how they used to begin their days in a long line at the copy machine before the advent of digital technology. As Dylan explains:

> In my first couple years, I felt like I made photocopies every single day. Everybody got a worksheet every single day that had the aim and do now on it. So creating, a lot of times, I don't even create worksheets anymore, I don't have to make the photocopies. So that's a time saver. I also used to print out every week, the homework sheet for the entire week and give out that every day. So I feel like in a lot of ways, some planning things have, the amount of time I spend doing them has lessened because I don't need to do that anymore. Because everything's there, I put it on the calendar, and it pops up for them. So that is helpful.

She continued to explain how in the past that led to her creating uniform material for each class each day, while now, with the ease of distribution, she’s able to modify course materials quickly and easily for students in different classes. Further, with students

having access to the internet all the time, teachers can create materials that students can easily adapt for their own purposes. This would previously have been impossible. As Dylan explained, “For me to do that, there just isn't enough time. Whereas with an iPad, if they can create some things there are more opportunities to learn.”

Mavis expressed a similar appreciation for no longer having to spend time at the photocopier: “I mean the biggest shift is just I remember just having to wait on a lot of lines that wrap around the office making photocopies. So just knowing that that was kind of crossed My to-do list was a good thing…” She, too, didn’t stop at the practical planning benefits, explaining that the technology allowed her to be more spontaneous in the classroom, adjusting to what unfolds in a given class:

> I feel planning is a bit easier in my head. I don't get as caught up in it. Yep. Planning. It alleviates the stress of making photocopies, but then also, I guess it's like with my thoughts on even creativity that's something even with just supplies I can say it's them. All right I want you to. We're all talking about certain metaphors in Macbeth or something. I get a difference in one little piece and I'm like, sketch it out right now and then they just sit there and they sketch something out beautifully and I can post it up for everyone to see. So I think it has allowed me to be a bit more creative on the fly.

Other classroom routines can also be completed more efficiently. For example, Garth noted that most administrative tasks are completed more quickly: “It's made administrative tasks much easier. Like taking attendance is quicker and grading is quicker and offering comments on papers. That's quicker.” Levon and Emmylou shared similar opinions. All of the teachers use the same Learning Management System, overseen by the

district. Effectively, everything has been digitized. In the English classroom, this means that teachers are primarily collecting written assignments and grading them online. Levon said, "I grade all essays now on a Google Doc, because I use Google, we use Google so much, it's easy for me to grade everything as it comes to me through Google, the assignments are disseminated to them through Google Classroom, right. Their grades are posted by way of Google Classroom." Similarly, Emmylou shared:

> I like the fact that I can view essays very quickly without having kids come up wasting that kind of time. I can go through things kind of quickly and make comments and provide feedback. I love the rubric options on Google Classroom. I've been really getting into using the rubric there where the kids can just see everything marked off. And, you know, just like not having to waste time like making photocopies and things like that, constantly having a PDF of a text in case someone forgets a book. Or being able to translate a PDF of a text very easily, as opposed to trying to get a book in another language and photocopy it, take pictures and translate it.

Teachers reflected that with the automation or near-automation of certain tedious tasks, they have been freed up to focus on more meaningful learning activities. Yvonne pointed out that citation generators and access to websites that easily detail how to create a works cited page has allowed her to offer more in-class time for students to complete research assignments. She explained it in this way: "In the old days, I remember doing lessons on just the work cited page, I guess, in that way I'm able to move past those tedious tasks and do more worthwhile things." Overall, she remarked that the efficiency of tasks has led to a quicker pace of learning:

> I just love that efficiency about it. I feel like I get a lot more done. And as a teacher, I'm always looking at the clock. So anything that helps move that wheel smoothly, I think is great. I feel like the pace is quicker because of that and we move on to bigger issues. I also feel like we move more confidently. Where okay, we look that up, we're pretty secure that that's the accurate information and our focus goes more towards the bigger goal. Instead of the little things, we might have lost time on before.

While administrative tasks are completed more quickly and previously tedious aspects of assignments have been made less time consuming, four of the eight teachers also balanced their positive comments with notes of concern. Joni noted that she does feel pressure to always have a back-up plan, because sometimes the internet isn't working or the digital device isn't behaving in the way she expected it to. Garth noted the effect of students having digital devices has had on him and his classes:

> You know, this isn't necessarily just the iPads to it's like, in our school, the kids have their phones and like they're not really supposed to have the phones out, but it's not something that's like, necessarily enforced. And it's certainly not enforced, like class to class. So like you don't it's tough to be the teacher who is a stickler about keeping the phones away. But there's a separation there. There's a sense that, even if you've built an or delivered the most captivating lesson, you feel like you're always in competition with some other pull for their attention. Which is a challenge. Yeah, they're just they're always it feels like a portion of your students are always somewhere else as you're teaching. And that part can be really tough,

> especially when you get into, you know, group stuff, and it's really important that they're present. So that can be a challenge.

Dylan added another note of caution, noting that with any change, we should evaluate the full balance of its value: “Just because something's easier for me to create doesn't mean that students are learning more from it.”

Distraction. The teachers uniformly recognized that the introduction of digital devices into the classroom presented challenges to keeping students’ attention throughout the class. The benefit of accessing the internet with the complete span of information and entertainment is that it is a powerful pull on students’ attention. Teachers once had to contend with distractions that were limited to the physical space of the classroom–maybe the occasional hallway passerby–but now teachers are in competition with the algorithm and Snapchat. Rick noted that putting some restrictions on the devices could yield positive results:

> I think it would be beneficial to have certain things turned off on student devices that offer some distractions to them, from time to time. You know, competing against video games, and social media, things of that nature, is super challenging. And, you know, I'm a firm believer that student engagement can conquer that. But even if you are the most outstanding teacher, and you're delivering content that has kids fully engaged, 100% of the time, those distractions do exist. They're real. And so I think that if we could modify those types of things, it might be beneficial.

Joni reflected on the temptation, articulating how even taking measures to keep students engaged can be ineffective:

> And now with your iPad, even if your kids have them laying down, they might take a trip over to YouTube, or, you know, they might look up an answer that you didn't want them to, which I'm ok with, but I think for a lot of people, it's really hard to let go of that control.

She accepts that students are going to be disengaged at times. She looks at it as a feature of the digital classroom–something that teachers can either lament or accept but not change. Levon seems conflicted, too–marveling at what the devices enable while worrying about the potential issues:

> I think in terms of student engagement, I think the access to the information is brilliant. And you have the right curation of materials by the teacher, it can be white hot and exciting and interesting. That said, though, I think that the hurdle of distraction is…it's too much of an obstacle, I think, and, again, I'm trying to tease out this thing from what is a societal issue. You have children who are reared on checking the internet every 30 seconds. And so, I think that the distractions that the iPad provides, really diminishes the effectiveness of the access to information. Now, of course you can install apps and be like a watchdog security team and make sure you lock their device, but that's not how I operate. Is that how most teachers operate? I don't think so. So how does it affect our experience? It certainly makes things potentially really cool, really interesting. It could have been potentially engaging. But I do think that I think it's really difficult to get past the ugly doors that are open for them, as they sit in a 43-minute class.

Garth similarly appraised the efficacy of monitoring student iPads during class:

> If you want to run a tight ship, if you have a classroom where kids drop their phones off in the little phone sleeve, before they come in, if you're like that teacher who and I don't really know anybody who is like that you need support for when the kids are, are abusing technology, you need to say Look, you're on YouTube, you're watching NBA highlights. And these are the consequences. And it has to be like a culture of the iPad is only for this and not for that. And if you can just imagine how difficult that would be to have administration policing. I mean it's a cultural thing.

Dylan was a bit more sanguine about the threat of distraction, noting that some students have realized that wandering off task may lead to discipline:

> I think it's still an issue, if a student is going on YouTube or doing homework for other classes, playing games, or whatever. Some of them have figured out how to have text messages go to their iPads and things. So it's the same type of, I think even now, the same type of distractions that existed at the beginning, I think some of them are, are over that at this point, or over the novelty of that, like, why bother? Because I'm just going to get caught. But you know, for some of them, that's still an issue.

But Mavis intensified the claim. Not only, in her estimation, are students distracted, but they are pacified by the devices. And not only are teachers resigned to the listless student presence that can be brought on by the devices, but they may be pleased to be rid of behavioral concerns:

> I see classes where kids are completely just there, doing their own thing, you know, where they're on YouTube, they're mostly on YouTube, or I see them

> playing games. It's mostly they're on YouTube, they're watching videos or they're on their phones with TikTok. I think what I'm seeing is teachers are becoming a bit more complacent because before, those kids would figure out a way to get out of the class, right? Because they don't want to be there. And now they're more subdued. By playing their games or watching their videos they're not a behavioral issue anymore. You know my best friend is a school counselor here. If I'm in her office and a kid comes in and she's like 'Well, what do you have right now? Can you miss that class right now?' The students say things like, 'Yeah we're just watching something in class, you know.' I feel like ever since we tried to do the hybrid teaching during the pandemic, that they have lost that sense of necessity to be in class to learn something from their teacher. I think that's a shift that's occurring.

The presence of digital devices in secondary ELA classrooms presents ongoing challenges for teachers who aim to engage students. Under the right conditions, students' access to digital devices can lead to valuable learning outcomes, but the distractions presented by social media, games, and online videos present challenges. Managing student attention in the digital classroom requires vigilance and a culture that emphasizes the purposeful use of technology for education.

Collaboration and Creativity. All eight of the teachers discussed how the 1:1 device program has made it easier to promote collaboration and creativity in the classroom. The devices allow students to share material with each other in small groups and comment on each other's work during class. Rick noted that students and teachers have "really hit a stride in that area…It's almost automatic, now that kids create shared

documents, to execute different things, creating one thing together to share with everyone." In short, the devices have allowed students to make their learning visible, opening opportunities for critical evaluation and metathinking. These are opportunities for academic community building. Garth said:

> Everything's online. We use Google Classroom. We use Google Docs. So it has definitely opened up opportunities for real time collaboration. That to me is a real benefit–that students can see each other's ideas. They can see other contributions to the conversation in the moment, which then necessitates that they have time to kind of process that stuff and use it.

Joni noted that not only do the teachers enjoy the opportunities for collaboration but that students are more engaged during those moments of real-time sharing:

> The kids like it, something fun about or even if I throw everybody on the same Doc. They think it's adorable that they're all doing something online together, I guess just something new and different. But they like it.

She also pointed out how those moments of digital sharing, encourages those who are typically reserved to contribute to class discourse: "Some kids are shy. And some kids, especially now, are feeling more anxious about everything. It lets the kids talk to each other without having to talk to each other. It opens the door for more voices." She returned also to the theme of efficiency: "When you're doing stuff aloud, like there's a time factor. And in that same amount of time, you can squeeze thirty answers out, right onto the board." Finally, in Joni's estimation, being able to share in this way moves toward instructional equity: "For the ELL kids, they're not always comfortable speaking

out loud, yet. So when you have it online, they can take their time, they can compose what they want to say and feel good about it–feel confident about it."

Similarly, group work is facilitated more easily. All eight of the teachers reported that the 1:1 device program made it easier for students to share documents, slides presentations, and images. Rick said that for students, "providing feedback for one another, with the commenting features on Google Docs has really become second nature." Yvonne echoed his point:

> The tasks that the technology allows us to do well… yeah, it's the collaboration in real time, seeing each other's responses, asking students to write something and then the kids being able to respond to what their classmates wrote. In those moments, I mean, that's pretty cool. We're able to draw material from all over the place.

Students can support each other throughout the writing and creation process in ways that were not previously possible. Four of the teachers also commented on the professional quality of what the students can create. Levon gave the clearest articulation of this point:

> When I was a kid, it was like I had my dad's camcorder on my shoulder and we're recording these silly videos. Now the kids are slicing, doing their cuts, their quick edits, setting it to music. It's really cool. It's like one of those moments like, oh, man, it's amazing what these kids can do. And I use Canva with my students. The stuff that they made is just unbelievable. We're doing *Animal Farm* and talking about propaganda and stuff. And so in one of my, in my 10th grade classes, we did campaign posters, and a 30-second TV spot, and we looked at all the different techniques, you know...And five years ago, that lesson is chart paper, right there

> drawing with markers. Maybe a kid, I don't know, gets a magazine and cuts something out, but that's it.

Given the capabilities of the devices, teachers have shifted their instruction to include more opportunities for students to work together, to evaluate each other's learning, and to creatively represent their understanding of course material.

Higher Ceiling, Lower Floor. While all eight of the participants reported exciting uses of the iPad to create material, share ideas, and challenge students, they also noted the difficulty in creating lessons that always met the requisite bar of engagement when students have their iPads in front of them all the time. The teachers framed concerns as their being pitted against the devices, both vying for student attention. Rick, who generally felt very positive about the use of iPads, thought that limiting some of the device's capabilities would lead to better learning outcomes. Mavis noted that it has challenged her to plan more creative lessons, but that it can be a difficult proposition:

> It made me have to consider. How am I going to be more entertaining than this device in front of them? How am I going to create? How am I going to create projects? And lessons that completely don't rely on technology, but also just use it to enhance, like, I never want to use it. Just feel like, Oh, I have it. So let me just use it. The only way I'm going to use tech is if it enhances my lessons. However it's changed me because I'm like, if I don't bring it every single day then there's an easy way for them to not pay attention to me.

Furthermore, three of the teachers reported on the frustration of having to teach students how to use the devices in their classes. It seems as if there's little continuity in how

students are expected to use the iPads in different classes and throughout the different levels of school. As Joni said:

> Maybe because the way it was introduced to us, we were all allowed to attach ourselves to what we liked. And we're kind of all over the place. And I think it could be better if we all kind of started to merge. I think so. Because then you could get even, you know, more nuanced and layered with whatever you're doing, because it doesn't feel like every teacher is just picking it up and starting, we know where the last one left off. So I think that might help.

The cycles of technological challenge seem to be accelerating. The purpose of this study was to explore how the 1:1 device program has influenced secondary ELA teachers' perceptions of teaching and learning, but as the researcher conducted interviews, a new technology was emerging: generative-AI in the form of Large Language Models (LLMs) like ChatGPT and Google's Bard. Emmylou reflected:

> A lot of the teachers and people I'm talking to said, "Well that's it, we're going back to pen and paper." They said, ok, everything that we do is going to be them doing it in class in front of us. And then I also hear the other side which is people being like, well then we have to just we have to just give them something that they actually really want to work on and complete and, you know, make it so they don't want to go to AI, but I'm like, that's always going to be tough–you know–that's very beautiful to consider that, but man that's tough.

If teachers could create lessons every day that drew the students into authentic engagement, that would be a wonderful deterrent to the pulls of technological distraction, but it may not always be possible. The ceiling is higher, but the floor is lower.

Students' Sympathetic Relationships with their Devices

The second theme explores how students have shifted their own learning behavior in the secondary ELA classroom. The theme contains two sub-themes: (a) How students process information digitally and (b) an examination of the traditional learning experiences that have been crowded out since the shift to a digital learning environment.

Processing Information Digitally. Even the title of this sub-theme reflects the pervasiveness of technology and computing in society, which of course has spilled into our schools. One of our modern metaphors for thinking and learning is computer processing. But a student's mind is altogether different from a computer in how it takes in, assimilates, and uses information. All eight of the teachers in the study noted that the way students behave in their classes has changed since the introduction of the 1:1 iPad program. Dylan reflected on the difference between her students' experience and her own experiences as a high school student. Speaking about the district's purported digital learning goal, she wondered if the students were capable of internalizing information in the digital age:

> I don't know if they're necessarily becoming more socially conscious, because it's almost that because everything is at their fingertips, you don't have to be conscious of it, because you're just bombarded with it, you don't have to think about it, you don't have to digest it, it's just there. And so I don't know if things have the same impact and that they're becoming conscious of what's going on in the world, necessarily, like it was, I think my husband and I were talking recently about 9/11, and how we were in, like eighth and ninth grade at the time. When it happened, it was all that we saw on television for a while, but we weren't then on

our phones, looking for the next TikTok or whatever. Obviously, that wasn't a possibility.

Garth had similar concerns about how digital technology in the classroom has shaped the way students understand their own learning activity:

> I really do think that kids think they can multitask, and I don't know that they can. And the result is they're just not as engaged, I think, even when they feel like they're engaged. So it's kind of like this double issue of like, disengagement, but they still feel like they're engaged. And that to me is troubling.

Emmylou worries about students having instant access to information. She notes that it leads to them choosing the most readily available response, rather than sitting with boredom or unknowing:

> I think our kids lack grit, because they want everything immediately. So, I think critical thinking is hard because they don't wait. They don't stop and wait. They just Google it, Google it, Google it, Google it. They Don't sit in the discomfort. And I feel like in the real world, there are times where we have to sit in that and wait it out and think about something and try different things and see how it goes. But I think they have so much so readily available that they want instant gratification all the time.

Joni spoke to how her students' enthusiasm for using technology comes in waves:

> Sometimes, they're very excited, especially if we show something new. They're excited about doing it or trying it. And then sometimes I can just, I noticed that it's kind of like, everyone's either feeling a little bit more bored or a little bit more like stuck in a rut. And then I just get out like markers and paper, and we do

> something old school instead, I kind of let the kids call the shots. If they want to do something on paper. I can see they'll start moving slower. Sometimes, you know, their heads are down or resting, and I'm like, “Are you all okay?” And they're just like, “We're just tired.” And I'm like, “Do you need to take a break from the iPad?” And then, you know, they're very honest with me, and will tell me that they've been doing a lot or, you know, I noticed other subjects do a ton of like that online practice quizzing and stuff. So I feel like there's a lot of reading that they're doing online. And I know sometimes my eyes get tired and sometimes I get a headache. So a break sometimes is beautiful.

Teachers of previous generations didn’t have to consider screen fatigue in their planning. Similarly, they didn’t have to consider the medium by which to present reading material to students. In discussing some of the concerns she had about using the iPad for everything in class, she notes that “they’re more engaged with physical texts. I hear richer conversations, when it is on paper in front of them, because I think they are just able to concentrate. Maybe it feels more like a real text to them.” As she continued to reflect on the potential reasons for that observation, she added,

> Maybe you're just so bombarded with text and other stuff online, that it all just kind of like plays across your brain. And here it was, let's pause. Let's look at it right in front of us. I don't know. But you bet, probably a little bit of both of those. And you know, again, like they're doing everything on the computer all day. So if I give them paper and markers, it's probably a little bit fun as well.

Rick felt similarly, suggesting that he too felt students were more engaged while reading physical texts:

> I don't like reading as much when it's online, which is ironic, because that's how I read–on a Kindle. But for the kids, I don't like it as much. I found that I printed out the last book I read with my class, little by little, and we were highlighting, and, you know, using good old fashioned markers and pens, and I felt like they were more engaged. So I'm not really sold on reading electronically for kids yet.

Mavis noted that the constant access to information changed the way students spent their time in class. The relationship between teachers and students has shifted. The advent of the internet and 1:1 computing has democratized information. Teachers are no longer the sole portal to information for students, which is a positive shift, but there are secondary effects, as well. She senses that there's been less urgency to get everything done during class time:

> I think the fact that they can look things up, that we're not the ones who hold all the knowledge anymore is a big change. Nor should we but like they're like, what? Like why is this necessary? I'll get it later. I'll do it later. That's another big thing. I'll do it later. I'll get it later. The notes are there. I can Google a professor giving a speech on this, giving the lecture notes from an Ivy League school, you know, like they're I don't think that they see that necessity anymore of that. If the class is not engaging in a different way, if you're playing school with iPads, nothing's getting done.

In classrooms that preceded the introduction of 1:1 programs, students and teachers had established norms for expectation and behavior–a sort of classroom contract that technology has upended. Mavis's view is a bit grim: "I think that if the kids have figured out that they don't want to play, they don't want to play school. And I think a lot

of teachers don't know how to do anything but play school. And that gives kids the sense of like, “Why are we doing this?”

Levon expressed a similar position:

> I think a lot of the work, they just have figured out ways to share it. I mean, it's so hard for us to police, what is their work? What is shared with other kids? Right? I think that it creates a malaise where they can easily manipulate their techniques, their knowledge of the internet or technology to produce really bland work. It's not that the kids are like plagiarizing everything or they're not all yet throwing everything into ChatGPT, but it's just like there's not a lot of deeper thought or inquisitiveness or quest for understanding when they know that they can get enough done to satisfy the teacher’s request. And it happens so quickly, and I think technology makes that really easy.

The teachers are expressing concern about the current educational milieu. With ready access to the world’s information, incentivizing authentic acts of learning is increasingly challenging. These questions connect to the third theme, which details how teachers have come to understand their purpose as secondary ELA educators in a world that is being changed increasingly quickly by technology.

What is Lost? The participants in this study were all veteran teachers of at least ten years' experience, so they brought to the study an understanding of education in a pre-internet, pre-digital technology age. Of course, they not only taught during a period before the 1:1 iPad program, but they were also educated themselves in a period before the introduction of this technology. As the first generation of teachers to educate students in a classroom with a 1:1 computing program, they have an important perspective to lend

on what has changed in the processes of teaching and learning, including elements of curriculum and instruction that have been crowded out by the advent of digital hardware and 21st-century learning imperatives.

Garth spoke to what he perceived as the chasm between the promise of technology, as outlined in the district digital learning mission statement, and what he sees in his own classroom and those of his colleagues. The mission statement suggests that the 1:1 iPad program would make students "feel valued and empowered to contribute to a global community," and would also develop 21st century skills like creativity, collaboration, critical thinking, and communication. Garth reflected on that promise:

> Is it the iPad that's going to let kids feel valued and empowered to contribute to a global community? I don't think so. I think it's, you know, the teacher. It's the other kids in the room. I mean, connected to a global community, maybe if you're doing a…I don't know, some kind of writing project where you're connecting with kids from school in another part of the world. Sure. I could see that but like, how much is that happening? I don't, I don't really see that happen. I see a lot of kids doing mostly the same traditional tasks, activities. And they're just doing them digitally. So collaboration definitely. Actually, I think maybe creativity is diminished with the iPad like because it's so easy to find an answer right away. Like they're not. They don't have a lot of time to just like, think, you know, and like, kind of wander through their thoughts and be a little bit bored. Struggle. Yeah, they don't struggle that that's a piece of it, too, it's like, they don't just sit there and puzzle over an idea or like let their mind wander over the idea. It's kind of always has to be like, Alright, here's the answer.

Emmylou, like several of the teachers worried about authenticating assignments, not for the sake of entering a number into the gradebook, but for being able to measure student progress:

> I prefer my students do a timed writing piece, using paper, because I really want to see what they're actually capable of doing. I like to see what they're capable of doing without autocorrect, without spellcheck without, you know, I think their grammar has definitely suffered, I think their handwriting has, and the fact the kids don't even know how to like sign a paper. I had a student the other day try to write a statement for me. Something as simple as that, you know, because they don't have to do it anymore. So, I think that some of those skills are lost, for sure. Not having the option of Grammarly to upgrade the vocabulary on their paper, things like that, having to actually study the format of something because format matters. I think all those things are complicated by technology.

Yvonne also detailed some of the traditional activities that were no longer used in the modern classroom, including handwriting, memorization, and the ability to read a long text. She wondered:

> The skills that I grew up learning, I feel are important. I think they're still important. I mean we could debate, are they going to be important in the future? But how can we maintain those skills while also having a digital world, do we have to sacrifice those skills?

She reflected that those conversations were not happening outside of informal channels between teachers. Though she is excited about the use of technology in the classroom, she wonders if maybe some of these traditional practices deserve as much attention today

as they once did. Beyond traditional tasks, three of the teachers articulated concern about students no longer having the responsibility to keep track of assignments or deadlines. Those tasks have been automated, and while Emmylou pointed to the benefit of having this capability for students who struggle with executive functioning skills, Levon, Garth, and Mavis expressed worry that for the rest of the student population, there may be a net loss in development. Levon articulated the point in this way:

> I keep thinking, yeah, it gives them the opportunity to be more organized, but it gives them the opportunity to not have to think about it, because I told you, it was due at 2:00 p.m. on Thursday, right, and it's going to pop up into your feed. And so the access to information is great, obviously, right, but it's sort of relieved students of the responsibility to think about these things.

Teachers expressed concern about the changes wrought by the introduction of digital technology. While they acknowledged that there are powerful learning opportunities available to their students that were previously impossible, they expressed some concern that traditional skills may be lost in the push to use digital technology. At the very least, their responses indicate a desire for more evaluation and discussion around the changes brought by the introduction of digital technology to the secondary ELA classroom.

Questioning the Purpose of Education

Practice and Purpose During the Pandemic. This narrative study was framed temporally for the participants. During the first interview, the researcher asked participants to reflect on teaching and learning in the time before and at the start of the district's 1:1 digital learning program. During the second interview, the discussion hinged

on the experience of remote and hybrid learning during the spring of 2020 and the entirety of the 2020-2021 school year. This inflection point changed the way the participants viewed their role as educators, intensified their understanding of what is important in the classroom, and provided an unfortunate but natural experiment in relying entirely on digital technology for teaching and learning. Rick noted the difficulty of teaching during the remote period, when the district didn't have set classes:

> The pandemic, there was very little instruction, assignments being posted on one of the platforms, limited interaction with kids, limited opportunities for feedback, limited opportunities for questions, and kids were basically on their own. And, you know, the disconnect was out of this world, and I never thought I would see something like that in my lifetime.

Only two years removed from the experience of teaching during the pandemic, teacher participants were still processing the experience. Rick, who was attending virtual graduate school classes during the pandemic reflected on digital technology's ability to offer at least some continuity of experience during the pandemic, even if the experience wasn't ideal:

> During the year and a half, I was a student myself, and I found it to be purposeful, and helpful to have technology available and to be learning from a distance. Did I jump for joy with it? No. But it certainly offered flexibility in how I learned and I think the people who I was working with did a very nice job of being creative to keep me learning and engaged. But I'm a people person, I'd rather sit down with the person and have a conversation face to face, rather than speaking through a screen.

All eight of the teachers detailed the incredible difficulties of teaching during the remote period. Garth explained what typical assignments looked like during that period: “I did a lot with Pear Deck and Mentimeter. I mean, just these tools where you can kind of get responses from the kids. It wasn’t great, but it was something.” Levon had similar sentiments:

> Remote instruction was difficult. You know, it was like, bare minimum, you know, I think I was waking up every day, logging on talking to the kids, and then essentially not getting much in return. But I think it was like, it was bare minimum. It was just kind of a free for all. I mean, a lot of kids were going through some real shit. We all were going through some real terrible shit. It wasn't great.

Yvonne articulated the difficulties of that period by pointing to the challenges of building relationships with students, but she also noted how she and her colleagues bonded together in common cause:

> I think we all helped each other during that hard time. It was hard, because students, I think, had a different mindset. Like many of them wouldn't turn on the cameras. It was sad to me that I went a whole year and didn’t know what some students looked like. I never saw their faces and when they finally came in, I think then we had a mask on for a year. I kind of knew what they looked like and I know it's such a small thing, just wanting to know what someone’s smile looks like. Teachers want to connect and to me it was like one of the biggest losses. Like I remember after covid someone saying, “What were you happy about?” I was just happy to see their smiles again.

Joni recalled how that period wasn't just a period of isolation, but it was a time of social upheaval:

> In addition to where we were in the pandemic, and then you had George Floyd murdered, and then [our principal] actually texted us all and told us let the kids know how you feel and I think with that, a lot of us just stopped putting up that, like, I am your teacher kind of fence that was there and we're all just more relaxed. And you know who we are as people, you know, but like, technology lets you do that in a lot of ways, because it's not just that one size fits all.

Technology, she notes, allowed not only for connection but for personalization. She was then, as she is now, able to curate materials in a way that meets the needs of her students–during remote instruction, as well as in-person instruction.

Dylan spoke to the challenge of teaching students without being able to build relationships:

> I think, with hybrid, I think everyone tried to make things more interactive and more cooperative. But the problem was that it was like a lack of personal connection, because some kids were home, and you never saw them. You never heard them speak. And so that loss of connection, I think, was created, like almost a loss of learning, because you couldn't see them, you couldn't see them there. You. I mean, I had kids that I have kids this year as seniors that I had when they were in 10th grade. And some of them were remote all year. So I saw them as seniors and like, Oh, my God, this is what you look like, like, nice to meet you. So I think that had a big effect on just instruction in general.

Mavis pointed to the long-lasting effects of that period. It was a time of little educational expectation, because schools were so concerned about what children were experiencing at home. She and the other teachers worry about the road back:

> There was no real expectation during remote and hybrid. It was just really hard because like, there was no real expectation that we would do a whole lot. During remote, we basically just had to put up an assignment and you know, I had office hours. I was always available. You know, if kids needed anything, how many of them took me up on that is a different story, you know, not many. It just felt so isolating to even call it instruction is silly. It really wasn't, it wasn't at all. And then during hybrid, I had like two kids in a class, sometimes more with the others logged on, but maybe not really being there. Those years were just really hard and even now, a couple of years out from that whole time. It's still like we're still reestablishing norms, like trying to figure out where kids are and how we can help them and we're just…we're going to be sitting with this for a long time.

Surveying her school, Joni noted that after all of the challenges during remote and hybrid instruction, many of her colleagues are interested in returning to normal. She feels like there may be an understandable but still unreasonable lack of regard for what the students need in the period of post-pandemic recovery:

> Remote instruction was hard. It was really hard here, because our kids were extremely affected. You know, I would be getting text messages. And they're telling me that their grandmother just passed, and now their mom is sick, and they're scared, and what can I do? And so, what took precedence was their well-being, you know, there was a lot more talking to the kids to guidance. We're all

> talking at the same time to the child, just making sure that they were okay. And it should always be their well-being that comes first, their state of mind comes first. And you know, I think people really forgot that until that time period. Yeah, nobody's going to learn if they're not okay. I don't think everyone has kept that focus, though. I really don't, and I think it's natural, you know, as a person, you want to be feeling normal. So you want to go back to what we had always done. I get it, you know, but I think a lot of people also don't want to do a disservice to the kids and not get the material in. I get it. But I think, again, it might have to do with the subject, you know, English is a little bit more flexible. You know, we can check in easier, I guess. But I think a lot of teachers wanted to get back to that normal type of routine.

The impulse to return to what's familiar is understandable, but all of the participants in the study recognized that instruction in a post-pandemic world looks necessarily different than it did previously. This recognition allowed the researcher to investigate their sense of what was important in the educational landscape. In effect, the pandemic had given them fresh eyes. The chain of professional experience had been broken during the pandemic, so the teachers were able to reflect on what they viewed as necessary.

ELA Skills and Competencies for Students. The researcher asked teachers to consider the purpose of an education that included English language arts, particularly in light of a changing world suffused with digital technology. All eight of the participants spoke to the noble ends of education, particularly an education in the English language arts. Their answers touched on opportunities for personal enrichment and the strengthening of society, with a focus on competencies like critical thinking and empathy.

Joni expressed the goal of developing students "who are going to contribute to society, who want to give something to build a better community…people that can understand each other, people that can work together, people that want to know about each other." People like that, she says, contribute to a virtuous cycle in which each successive generation makes the world a little bit better–more just, freer.

Garth discussed education as an experience of liberation, as an opportunity for students to see a world of possibilities outside of themselves and outside of the world they have been born into. As he explained it, "Education allows students to see that there are opportunities out there, that they're not bound by where they are in this current moment, that they can grow and flourish and become really more than what they ever expected of themselves." He connected the idea of individual flourishing to the flourishing of society:

> I think it also gets students to think out, beyond themselves, right? They're able to experience other things without going to other places or even meeting other people necessarily but just by reading a book and talking about it. That's, that's important. For society, I guess what it does is ideally, it builds the citizenry and gets people to be thoughtful. It gets them to be critical thinkers, it gets them to be able to reason. And public school is a democratic institution, so it trains them for participation in public life.

Levon explained that an education in the humanities gives students an "understanding of how to interact and cooperate in a society…how to overcome challenges, how to problem solve. It encourages you to become a better person, a more well-rounded person, a person who's able to coexist with others and improve society."

Several skills came up repeatedly in the interviews. The teachers all want their students to become effective communicators, incisive questioners, and critical thinkers. Garth explained it in this way:

> More than anything, I really want them to be confident that they can approach new information and offer a perspective on you know, something that's like, I don't want to necessarily say unique or individual but like, I want them to be confident that they can add to the conversation and I want them to like really be confident that they have enough knowledge of like how things work, and what's out there and that they can use that to form an opinion to make to make a new idea.

Joni explained:

> I've always tried to give kids the skill and the desire to investigate. I love to think as educators that we're setting these kids up to grow up, to dive into things headfirst, knowing how to figure things out, teaching them what their passion is, or helping them find that so that they too can when they grow up, do something that they love, and just overall, give them a love of learning and knowledge and literature, because that's enjoyable. And I think that's important that they know that.

Five of the eight teachers also noted that the role of ELA teacher has expanded to include additional goals. Not only do they want their students to be able to accomplish traditional goals in the discipline, but they also find it necessary to encourage a new set of competencies. For example, Mavis said:

> In addition to those foundational skills, like reading, writing, speaking, I feel like it's almost our responsibility to also open up the world to them. Allow them to hear as many different voices as possible, expose them to as much as possible so that when they are out in the world, their perspective isn't narrow. You know, as time has gone on, it's become more. I think the ELA classroom is a place where the sky's the limit, you know, let kids go, let kids explore and we kind of work with the children more than we ever have before.

All eight of the teachers expressed an idealistic vision of what education provides. In the context of this study, the researcher asked them to think about how technology fits into that vision, as an added dimension to the landscape of education.

Uncertainty about the Future. Seven of the eight participants suggested that it was important to use digital technology to teach students because they would be graduating into a world reliant on digital technology. Whether they were to pursue a post-secondary education or enter the workforce, their personal, academic, and professional lives would be mediated to at least some extent by digital technology. Emmylou put it this way:

> I think no matter what they go into, they're going to need technology, no matter what it is. As I said, my husband's in construction, and he's there with digital copies of blueprints, communicating back and forth using technology. It’s important to move with the times. There's not one job that you're going to go into, that you're not using technology of some kind. So I think if we were to completely remove it, we would just be like, crippling our students. No matter what they do, they’re going to be using technology in the future.

Rick also spoke to the importance of students familiarizing themselves with a digital work environment through their learning environment, but he added that beyond the necessity of being comfortable with digital technology, technology can be additive to education:

> It's in everything we do. I have elderly parents, who, you know, we often talk about equity and access to education. Some of the older folks are left outside, on some technology, like, for example, cashing a check or setting up a bank account, things of that nature that are absolutely essential, and our society and what we do on a day-to-day basis, everything we do with the kids helps to foster that. They are so savvy, with using tools that they can figure it out very easily. And I've experienced that time and time and time and time, again, with different applications that I've been introduced and tried out in the class. I was a novice, after trying to figure it out on my own, using YouTube and going on the internet to find ideas and suggestions for how I can use this in my class. And within two periods, some of my students are well beyond what I took two weeks to figure out. So it continuously enhances their skills, and they really learn and grow with it at a very quick pace.

Levon noted that in school, students can learn to be better online citizens. To him, teaching using digital tools allows students to learn to be civil with one another online. To put it plainly, he said, “I want them to just be decent citizens of an online world.”

The only teacher who suggested an alternative perspective was Garth. Though he recognizes the ubiquitous presence of technology in his and his students’ lives, he wondered if it was really necessary to educate students with technology:

> I don't know how important it is to use technology to educate our students. I think technology becomes like a really big umbrella term. You could lump artificial intelligence under the umbrella of technology. But like what the kids are doing with their iPads doesn't necessarily look like that thing. And if that's the case…if the argument that we're making is kids are getting into a world where they're going to need to use this technology, but we haven't defined our terms really well. I guess my point is that thinking about technology as this single thing complicates the conversation. So yeah, I'm not, I'm not sure about that.

Garth was the only participant to question the entire initiative, but all eight of the participants signaled their uncertainty about the goals of education in a digital age, especially after the pandemic.

The researcher asked the teachers to think about the future of education, particularly teaching and learning in a secondary ELA classroom. All eight of the participants sounded various notes of uncertainty about what the future of education would look like. When they entered the field, education was mostly similar in style and form to what they had experienced as students. The same can be said for most previous generations of educators. Today, however, the answer to the question of what education will look like in the future seems more reasonably uncertain than it has in the past–in terms of both what students will need to thrive in the future, and what teachers will need to do to offer that to them.

Garth noted that although he uses technology every day, the level of technical sophistication he hears about in the news feels like something else:

> Technology is everywhere, right? It's if you have your phone, it's how you consume entertainment and news and you know how you book travel and order pizza? I would say I'm somewhat familiar with it, but I also feel like the stuff that's going on that you hear about now with things like coding and artificial intelligence and stuff like that, is so far beyond what I understand as someone who uses technology. That part is tough. I feel like a lot of current technology has passed me by, and I don't have a lot of optimism that I'll really pick it up. I don't really have an interest either. But I wonder how essential it's going to be, you know, through the rest of my career and life, to be able to do that stuff and just kind of worry about that divide a little bit.

Four of the teachers echoed that concern with Mavis giving the clearest articulation of the point. Teachers are concerned about what the future will bring. It is a profession that has traditionally offered a lot of stability, but now it is succumbing to the cycles of change that have already hit other sectors of society. As she said:

> I think it scares us as well, because we're like, what are we preparing them for? And What is going to be necessary? Do you know what skills they are really going to need? Then also fighting against the fact of the skills that we think that they should have no matter what the world will be. Right. I'm reading all about the different industries that are going to be impacted, the different careers that are going to be impacted. I'm seeing like they're saying law firms. They're using AI more than anything. So do we teach them how to write or do we teach them the skill of how to construct the most effective question in an AI generator. I think that's the scariest part.

In other words, ELA teachers could previously assert with a degree of confidence that reading, writing, speaking and listening were always foundational to the process of education. But Mavis and the other teachers are beginning to feel like they need to advance their students to a different point and maybe they even need to take them down a different path. That can be unnerving, especially in the context of today's world, where their students are still recovering from the trauma of the pandemic. As Emmylou noted:

> I've been seeing it as a trend, like students becoming a bit more isolated in themselves and not being able to connect with others. And this is in society, in general. I don't think that we're able to talk to one another anymore. I don't think that we're able to consider the complexities of arguments or empathize with others. As I'm driving home from work, sometimes I feel Like, I don't know what we're doing anymore here. I'm like, what is the purpose of these meetings or planning what's going on next year? Or in classes or what? I'm thinking about the schedule. I'm like, Is this really benefiting them? Like I do question that a lot, like what are we doing? We're either stuck in this regurgitation of what I believe is important for you to know. It's either that, or it's I don't know. I sometimes don't know. Do they need nine periods a day anymore? Do they need all these different classes anymore?

Emmylou struck a general note of uncertainty, but she was also speaking about the traditional difficulty of change in education.

Levon worries about his students in this automated world:

> Do they recognize what they're interested in? Lately it's a struggle, like what do you guys care about anyway. It used to be that they recognized what they're

> interested in by what they have questions about. And then I always felt like it was my job to give them the skills to find the answers to those things. That process, I think, is essential, foundational to why we do what we do right to point and push in the right direction. Lately, though, I worry that they're just putting the questions into ChatGPT. Where does that get us?

His despondency was punctuated by a verbal throwing up of his hands: "I mean, computers will be teaching the classes then, so it won't matter." With so many questions about the future, teachers are struggling to find affirmation that what they're doing each day is right and useful. Dylan put it most succinctly, when she said, "I just think that the most difficult aspect is that we don't know what the world will be like."

The Primacy of Relationships. Although all eight of the teachers expressed uncertainty about the future of society and education, they all spoke of the importance of relationships in their classrooms. Yes, they feel uncertainty about the skills and knowledge that their students will need to thrive, but they all know that whatever a successful classroom looks like, at its foundation, it is a place of strong relationships, where students walk in each day, knowing that they are valued and loved. When the researcher asked them about why they entered the profession and how they would want to be remembered when they left the profession, all eight of the educators spoke to the importance of relationships, their want to positively influence kids, and to build fellowship within their classrooms and school communities.

In explaining his favorite classroom activity, Rick demonstrated how relationships are always at the center of instruction. While discussing characterization, Rick asks the students to consider how a friend or family member would describe them. This allows

them to consider the language choices that authors use to characterize their stories, but "it also helps them make connections, and they get to learn about one another, and I get to learn about them." He further articulated his position:

> Something that I was taught at a very, very early age in my career is that the first and most important thing that we're doing is teaching kids. It's less that we're teaching English literature or writing or analysis, or any of those skills. We're teaching kids, we're not teaching English to kids.

Joni also spoke of integrating course material with relationship-building activities:

> I always do a unit in the beginning that I just call identity, and it's just really mostly getting to know the kids and them getting to know themselves. And then as I get to know the kids better than I can be there for you know, what they might need and they can see that I'm not going to hold things against them or you know, do anything that would affect them negatively, they know that I'm okay. They know that it'll be fine.

Levon spoke of the importance of integrating his passion for writing into lessons. He marked it as a means to build positive relationships in the classroom, while students connect with one another: "When kids are blown away by other kids' stuff. Those are my favorite lessons."

Several of the other participants pointed to relationships as the primary reason that they entered the field. Garth explained, "I like being with other people. I like helping people. It's been really important to me to be able to share [my love of literature] with students. It's kind of been everything I'd hoped for." Emmylou said,

> I'm a positive person who likes to highlight things that kids do well. I celebrate kids as often as possible, and I'm more of a coach than I am a person who's delivering content on *The Great Gatsby* or any other literature that we're covering. I am a champion of student choice and voice in the learning process.

Particularly after the pandemic-related closures, the teachers are concerned about forming relationships in their classes. As Dylan said,

> Since COVID, I feel that I've tried to do more interactive things just because they were alone for so long. And so much individual work was done then. So now I'm trying to kind of make them work together to create some kind of community and cooperative experience.

Levon, who had noted the importance of classroom relationships sounded a note of caution with relevance to this study:

> You know, they're in the lunchroom, on their devices. It's like everything is sort of like sliding down. We're negating some of the things that school was really good at by having these isolated kids in their isolated worlds with technology.

Intentional Use of Digital Tools

Now several years into using digital technology in the secondary ELA classroom and having returned to full in-person instruction after the necessarily technology-centric instruction during the pandemic, all eight of the participants spoke to a renewed moment of focus on instructional planning and execution. They uniformly reported greater intentionality around their instructional decision about digital technology. Emmylou recalled the period of instruction when she piloted the digital learning program. At that time, she was given a class set of iPads; the students did not have personal devices. She

remarked that “when we just had the class set, it was a treat to use the iPads and [the students] didn’t lose focus” because the devices were only used for specific purposes. She continued, “I think with using the class set of iPads it was just nice on days when you don't want them using the iPad, they didn’t have a screen to hide behind.” Once students always had the devices on their desks it became “easier for them to get distracted sometimes if we're in a group discussion because they do have the option of the screen.” She further noted the shift that has occurred:

> For example, note taking. Then they took notes on the iPad, but now I feel like a lot of kids, they screenshot what’s on the board. There's a piece that I feel like goes missing almost. And as I liked how we were able to maybe just hand out one iPad, let's say for like a station rotation, as opposed to everyone having one, and we don't have to speak to each other.

The remedy, she said, is the teacher more intentionally and effectively incorporating digital technology into classroom practice.

Joni’s comments about physical texts are applicable here, as well. She’s taken to giving students physical texts more often because she notices that they engage more effectively with them, especially when they’re reading a longer text. She commented that when they have physical texts, she hears “richer conversations.” Similarly, Yvonne has found clarity in reminding herself that not every activity has to be mediated through the digital technology: “I just try to remember that it’s not the only tool that we have in the classroom, and that other things are still useful.” She acknowledges that access to the internet is a powerful learning tool, but sometimes it’s important to limit access, so students can generate their own writing responses.

Garth observed that one of the challenges of the digital learning program is that there's little continuity from class to class. For him, intentionality of use should also come at the building and district level:

> I just wish there were sort of clear guides on what to do as the kids are getting very different experiences year to year and class to class in terms of how the iPads are used. I think that's something to really consider. I think I would probably change it by getting teachers together more often to really talk about some sort of standard procedures because it feels like a lot of time can be wasted just on things like the kids figuring out how to do certain things.

Levon gave a response that characterizes much of what the other participants reported:

> I don't know how you go back, but I think I will make it that there are dedicated moments for technology and the rest of the time, your iPad is not a substitute for your notebook and a pen. I know that flies in the face of what the mission statement says, but I think there needs to be a governor on it or limits to what we're using it for because in the end we end up not doing enough of what needs to be done–of the curriculum, in terms of socialization. I mean, school is many things: it's for learning but it's also a social hub, and the iPad has made it a little distant.

Conclusion

This study explored secondary ELA teachers' perceptions of teaching and learning in a classroom invested with a 1:1 digital device program. The findings, presented in this section through the voices of the teachers themselves, center around four primary themes: (a) the media ecology of a 1:1 secondary ELA classroom, (b) students'

sympathetic relationship with their digital learning devices, (c) a re-examination of the purpose of the English language arts in a post-pandemic, digital world, and (d) the intentional use of digital technology. As teachers have learned to incorporate digital technology into their instructional practices, they have reminded themselves that instructional approaches begin with a focus on learning goals before considering how to use digital technology.

CHAPTER 5 DISCUSSION

This narrative study of eight secondary ELA teachers explored their perceptions of how digital technology has influenced their classrooms. The study aimed to answer three research questions. The first research question explored how ELA learning activities change when mediated through digital devices. The second research question considered the change in classroom dynamics that result from the introduction of digital devices into secondary ELA classrooms. The third research question sought to understand how secondary ELA teachers describe successful teaching and learning in a digital learning environment.

American education reform efforts traditionally point to technology as a vehicle for change (Cohen, 1987). Recent efforts to promote 21st-century learning through students' use of digital devices have continued that tradition. Mirra and Garcia (2020) find that teachers are eager to incorporate digital technologies into their instructional practice, so they can provide students with rigorous, modern learning activities. They note, however, a distance between the promises of digital technology and the practice of teaching and learning with it. This study sought to understand that distance in the context of a secondary ELA classroom. Furthermore, as Gee (2018) and Weller (2018) note, the use of digital technology can become a learning objective, supplanting the discipline-specific skills and competencies, favoring those that the technology brings to the fore of classroom activity.

As Chapter 3 discussed, this study consisted of three rounds of semi-structured interviews with each of the participants. The three interviews temporally tracked the experience of teachers as they first used digital technology in their classrooms, then as

they conducted remote and hybrid instruction during the COVID-19 pandemic, and finally as they returned to full, in-person instruction. Four themes emerged from the analysis of the data: (a) the media ecology of a 1:1 secondary ELA classroom, (b) students' sympathetic relationship with their digital learning devices, (c) a re-examination of the purpose of the English language arts in a post-pandemic, digital world, and (d) the intentional use of digital tools. In the first theme, teachers articulated a sense that the incorporation of digital technology into everyday instructional practice has shifted several features of their classrooms including the types of learning activities they use and the ways in which students focus their attention while in class. The second theme suggests that students have developed a relationship with their digital learning devices that is different from the relationship they have had with previous educational technology. The teachers in this study perceived the presence of devices to incentivize new behaviors. The third theme centers around teachers' perceptions of the purpose of education after the COVID-19 pandemic. They point to uncertainty about many aspects of the profession but insist on the importance of relationships in any classroom setting. Finally, this group of participants, who all teach in the same district, communicated a desire to be more intentional in their instructional planning with digital devices.

This chapter will discuss the implications of the findings, connect the findings to prior research, acknowledge the limitations of the study, and make recommendations for future practice and research.

Interpretation of Results

Research Question 1

The first research question in this study sought to understand how the introduction of digital technology into the classroom would lead to instructional shifts. As Postman (1986) theorizes, the selection of a medium necessarily shapes the practices conducted through that medium. Similarly, Dewey (1997) theorizes that the transmission of information is where meaning is made. In other words, learning mediated through a digital device changes its nature. Teachers confirmed this. As the findings suggest, the introduction of digital devices has influenced instructional practice. One of the common remarks was that teachers no longer spend long periods of time waiting for the copy machine, handing out physical materials, or collecting assignments, but that administrative convenience is accompanied by a deeper change in instructional practice.

With the introduction of digital devices, teachers and students are more likely to favor learning activities that involve collaboration and set as their goal the expression of creativity. With a 1:1 digital device program, teachers can send information to their students much more quickly than they could in a classroom without digital technology. This has led teachers to share more information, to offer more resources, and to adjust materials more frequently based on the needs of their students. Similarly, students more easily share material with one another. In the context of the secondary ELA classroom, that has led to more reported collaboration among students. Teachers spoke about having students complete group work more frequently, both as shared projects and as opportunities for peer feedback.

The ready access to digital resources, the ease of information sharing, and the suite of creative tools that students can now access has resulted in learning activities that were never before possible. If a teacher wants to bring his students to Shakespeare's birthplace, a virtual tour can make it possible without money, air travel, or permission slips. If a teacher wants students to continue their conversation about a text outside of class, that is now easier to facilitate through digital message boards. If a teacher wants to offer several different mentor texts for students to use as models for their own writing, they are only a Google search away. If the teacher wants students to offer a visual representation of an idea, students have a host of digital creation tools at their disposal. The ceiling of classroom teaching and learning has been raised.

There are drawbacks, however. Teachers seem frustrated by the need to teach students a new set of digital skills each year, because without a standard, school-wide set of digital learning practices, students don't always know how to organize themselves digitally, submit assignments correctly, or even take coherent notes. Furthermore, access to these tools challenges teachers to construct more creative, engaging, and productive lessons. When those lessons don't resonate with students, teachers can feel a sense of defeat around their work; they feel in competition with the device and its possibilities.

Research Question 2

The second research question sought to understand how the introduction of digital technology would influence the secondary ELA classroom environment. The findings are well situated within Dewey's (1997) theory of collateral learning. Though there are intended objectives for each learning activity, there are other behaviors that students

internalize because of the classroom activity and environment. In this study, teachers pointed out several collateral learning outcomes.

Teachers often perceive that students are processing information differently when they access it through digital means. Students seem more likely to skim and scan for information rather than read it carefully. This can lead to a lack of understanding and retention of information. Additionally, with constant access to course material (and more broadly through the internet, access to the collective span of human information), students are less inclined to internalize the information presented to them during class. They have a sense that since the course material is always just a few clicks away, attention to it at a particular moment is not terribly important. This can lead to a lack of focus and engagement in class. Teachers in this study reported a perceived increase in student procrastination and a lack of urgency around internalizing information. Students are more likely to put off assignments and to focus on diversions, such as checking social media or playing games. This can lead to missed deadlines and poor grades. Finally, students divide their attention between different applications and devices, feeling the constant pull of notifications. This can make it difficult for them to focus on any one task and can lead to diminished academic progress.

To counter the negative collateral learning effects of digital devices, the teachers in this study asserted the importance of relationships. Particularly after remote and hybrid learning kept students at a distance from their teachers and classmates, the survey participants have focused on building relationships in their classrooms. Students have seemed more inclined to retreat behind their devices, so the teachers have encouraged more in-person dialogue and less communication through digital means.

Research Question 3

The third research question explored the purpose of ELA education in a technology-rich world. Beholding the rate of change, teachers expressed uncertainty about their professional work. They wondered if what they were doing in their classes was appropriately preparing students for the professional world awaiting them. They wondered how long it would take to move past the effects of school closures and hybrid learning during the pandemic. They wondered how they would deliver instruction that feels increasingly additive–they feel there's more to do and less time to do it. These questions ultimately drove the researcher to the core conclusions of the study.

According to Cuban (2013), curriculum operates at four distinct levels, with the classroom being the most essential to implementation. The introduction of digital devices to the secondary ELA learning environment has shifted the ways in which teachers and students interact. Expectations imposed by the state and district about what ELA teachers should be teaching have increased over time, with more attention to social-emotional learning and college and career readiness. Combined with the lingering effects of the pandemic, teachers are reasonably wondering how they should spend their time with their students. Although previous reform efforts may have stalled or been dramatically changed at the classroom implementation level (Cuban, 2013), the introduction of digital devices seems to have cut through. Whereas previous shifts were tracked through observations, classroom walkthroughs, testing, and survey data, the introduction of technology is different. The devices are a portal into and out of the classroom, and that includes a connection to administration, parents, and the public. Teachers have felt compelled to use this device for a variety of reasons including necessity and increased

visibility. The inclusion of digital devices has brought with it a shift to digital communication, digital texts, and digital learning management systems–too many administrative elements of the classroom to avoid a shift in practice. In this environment, teachers wonder how the work that they are doing connects both to the traditional skills and competencies of the discipline and the future needs of their students.

Still, each participant arrived in a similar place at the end of the interviews: They expressed a need to be more intentional in their planning, particularly in terms of how they use digital devices, and they all asserted the importance of building relationships in their classes.

Relationship to Prior Research

A Return to the Theoretical Framework

The theoretical framework of this study carries a paradox, which to this point, the researcher has not addressed. The framework brings into conversation a theory of curricular and instructional change (Cuban, 2013) with respect to the cultivation of student-driven learning (Dewey, 1997) and the incorporation of digital technology (Postman, 1986, 1992) into the secondary ELA classroom. Cuban suggests that school reform efforts rarely have lasting impacts on classroom practice. He notes the powerful inertia of instructional practice when he looks at the long history of change in education. Pointing to the contemporary classroom with its rows of desks, the instructor teaching from a textbook, and a bell ringing every so often to initiate the change of periods, he has plenty of evidence to support his claim. Though some of his recent scholarship has allowed for the possibility that the incorporation of digital technology may be different than previous change initiatives, he still maintains that schools will carry on in much the

same manner as they have for the past century. Then, there is Postman, who claims quite the opposite. In Postman's view, our media determines how we perceive the world. In his telling, a classroom with digital technology facilitating communication, course assignments, and information consumption is fundamentally different from a classroom that uses paper and pen because the technologies are embedded with different assumptions and preferences.

So, does the introduction of a digital learning program change nothing or everything? And, what does the answer have to say with respect to Dewey's prescription about attitudes towards learning?

The answer suggested by this study is both frustrating and useful: The incorporation of digital technology changes much of what happens in the classroom, but those changes do not reflect the intended aims of policy makers and administrators. To review a digital learning mission statement is to be awash in a pool of corporate-inflected buzzwords. The purported aims of digital learning programs are grand—global connection, transformative learning experiences, personalized learning. The reality sometimes approaches those horizons, but much of the time, it doesn't. This study suggests two responses to that gap: first, those goals may be beyond the scope of what is possible in a typical secondary ELA class; second, if those goals are attainable, they will only be reached through a commitment to learning that is enriched by interpersonal connection within the classroom itself.

Cuban makes a distinction between complex and complicated structures. Complicated structures imply linearity, while complex structures imply nonlinear causality. In his terms, classrooms are complex places. Therefore, the change of any

variable will necessarily lead to surprising outcomes. No educational technology mission statement should be written at the beginning of a digital learning program—or at the very least it should be written in pencil (should you be able to find one in a digital classroom!) This study suggests that the antidote to unpredictable changes in classroom instruction is reflection. Looking back requires a defining of terms and experiences. If districts centered reflection as part of their planning—especially around the practices of digital instruction—administrators would find a wealth of wisdom pointing toward stronger instruction, higher morale, and clearer purpose. They would also benefit from a subtractive approach to planning. Schools tend to approach improvement through an additive lens. That is natural. No school principal touts a reduction in course offerings. Nor does any superintendent begin a report to the community heralding the reduction in curricular and instructional scope. People—at least not Americans—are not wired to positively receive that sort of news. But the counterintuitive conclusion of this study is that we need less in schools. Put in the terms of the market, schools need efficiencies. The introduction of digital technology to secondary ELA classrooms has taken up a lot of teacher preparation bandwidth. At this moment, teachers need less curriculum and more time. They need time to plan, execute, and reflect upon practice. They need to be told that digital learning should be intentionally deployed rather than always deployed. They need to be told that their voices matter with initiatives like these; they need to be heard as earnest practitioners.

Relationship to Prior Studies

The study confirms much of the current literature. When the researcher investigated the perceived reasons for bringing digital technology into the classroom,

teachers generally reported that they wanted to educate their students in an environment that would prepare them for the world that they would graduate into, with particular attention to job preparedness. This echoes the findings of Roumell and Salajan (2016) and Mirra and Garcia (2020). One of the primary explanations of purpose around using digital technology in the classroom is that it affords students the opportunity to prepare themselves to be productive members of the workforce.

Much of the literature identifies gaps between the promise of educating students within a technology-rich environment and the reality of implementation (Ritzhaupt et al., 2020; Cuban, 2001; Cuban, 2013; Ng, 2012; Knox, 2016; Riegel & Mete, 2017; Gee, 2018). Teachers have a sense of new possibilities with digital technology, but they can be frustrated by the implementation process. This is an important concern as the literature suggests that without the purposeful implementation of digital technology, student learning outcomes can suffer (Escueta et al., 2020). When teachers are frustrated with implementation, they may resort to the lowest levels of implementation, satisfying school requirements without accessing the plenary benefits of digital learning tools (Regan et al., 2019). The teachers in this study seemed most frustrated with digital technology when it was used for its simplest aims. They only became animated about the use of technology in the classroom when they recounted a time that it had allowed them to enhance instruction or accomplish a learning task that was previously impossible. If the question that administrators and policymakers have been asking is whether technology offers opportunities for transformative teaching and learning, the teachers in this study would answer with a resounding "Yes." However, this study also suggests the need to answer two other questions: Is it reasonable to expect teachers to always meet that bar, especially

when considering the limited time for planning and professional development? And does the possibility of enhanced teaching and learning through technology necessitate the use of digital technology for all or nearly all learning activities? The teachers in this study would answer with an emphatic "No."

Part of the cost-benefit analysis of using digital technology in the secondary ELA classroom concerns the selection of materials. The literature suggests that there are both advantages and disadvantages to using both print and digital text, and that student preference is linked to the perceived advantages and disadvantages of each (Sage et al., 2019). The teachers in this study echoed this finding. They report that while the district has insisted that they use digital texts–as a cost-saving measure and as a convenience–they find that students can be more engaged with physical texts. Another tradeoff: technology makes teachers and students feel more connected while outside of the classroom but disconnected while inside of the classroom (Ge et al., 2021; Byers et al., 2018). As far as technology goes, it draws students' attention without concern for the situation. Ultimately, the teachers in this study suggested that the presence of digital technology is neither good nor bad but planning and execution make it so.

Limitations of the Study

Although teachers were drawn from four different schools, this narrative study was limited to one school district. While that allowed the researcher to approach the participants about a common set of experiences, those experiences may not generalize to teachers outside of the district. The findings from this study outline the experience of a set of teachers who have received similar professional support and training with digital learning technology. They have implemented digital technology into their classrooms

following the same timeline. Additionally, the study took place in the wake of the COVID-19 pandemic. Though the study considered the experience of remote and hybrid learning, the pandemic was a seismic socio-cultural event. It affected teachers' perceptions of the profession generally and the use of digital technology specifically. Finally, the rate of change with digital technology moves at a pace that no dissertation study can match. While this study was ongoing, the world was introduced to Large Language Models (LLMs) like ChatGPT and Google's Bard. If the study had begun later, these generative-AI tools would be more prominently featured.

Recommendations for Future Research

The introduction of digital devices to secondary ELA classrooms has led to shifts in instructional practices. A study spanning several years, tracking the development of these changes over time would shed light on the long-term impact of these changes. With participants reporting several advantages of digital technology, including increased collaboration in the classroom, a lens cast across a wider span would allow researchers and policymakers to determine if these shifts persist, if there are cycles in the digital learning implementation process. It would be interesting to learn if early adoption concerns of the kind expressed by the teachers in this study give way to a sense of clarity around using digital technology deliberately and effectively in the secondary ELA classroom.

Given the study's findings that teachers have made significant changes in their instructional practices due to the introduction of digital technology, future research could further explore the dynamics of teacher-device interaction. This research should aim to understand how teachers balance the use of digital tools with traditional teaching methods

and how this balance influences student learning outcomes. Understanding how teachers use technology intentionally to enhance instruction while providing a holistic educational experience for students would be beneficial. By exploring the strategies employed by teachers in this context, future research could identify best practices to guide educators in the integration of digital tools to achieve desired learning outcomes while also preserving the interpersonal relationships that support those outcomes.

Additionally, there is a need to explore the potential benefits of standardizing digital learning practices across schools or districts. The teachers in this study expressed frustration over the lack of standardization in practice within and among grades and departments. Investigating the effectiveness of standardized practices would aid the efforts of intentional use. This research could assess how standardization affects student learning outcomes, as well as teacher preparation and confidence.

Considering this study's findings that the introduction of digital technology has led to increased collaboration and creativity in secondary ELA classrooms, future research could also investigate the relationship between digital learning strategies and student engagement. This research should explore how different types of digital activities influence student motivation and participation in class. This research would provide valuable guidance for educators in designing interactive and engaging digital learning activities that cater to diverse learning styles and foster higher levels of student engagement. Because the participants in this study also pointed to some negative collateral effects of digital technology, such as procrastination and diminished focus, future research could explore interventions aimed at mitigating these adverse effects.

Recommendations for Future Practice

The integration of digital technology into secondary ELA classrooms requires teachers and administrators to recognize its potential benefits and potential pitfalls. Using digital tools has become a requirement for educators in the digital age. Nevertheless, one guiding principle remains: intentional planning in use of digital tools is necessary for effective integration into classroom instruction.

Teachers should be invested with the decisional authority to choose how and when to use digital technology in their lessons, because effective technology integration requires thoughtful consideration. It means that educators should not simply be handed digital tools and left to figure out how to use them effectively on their own. They should have the autonomy to make well-informed choices that align with their instructional goals and students' needs, which would ensure that digital technology is not just a superficial addition but an intentional and meaningful component of the curriculum. In other words, administrators and policymakers should create professional environments where educators are encouraged and supported in their deliberate use of technology.

Intentional use of digital technology requires careful planning. Providing teachers with dedicated time for this planning would ensure that technology enhances student learning experiences rather than detracts from them. Without this time, educators may not be able to reach the educational heights promised by digital technology. Allocating time for planning would send a clear message that technology integration is not an afterthought but a deliberate part of the teaching and learning process. It would acknowledge that educators need space to design and reflect upon lessons that intentionally incorporate technology to achieve specific learning objectives. Once

teachers identify learning objectives within the discipline, they can select digital tools and resources that are most likely to support and enhance the achievement of these goals. Professional capacity should be built around the alignment of learning objectives and the use of digital tools.

Most importantly, even the intentional use of technology does not diminish the importance of interpersonal relationships in the classroom–it magnifies them. Technology should be employed deliberately to foster communication, collaboration, and interaction among students and between students and teachers, so educators ensure that digital tools serve as vehicles for meaningful engagement and connection rather than tools that promote isolation. Intentional use means that technology becomes a tool for building stronger interpersonal relationships–either through its presence or absence.

In practice, the above recommendations should lead districts to conduct a teacher-driven audit of digital learning practices. The audit should be guided by the following essential questions:

1. What learning activities do you conduct in your class that you couldn't do before the introduction of the 1:1 digital learning program?
2. What learning outcomes are inhibited by the presence of the 1:1 digital learning program?
3. Which aspect of the curriculum or instructional practice should be eliminated for the upcoming school year? If it was eliminated, which aspect of the curriculum or instructional practice would be enhanced?

These questions suggest several important points drawn from the study. They

suggest that a mentality of digital learning by default may be misguided. Teachers, who have been given expensive hardware and lots of training on how to use learning-management systems and other digital tools, feel compelled to use them. In some cases, they and their students would be very well served to do just that (Question 1). However, teachers should also be invested with the decisional authority to conduct a learning activity in the mode that is most likely to deliver intended learning outcomes (Question 2). The questions also acknowledge the finitude of planning and instructional time (Question 3).

Conclusion

After conducting a series of interviews with eight secondary ELA teachers, the researcher drew several conclusions that all center around the same principle: intention. The teachers in this study are earnest practitioners, who keep their work close to their hearts. The introduction of digital technology changed the nature of their classrooms, and in good faith, they've been wrestling with using digital technology effectively. It is clear to the researcher that much of the direction given to them throughout the study has focused on positive uses of technology–the first step towards which is the ability to complete technical tasks. However, the teachers need more support and authority in making choices about how to deploy digital technology. The framework through which they've been operating insists that all learning tasks can be elevated through digital means. Their reported experience suggests another more useful frame that considers technology as one tool in a suite of options for promoting student learning outcomes.

Appendix A Recruitment Email

Dear English teacher (xyz@sewanhakaschools.org):

My name is Graham Otton; I am an Advanced Standing Doctoral Student in the Instructional Leadership program in the School of Education at St. John's University. I am writing my dissertation on the pedagogical shifts that accompany the transition to a technology-rich, secondary ELA class with particular attention to the post-Covid-19 changes. I am writing to recruit participants for this research study.

As a secondary ELA teacher in the Sewanhaka Central High School District, you meet the criteria I am seeking for my participants. Participation in this study will include a series of three 30-minute interviews, which will all take place virtually. Should you choose to participate, consent forms will be signed in advance, indicating that your personal information will remain confidential and basic demographic information will be collected.
If you are interested in participating, I would greatly appreciate it. Please feel free to respond to this email or call me at (516) 458-2926 if you have any questions.

Sincerely yours,

Graham Otton
Doctoral Candidate
St. John's University

Appendix B Letter of Consent

School of Education
Department of Administrative and Instructional Leadership
(Spring 2023)

Letter of Consent

Title of Research Topic: Secondary ELA Teachers' Perception of the Environmental Learning Effects of a 1:1 Digital Device Program

Researcher: Graham Otton

Institution: St. John's University, Queens, NY
You are invited to participate in a study that explores secondary English language arts teachers' perceptions of the environmental learning effects of instituting a 1:1 digital learning program. This study will be conducted by Graham Otton, a current fifth-year doctoral student at St. John's University. As part of this study, the researcher will be interviewing secondary English language arts teachers in your district regarding the environmental effects on teaching that manifest from the implementation of a 1:1 digital device learning program. The purpose of the study is to understand your perception of student learning experiences, as well as teachers' lived experiences as professional educators, teaching while each student has access to a digital device.

If you agree to participate, you will be asked to participate in a series of three (3) individual interviews. The interviews will consist of a series of short, open-ended questions provided by the researcher. Each session should take approximately 30 minutes and will be audio recorded using a digital video conferencing platform (WebEx) at a designated date and time. There are no perceived risks involved with participation in this study beyond those of everyday life. However, I will be asking you to give up some of your valuable time.

The benefit of participation in this study will be the opportunity to reflect on instructional practice in a digital environment. Additionally, your participation will inform ongoing research about the use of digital devices in a secondary ELA classroom. If you choose to participate, you may withdraw from the study at any time without explanation or penalty. Refusal to participate or discontinue participation will involve no penalty or loss of benefits to which you are otherwise entitled.

Your identity as a participant will remain confidential. Your name and the name of your school building or district will not be disclosed or included in any forms, transcription, data analysis, or research findings. Pseudonyms will be used. This consent form is the only document identifying you as a participant. It will be stored securely by the researcher and data collected will be destroyed at the end of the study. If you are interested in securing a copy of the results, you may contact the researcher. Aggregated results may be published in academic venues to inform educational researchers and practitioners with an understanding of how secondary ELA teachers perceive 1:1 digital learning environments.

If you have questions about the purpose of this research study, you may contact the principal researcher, Graham Otton, at 516-458-2926 or graham.otton14@my.stjohns.edu. If you have questions concerning your rights as a human participant, you may contact the University's Human Subjects Review Board at St. John's University at 718-990-1440, specifically Dr. Raymond DiGiuseppe, 718-990-1955, or disgiuseer@stjohns.edu, or the researcher's committee mentor, Dr. Catherine DiMartino, at 718-990-2585 or dimartic@st.johns.edu. Your participation in this research is voluntary.

Agreement to Participate
Your signature acknowledges receipt of a copy of the consent form as well as your willingness to participate:

_____
Printed Name of Participant

_____ _____
Signature of Participant Date

_____
Printed Name of Researcher

_____ _____
Signature of Researcher Date

Appendix C Interview 1 Protocol

Welcome participants
Thank you for choosing to participate in this interview about teachers' perceptions of educational technology in the secondary ELA classroom. The study will focus on how teachers perceive the environmental learning effects of teaching in a secondary ELA class with a 1:1 digital device program. I will be the primary researcher in this study. Currently, I am a fifth-year doctoral student at St. John's University.

Purpose of study
The purpose of the study is to understand your perception of how teaching in the English language arts discipline has been and will continue to be affected by the district 1:1 digital device educational technology program.

Individual interview structure
The first interview will explore your educational philosophy, professional background, and your general perception of digital technology. The second interview will explore your perception of the use of educational technology in the secondary ELA classroom before and during remote and hybrid instruction during the 2019-2020 and 2020-2021 school years. Finally, the third interview will focus on your perceptions of the use of educational technology since students and teachers have returned to the classroom in full after the pandemic-related school closures and disruptions. Questions will also explore your perception of the future use of educational technology in the secondary ELA classroom. Each interview will consist of 12-15 short, open-ended questions provided by me. Each session should take approximately 30-45 minutes. Audio will be recorded on my computer through WebEx.

Participant rights
Please be reminded you may withdraw from this interview at any time without explanation or penalty. Refusal to participate or discontinue participation will involve no penalty. Also, be aware that your identity as a participant will remain confidential throughout this study. Your name and the name of your school building or district will not be disclosed or included in any forms, transcription, data analysis, or research findings. Pseudonyms will be used. The consent form you recently completed is the only document identifying you as a participant, but again, pseudonyms will be used when discussing the research findings.

Start the interview:

1. To start, can you speak a little bit about your professional history?
    - What did you study in college?
    - How long have you been teaching?
    - What are the different courses you've taught over the years?
2. Why did you become a teacher?
3. At its noblest, what does education do for students? Society?
    - What about English language arts specifically?
4. This study is focused on your perception of technology use in the secondary ELA classroom, but your interaction with educational technology isn't limited to teaching. How does technology play a role in your life outside of work?
    - How comfortable are you with new technology? Is technology something that excites you?
    - How do you use digital technology the most? To your greatest fulfillment?
5. What is your favorite lesson to teach?
6. What is it about that lesson that you enjoy so much?
7. As teachers, we deliver content and plan lessons that develop skills and competencies in our students. What are the most important ideas, skills, and competencies that you want students to take away from your class?
    - Can you give an example?
8. Researchers, policymakers, administrators, teachers, and even casual observers have remarked that changing systems of education can be frustratingly difficult. We still teach in buildings with resources, practices, and structures that in some cases look strikingly similar to those from 100 years ago. Digital technology has been heralded as a transformative (or disruptive) tool for all sectors of society, including education. Has it changed your instruction?
9. As you understand it, what is the suggested promise of educational technology?
10. If it has changed your instruction, how has it done so?
    - Can you give examples?
11. What are the tasks in a secondary ELA class that digital technology allows you and your students to do well? What are the tasks that are complicated by the technology?
    - Can you give examples?
12. One of the theorists informing my study is John Dewey, who articulated a concept called collateral learning. His idea was that students not only learn those things we intend for them to learn, but they also learn through every interaction and experience in a class. How would you describe the collateral learning that students take from a technology-rich classroom?
13. The district's most recent instructional technology plan offers the following as its mission: *Our mission is to establish a culture of collaboration, creativity, critical thinking, and authentic learning that promotes socially conscious citizens who are college and career ready. The use of iPads in classroom instruction will allow our students to feel valued and empowered to contribute to a global community.* How has the district met those goals? Where does it have room to improve?
14. Why is it important (or is it) to use technology to educate our students?

Close the interview:

- Thank you for participating in this interview. I value and appreciate your perceptions and insights. To test for the validity of your responses that I will transcribe, I will soon share the transcriptions of your responses, so you can check and confirm their accuracy. If you are interested in a copy of the research results, I would be happy to share my findings with you.

Appendix D Interview 2 Protocol

Welcome participants
Thank you for choosing to participate in this interview about teachers' perceptions of educational technology in the secondary ELA classroom. The study will focus on how teachers perceive the environmental learning effects of teaching in a secondary ELA class with a 1:1 digital device program. I will be the primary researcher in this study. Currently, I am a fifth-year doctoral student at St. John's University.

Purpose of study
The purpose of the study is to understand your perception of how teaching in the English language arts discipline has been and will continue to be affected by the district 1:1 digital device educational technology program.

Individual interview structure
In our first interview we explored your educational philosophy, professional background, and your general perception of digital technology. The second interview will explore your perception of the use of educational technology in the secondary ELA classroom before and during remote and hybrid instruction during the 2019-2020 and 2020-2021 school years. Finally, the third interview will focus on your perceptions of the use of educational technology since students and teachers have returned to the classroom in full after the pandemic-related school closures and disruptions. Questions will also explore your perception of the future use of educational technology in the secondary ELA classroom. Each interview will consist of 12-15 short, open-ended questions provided by me. Each session should take approximately 30-45 minutes. Audio will be recorded on my computer through WebEx Meet.

Participant rights
Please be reminded you may withdraw from this interview at any time without explanation or penalty. Refusal to participate or discontinue participation will involve no penalty. Also, be aware that your identity as a participant will remain confidential throughout this study. Your name and the name of your school building or district will not be disclosed or included in any forms, transcription, data analysis, or research findings. Pseudonyms will be used. The consent form you recently completed is the only document identifying you as a participant, but again, pseudonyms will be used when discussing the research findings.

Start the interview:

1. What did typical ELA class activities look like before your district implemented the 1:1 iPad program?
2. What were students typically doing in a secondary ELA class before the introduction of the 1:1 iPad program?
3. How did students respond to the introduction of the 1:1 iPad program in your district?
    - How about teachers? How about you?
4. What has been your favorite use of educational technology? Your most frustrating moment with educational technology?
    - Can you give some examples?
5. Which applications do you use the most? How do you use them?
6. Are there any applications that your colleagues use or that the district has encouraged you to use that you haven't liked using? Why?
7. Did the introduction of educational technology to your classroom change the way you perceived yourself as an educator?
    - Did it change how you viewed your role in the education process?
    - Can you give an example?
8. Do you think it changed how your students viewed you as their teacher?
    - Can you give an example?
9. Do you feel like you've been supported as an educator during the transition to the 1:1 program?
    - Has that continued?
10. What additional support would you like to have the district offer?
11. When students started showing up to your class with iPads, how did your planning change?
12. Do you present material to students in different ways? If so, how has that changed the nature of the class?
13. Were there issues presented by students having iPads in your class?
14. Can you describe an activity that was heightened by their introduction? One that was previously impossible?
15. How did the incorporation of the 1:1 iPad program affect student learning?
16. Do you perceive students to be more or less engaged since the district implemented its 1:1 iPad program?
    - Can you give an example?
17. Let's shift a bit to discuss education during remote and hybrid learning. How would you characterize the nature of instruction during the pandemic-related school closures of 2020?
    - Can you give an example?
18. How would you characterize the nature of hybrid instruction during the 2020-2021 school year?
19. How would you characterize the training and instructional support you received when you began teaching remotely in the spring of 2020?
    - What additional support would have been helpful?

20. How would you characterize the training and instructional support you received during the year of hybrid instruction throughout the 2020-2021 school year? and continued with hybrid instruction throughout the 2020-2021 school year?
    - What additional support would have been helpful?
21. What did typical ELA class activities look like during remote instruction?
    - During the year of hybrid instruction?
22. How did you and your students use the iPad during remote instruction?
    - During the year of hybrid instruction?
23. How would you summarize your impression of teaching and learning during remote instruction?
    - What about the period of hybrid instruction?
24. Thank you for all of that. As we conclude, I wonder if I am missing anything? Is there a question I did not ask that I should have?

Close the interview:

- Thank you for participating in this interview. I value and appreciate your perceptions and insights. To test for the validity of your responses that I will transcribe, I will soon share the transcriptions of your responses, so you can check and confirm their accuracy. If you are interested in a copy of the research results, I would be happy to share my findings with you.

Appendix E Interview 3 Protocol

Welcome participants
Thank you for choosing to participate in this interview about teachers' perceptions of educational technology in the secondary ELA classroom. The study will focus on how teachers perceive the environmental learning effects of teaching in a secondary ELA class with a 1:1 digital device program. I will be the primary researcher in this study. Currently, I am a fifth-year doctoral student at St. John's University.

Purpose of study
The purpose of the study is to understand your perception of how teaching in the English language arts discipline has been and will continue to be affected by the district 1:1 digital device educational technology program.

Individual interview structure
In the first interview we explored your educational philosophy, professional background, and your general perception of digital technology. In the second interview we explored your perception of the use of educational technology in the secondary ELA classroom before and during remote and hybrid instruction during the 2019-2020 and 2020-2021 school years. Finally, during this third and final interview we will focus on your perceptions of the use of educational technology since students and teachers have returned to the classroom in full after the pandemic-related school closures and disruptions. Questions will also explore your perception of the future use of educational technology in the secondary ELA classroom. Each interview will consist of 12-15 short, open-ended questions provided by me. Each session should take approximately 30-45 minutes. Audio will be recorded on my computer through WebEx Meet.

Participant rights
Please be reminded you may withdraw from this interview at any time without explanation or penalty. Refusal to participate or discontinue participation will involve no penalty. Also, be aware that your identity as a participant will remain confidential throughout this study. Your name and the name of your school building or district will not be disclosed or included in any forms, transcription, data analysis, or research findings. Pseudonyms will be used. The consent form you recently completed is the only document identifying you as a participant, but again, pseudonyms will be used when discussing the research findings.

Start the interview:

1. What does your typical ELA class activity look like today?
2. How would you characterize the training and instructional support you have received since returning to full, in-person instruction?
    - What additional support would be helpful?
3. How do you think your students feel about learning in a technology-rich environment
    - How do you know this? Can you give an example?
4. To what degree do you think the way students use educational technology matches the district vision for educational technology use?
5. Are there any practices that you used during remote and hybrid instruction that you have continued to use upon the return to full, in-person instruction?
    - Can you give an example?
6. What do you think your school district needs to teach your students about using educational technology that they are not teaching them right now? Why?
7. Have the ways in which students use their iPads for learning changed since the return to full in-person learning?
    - Can you give an example?
8. I'd like to hold up a mirror to our process here. Now in our third round of interviews, I wonder if you could reflect on how this process has been different for our conducting these interviews through digital means rather than in person. Would your responses be different? Would you feel differently about the process if we were to meet in person?
9. As you look to the future, how would you modify and improve the 1:1 iPad program?
    - Why?
10. What do you think our students need to be learning in an ELA classroom today?
    - Does technology factor into that picture? How?
11. What do you think our students need to be learning in an ELA classroom five years from now?
    - Does technology factor into that picture? How?
12. How do you see yourself as an educator today?
13. What advice would you give to a teacher just entering the field?
14. How would you like to remember your experience of teaching when you either retire or leave the profession for another reason?

Close the interview:

- Thank you for participating in this interview. I value and appreciate your perceptions and insights. To test for the validity of your responses that I will transcribe, I will soon share the transcriptions of your responses, so you can check and confirm their accuracy. If you are interested in a copy of the research results, I would be happy to share my findings with you.

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