

DIGITAL COLLEGE READINESS: A MULTI-CASE STUDY OF EARLY COLLEGE  
HIGH SCHOOL GRADUATES' PERCEPTIONS OF THE DEMANDS AND  
OPPORTUNITIES TO LEARN

by

Rachelle K. Furness, B.A., M.Ed.

A dissertation submitted to the Graduate Council of  
Texas State University in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
with a major in Developmental Education  
August 2017

Committee Members:

Eric J. Paulson, Co-chair

Lori C. Assaf, Co-chair

Jodi P. Holschuh

Taylor W. Acee

**COPYRIGHT**

By

Rachelle K. Furness

2017

## **FAIR USE AND AUTHOR'S PERMISSION STATEMENT**

### **Fair Use**

This work is protected by the Copyright Laws of the United States (Public Law 94-553, section 107). Consistent with fair use as defined in the Copyright Laws, brief quotations from this material are allowed with proper acknowledgement. Use of this material for financial gain without the author's express written permission is not allowed.

### **Duplication Permission**

As the copyright holder of this work I, Rachelle K. Furness, authorize duplication of this work, in whole or in part, for educational or scholarly purposes only.

## **DEDICATION**

This dissertation is dedicated to my mom, Lorene, who set an example of persistence; to my students, who collaborated in persistence; to Marieke, who saw value in my persistence; and to my sons, Daniel and David, who are my best reasons for persisting.

## **ACKNOWLEDGEMENTS**

I have so many kindred spirits to thank for their part in sustaining me through the writing of this manuscript. In the slow press toward the creation of a dissertation, I owe an immense debt of gratitude to my committee. Dr. Eric Paulson, I am eternally in your debt for your patient willingness to help me consider my many alternative endings and compartmentalize overflowing ideas. You always found a logical, doable way forward and provided me with a clear roadmap. Dr. Lori Assaf, I am very grateful that you were my mentor from beginning to end. You helped me shape my “Affritude” and caringly pushed me to do more than I thought I could. Dr. Jodi Holschuh, thank you for allowing me to be a research understudy. Your encouraging feedback supported me to believe in my ideas. Dr. Taylor Acee, thank you for your cheerful expertise in this process. Your thoughtful suggestions helped me communicate with a wider academic audience.

I am thankful for my instructors who helped me form an educated guess of what my dissertation should be. Dr. Steven Aragon, I am glad you pointed out that I cannot do a lifetime of research in one pilot study and thank you for your part in getting me to Qualitative Congress. Dr. Larry Price, thank you for accommodating my individual study and supporting me to develop my service learning instrument. Dr. Dave Caverly, thanks for supporting my opportunity to teach again. I appreciate my developmental education instructors, Drs. Russ Hodges, Emily Payne, and Emily Summers for their contributions to my understandings of transitional students. Drs. Deb Balzhiser and Erik Leake, thank you for helping me build my scholarly writing expertise and rethink writing pedagogy.

Dr. Sonya Armstrong, thank you for teaching me that, instead of being an outlier, I am a scholar with specialized expertise.

To my fellow doctoral students, I want to say thank you for your stellar collegial presence in helping me get ready for the show. Thank you to Dr. Jodi Lampi for being my pacesetter. Thank you all for tolerating my endless fixation on digital literacies in every conversation. Amarilis and Kristie, thank you for the foreign tours and co-teaching. Tami and Karen, thank you for your continuous supportive efforts as friends and expert reviewers. Erika, our lyrical conversations have done wonders to help balance life in our año verde – we are finishers.

To those who helped me through phases when I was whining, I am grateful for your support to help me get past the procrastination. Debby Kalk, thank you for your expert editing eyes and feedback. Dr. Floretta Jones, thank you for keeping me focused on the goal. Scott Lewis, thank you for encouraging me in the final stretch by reading and asking questions. Sisters, thanks for believing that I could do this.

For those who were there when my dissertation might have taken another turn toward service learning, I will find a way to fit service learning into my research agenda. Kimberly Duncan-Ashley, Dr. Jana Minifie, and Dr. Kambra Bolch, thank you for considering the possibilities.

Blake and Judy, thank you for your contributions to support daily doctoral student life. Your kindness helped me get past so many snags along the way.  
In short, you all rock!

## TABLE OF CONTENTS

	<b>Page</b>
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES .....	ix
LIST OF ABBREVIATIONS.....	x
ABSTRACT.....	xi
CHAPTER	
I. INTRODUCTION .....	1
Problem Statement .....	4
Research Questions .....	6
Purpose of the Study .....	7
Scholarly Significance of the Study.....	8
Definitions.....	8
Background of the Digital Divide .....	13
Background of the Concept of Digital Natives.....	18
Summary of Introduction.....	21
II. REVIEW OF LITERATURE.....	23
Current Landscape of Digital College Readiness .....	23
The Early College High School Framework and College Readiness .....	33
Conceptual Framework.....	35
Summary of Review of Literature .....	38
III. METHODS .....	40
Research Questions .....	41
Research Design.....	42
Trustworthiness and Credibility.....	63
Limitations .....	63
Summary of Methods.....	64

IV. FINDINGS.....	66
Contextualization of the Early College High School Environment.....	67
Student Perspectives of the Early College High School Environment.....	67
Professional Perspectives of the Early College High School Environment.....	69
Summary of Contextualization of the Early College High School Environment.....	83
Within-case Reports.....	85
Alayna.....	85
Brenda.....	90
Evan .....	93
Lamont.....	98
Olivia.....	102
Sam .....	106
Travis .....	112
Summary of Within-case Reports.....	116
Cross-case Synthesis.....	117
Digital College Readiness Demands.....	117
Opportunities to Learn to Develop Digital College Readiness....	128
The Early College High School Experience .....	137
Summary of Findings.....	140
V. DISCUSSION AND IMPLICATIONS .....	142
Research Questions.....	143
Discussion.....	144
Implications.....	158
Summary of Discussion and Implications .....	166
APPENDIX SECTION.....	168
REFERENCES .....	182

## **LIST OF TABLES**

<b>Table</b>	<b>Page</b>
1. Preferred Criteria among Interview Participants .....	50
2. Sample Definitions of Digital Literacies from Survey Responses .....	118
3. Sample Definitions of Digital College Readiness from Survey Responses .....	119

## **LIST OF ABBREVIATIONS**

<b>ABBREVIATION</b>	<b>DESCRIPTION</b>
BYOD or BYOT .....	bring your own device/technology
CCSS.....	Common Core State Standards
DCR .....	digital college readiness
ECHS .....	Early College High School
ECHSI.....	Early College High School Initiative
ICT .....	information and communication technology
ISTE .....	International Society for Technology in Education
SES.....	socioeconomic status

## **ABSTRACT**

Clarifying the concept of digital college readiness (DCR) can direct pedagogical and policy shifts toward the integration of digital literacies instruction as an essential component of college readiness, especially for educators and researchers in the field of developmental education. Since the 1980s, the demands for digitally mediated literacies have become increasingly critical for postsecondary access and success (Katz, 2007; Kumar & Vigil, 2011; Ortega, 2013; Selwyn, 2015; Sparks, Katz, & Beile, 2016), however, pervasive assumptions regarding when and how students acquire digital literacies contribute to the reality that PK-16 instruction is fragmented and leaves students underserved (Fluck & Dowden, 2011; Goode, 2010; Katz, 2007; Naidoo & Raju, 2012; Sparks, et al., 2016). This study utilized a multi-case study approach (Merriam & Tisdell, 2016; Yin, 2014) within a new literacies conceptual framework (Coiro, Knobel, Lankshear, and Leu, 2008; Gee, 2008; Knobel & Lankshear, 2006) to examine postsecondary student experiences related to meeting digital demands at the college-level. Background data were collected from an online survey to inform a two-tier, purposeful selection (Merriam & Tisdell, 2016, Yin 2014) of cases of Early College High School (ECHS) graduates who met criteria as representing underserved populations. Interview participants followed a retrospective think aloud protocol (Van Den Haak, de Jong, & Schellens, 2003; Greene, Yu, & Copeland, 2014) to metacognitively narrate their experiences related to completion of academic assignments in digitally mediated contexts. A converging line of inquiry, including contextualization of the ECHS

educational environment, exposed patterns related to substantive research topics that clarified concepts of digital college readiness as advanced levels of digital skills, abilities, and behaviors developed from foundational digital literacies that support postsecondary student access to and success within digitally mediated academic contexts. The implications of this study included continued effort on the part of educational practitioners and researchers to problematize assumptions about student levels of digital literacies proficiencies and to move toward participatory opportunities to learn. Participatory opportunities to learn digital literacies is a promising area where student familiarity and comfort with ubiquitous digital technologies can be leveraged to support general college success.

## I. INTRODUCTION

Digital literacy means having the ability to use technology, not only to complete simple daily tasks, but use that ability to advance as a human being. Technology is becoming a language and people who do not “speak” it will start to be left behind in school, work, etc.

—Sam, ECHS graduate and new bilingual educator

As Sam (a pseudonym) suggested in the opening quote, society demands that individuals read and write in a language using digital technology to keep up. In her view as a newly graduated bilingual education teacher, Sam recognized that developing agency, or the ability to independently navigate this new literacy, is as necessary as traditional literacies for success in educational and professional environments. How did she arrive at her conclusion that individuals need to develop agency to be ready to meet the demands for a new digital language in college and beyond into her career? Why did she think being literate in digital spaces was a vital reality for success across life functions? Ultimately, how or where did she perceive that one would find the support to develop such literacies to prepare digitally for college? These questions and others reflect some of my formative thinking toward understanding the phenomenon of digital college readiness (DCR) in current postsecondary contexts.

Over my years of experience in education and business, I formed a view like Sam’s that digital literacy was a new language that either included or excluded individuals. As a secondary educator in early 2000, I observed students struggling to meet increasing demands at the high school level to apply digital literacies to complete assigned academic tasks. Because I was one of two core teachers serving as a technology intern in a large urban high school, I witnessed a continuous flood of students who were not my own coming into my room before/after school and during lunch to use the full set

of networked classroom computers. Not only did they need access to computers and the Internet that they lacked at home, they also needed instructional support to navigate basic software applications, such as Microsoft Word and PowerPoint. On a campus of over 5,000 students, my efforts to provide equitable opportunities to learn seemed inadequate.

Later, I served as a corporate training manager for a well-established national company and noticed adults struggling to acquire the necessary skills to function in jobs that increasingly shifted to digital contexts. I especially remembered a functionally illiterate seventy-year-old dock worker attempting to complete a safety module delivered via a newly mandated online system. Although this dock worker had been continuously employed by the company for over fifty years and could orally recite the safety information contained in the module, he could not read effectively or use a computer to fulfill this new digital job requirement. As part of the launch of this new training initiative, I read the information on the screen aloud to him and taught him how to use the mouse and navigate the module to indicate his answers. After working for hours on a module that took most workers about twenty minutes to complete, he cried when we finished and could not wait to tell his grandson that he had used a computer. I was reprimanded by my supervisor for spending too much time tutoring this individual to complete this newly mandated training.

In more recent years as a developer of online college courses, I was amazed to learn that students (undergraduate and graduate) and instructors required almost the same amount of instructional guidelines to effectively function in a digital classroom environment as they did for course-specific academic literacies. Budget considerations and a variety of specialized departmental support teams reflected the need to ensure

students could access and be successful in digital contexts. Instructor and student feedback indicated that the level of digital learning guidance provided in documents and media within the course was insufficient to bridge some gaps. Because I had not been intimately involved with development processes in the past, I was stunned by the amount of instructional support needed in online courses for digital literacies in relation to traditional literacies.

In the last two years, I have taught undergraduate and graduate students in face-to-face courses. With the increase in ubiquitous digital devices, I have encountered many students who displayed confidence in their ability to apply digital literacies at the college level; however, I have also observed that many students still struggle to complete academic digital tasks. For example, some students enrolled in my developmental education integrated reading and writing course struggled with basic digital literacy demands such as understanding how to properly upload a document file to a learning management system (e.g. Blackboard, Canvas, TRACS, or Moodle) or embed an image in a presentation slide (e.g. Microsoft PowerPoint). As an instructor, I recognized an urgent need to bridge college readiness gaps that integrated digital literacies with traditional literacies.

After feeling inadequate as a teacher, being reprimanded for tutoring as training manager, being stunned as an online course developer, and recognizing an urgent need as a developmental education instructor, I wanted to know more as a professional educator and researcher about supporting development of digital literacies as part of college readiness. During my doctoral studies in the field of developmental education, I focused on a goal to investigate what efforts are in place in the secondary to postsecondary

transition pipeline to integrate opportunities to learn digital literacies in addition to traditional literacies to support postsecondary success. My goal has led to this naturalistic investigation of how students are navigating the digital demands in postsecondary environments that may or may not explicitly provide instructional support.

### **Problem Statement**

Digital literacies, or the ability to make meaning in digital contexts, are considered critical for access to and success in 21<sup>st</sup> century postsecondary educational environments (Katz, 2007; Kumar & Vigil, 2011; Ortega, 2013; Selwyn, 2015; Sparks, Katz, & Beile, 2016). For example, students as young as third grade are learning keyboarding skills to support learning in digital contexts (Gormley & McDermott, 2014). However, the realization of research-based instruction to explicitly teach digital literacies lags behind technological advances, leaving students underserved (Katz, 2007; Kumar & Vigil, 2011; Ortega, 2013; Selwyn, 2015; Sparks, Katz, & Beile, 2016).

For students who are underprepared for college in one or more areas, lack of digital access and digital literacy instructional support compound risk factors and increase the likelihood that students will be unable to persist in postsecondary environments where the demands for digital literacies are high (Cotten & Jelenewicz, 2006; Goode, 2010; Gormley & McDermott, 2014; Guzzetti & Foley, 2014; Naidoo & Raju, 2012; Relles & Tierney, 2013). Gaps in empirical evidence include clear understandings of the process and mechanisms of transfer of digital literacies to meet demands. The lack of understanding adds to a perpetuation of systemic inequities for those without access to formal instructional supports. Not surprisingly, the digital divide, a situation of digital haves and have-nots, persists and warrants investigations which seek

to understand student daily experiences related to access and development of ability (Gonzales, 2016).

In addition to the digital divide, widely held assumptions about the proficiency levels of digital natives confound change efforts. Contrary to assumptions about students growing up in technological environments, evidence indicates that their technology use and skills are not uniform nor are they universally transferred to academic settings (Bennett, Maton, & Kervin, 2008; Duncan-Howell, 2012). At the institutional level, technology skills, including everything from being able to read hyperlinked words as interactive content in electronic texts to writing multimodal texts in learning managements systems, are required for college success; yet, postsecondary institutions continue to grapple with how to merge digital practices and processes with educational practices and processes (Selwyn, 2015). Because use and skills are not uniform, strategic institutional level initiatives are needed to provide equitable development of digital literacies toward college readiness (Bennett et al., 2008; Duncan-Howell, 2012). At the educational professional level, studies show that teachers are aware of standards linked to digital literacy, but are often underprepared to explicitly teach those literacies (Fluck & Dowden, 2011). In this vacuum of preparedness to teach and absence of explicit curriculum expectations, students enter college with differing levels of digital literacy with lower levels associated along gender, socioeconomic status, and ethnicity lines (Garcia, Mirra, Morrell, Martinez, & Scorza, 2015; Goode, 2010; Naidoo & Raju, 2012). Finally, at the student level, a study of over ten thousand upper-division high school and college freshman students demonstrated a disconnect between what they perceive about

their digital literacies proficiency and the actual demonstration of those literacies (Katz, 2007).

Thus, problematic realities in current American K-16 education systems exist in which high demands for digital literacies outpace instructional support because student abilities to make meaning of, curate, synthesize, and communicate academic content in digital contexts are often assumed. Students who belong to traditionally underserved groups are especially affected by these assumptions and the related lack of instructional support for digital literacies which compounds access barriers for college.

### **Research Questions**

This study examined the following questions:

1. What digital college readiness demands do Early College High School graduates encounter in higher education environments?
  - a. What aspects of digital college readiness are assumed in higher education environments?
  - b. What realities do postsecondary students encounter related to instructional support or lack of support for digital college readiness to meet demands?
2. What opportunities to learn do Early College High School graduates report occurred inside or outside of the ECHS, community college, and four-year institutions of higher learning environments which enabled them to develop digital college readiness?
3. How do Early College High School graduates perceive the experience of attending an ECHS and whether it did or did not support their development of digital college readiness in tandem with their overall college readiness?

## **Purpose of the Study**

The dual purpose of this study was to build a stronger understanding of the concept of digital college readiness (DCR) and the opportunities to learn associated with its development. First, I explored Early College High School (ECHS) graduates' perceptions of their experiences navigating academic discourses mediated by digital contexts as they transitioned from secondary to postsecondary environments, particularly in terms of whether or how they felt prepared to meet those demands. Secondly, I sought to understand what opportunities to learn they experienced that supported development of advanced levels of digital skills, abilities, and behaviors in preparation for college-level digital demands.

An Early College High School (ECHS) is a school designed to support traditionally underserved populations to concurrently achieve an associate's degree and a high school diploma in four years. By studying ECHS graduates as a two-tier, purposeful selection of cases of a bounded group (Merriam & Tisdell, 2016; Yin, 2014), I generated thick descriptions of student experiences related to meeting digitally mediated academic demands. Insights gleaned through a new literacies lens (Coiro, Knobel, Lankshear, and Leu, 2008; Gee, 2008; Knobel & Lankshear, 2006) contributed to clearer understandings of how traditionally underserved populations described navigating college-level requirements for advanced levels of digital skills, abilities, and behaviors. Exposing a range of successful development trajectories through a "converging line of inquiry" (Yin, 1994, p. 92) informed a discussion of improvement of policy and practice to support opportunities to learn digital literacies for traditionally underserved populations in other educational contexts.

## **Scholarly Significance of the Study**

The significance of the study in addressing the problem of educational inequities related to the digital divide includes clarifying the concept of digital college readiness (DCR) to inform more equitable opportunities to learn digital literacies in supporting all students to be digitally prepared for college. By highlighting incidents of successful navigation of college-level digital demands, this study addresses gaps in the literature that focused on identifying instances of learning barriers. Especially for educators and researchers in the field of developmental education, highlighting instances of successful development of advanced digital skills, abilities, and behaviors can direct effective pedagogical and policy shifts toward embracing professional responsibilities to integrate digital literacies as an essential component of college readiness.

## **Definitions**

To provide clarification of concepts which may have multiple meanings in the body of research, this section includes operational definitions of key terms.

*Agency* – For the purposes of this study, agency is defined as an independent level of digital literacy to promote personal agendas in digital discourses. Grounded in Bandura's social cognitive theory, my operational definition involves student cognitive, motivational, and affective processes which interact to allow for a self-regulated ability to act (Bandura, 1989). By describing the process of creating their digital artifact, participants convey the extent to which they could or could not act independently in digital discourses.

*Demands* – Challenging expectations and requirements that students encounter as part of educational environments (Conley, 2007).

*Development* – According to contextual theories of learning such as Bronfenbrenner’s (1974) ecological systems theory of development, students actively construct knowledge based on contexts of social interactions. In this study, development was considered from this contextual lens related to participation in discourses that contributed to increasingly more complex knowledge of digital literacies to support access to and success within digitally mediated college contexts.

*Digital college readiness* (DCR) – At this time, there is no established definition of DCR in the body of knowledge. Baseline definitions of general college readiness adopted by Higher Education Research Institute (HERI) and the National Association of Educational Progress (NAEP) rely on a combination of high school course-taking patterns and high school GPA to establish readiness status (DeAngelo & Franke, 2016). For example, DeAngelo and Franke (2016) categorized student participants in their study as college ready if they have a B+ high school GPA and have completed four years of English, three years of math, two years of foreign language, three years of science, one year of history, and one year of arts. In moving toward a connection of general college readiness and DCR, Relles and Tierney noted an “interdependence of online and offline literacies” that for students who are “digitally underprepared, this interdependence necessarily encumbers college readiness...” (2013, p. 22). Subsumed in the purpose of this study to gain clearer understandings of the concept of DCR.

*Digital divide* - According to Lloyd Morrisett, the rise of the Internet has contributed to a situation of digital access “haves” and digital “have nots” which he called a “digital divide” (Hoffman, Novak, & Schlosser, 2000). When referring to the digital divide in this study, I am specifically using a more current concept of a digital gap

beyond simple access to digital devices and Internet. Current research conversations regarding the digital divide focus on the individual's level of digital literacy. In an overview of the history of the digital divide debate, Cohron (2015) explained the distinction between access and use as follows:

Although the Pew Research Center demonstrates the narrowing (if not closing) of the access divide, the digital literacy divide is still gaping. While those who have access to computers and the Internet progress along with the technology, those who begin to enter into the information "haves" tend to display a reluctance to use the technology simply because they do not know how. Thus, it is not necessarily a lack of access that dictates a person's interaction with computers and the Internet, but rather it is digital or information illiteracy that shapes those interactions today (p. 82).

I will specifically refer to the digital divide in this study as more than a dichotomous gap (Ferro, Helbig, & Gil-Garcia, 2011) that encompasses a complex spectrum of digital access and literacies.

*Digital literacy* - At the time of this study, educational practitioners and researchers are still in the process of agreeing upon the term, *digital literacy* (or *digital literacies* in a plural form). Some on the practitioner side of the spectrum assert that the term is fluid and should be embraced as "squishy" to facilitate instruction in an emerging literacy (Chase & Laufenberg, 2011). According to research in Europe involving Information and Communication Technology (ICT), one working definition of digital literacy is as follows:

The ability to use ICT [Information and Communication Technology] and the Internet becomes a new form of literacy – "digital literacy". Digital literacy is fast becoming a prerequisite for creativity, innovation and entrepreneurship and without it citizens can neither participate fully in society nor acquire the skills and knowledge necessary to live in the 21st century (Martin, & Grudziecki, 2006, p. 254).

In addition, digital literacy translates to a new Discourse (Gee, 2008) that can be

inclusive or exclusive depending on student levels of access (Curwood, 2013; Guzzetti & Foley, 2014; Ortega, 2013).

As an emerging research field, prominent researchers have begun to formalize the concept of digital literacy. Lankshear and Knobel (2013) define digital literacy through a discourse lens as: “Socially recognized ways of generating, communicating and negotiating meaningful content through the medium of encoded texts within contexts of participation in Discourses (or, as members of Discourses)” (p. 43). Digital literacy for the purposes of this study will follow the model proposed by Lankshear and Knobel (2013) as the literacy necessary to participate in college-level academic environments mediated by digital contexts.

To critically examine how postsecondary students perceive their ability to participate in demanding college-level academic environments mediated by digital contexts, I also considered how New Literacies Studies (NLS) theorists reject an autonomous definition of literacy, one in which skills are technical and neutral (such as understanding meanings like “click,” “tabs,” “scroll,” and visual cues such as hyperlinks being blue and underlined), and instead view literacy as embedded social and cultural practices (such as understanding nuanced concepts of professional branding in social media posts) (Street, 2003). In the case of digital literacy, literacy includes how people understand and enact “being” in digital contexts beyond a simple demonstration of discrete digital skills and abilities (Street, 2003). Since many complex layers of social interactions involving various dynamics of power inside and outside of the classroom directly affect an individual’s ability to develop agency, this study will attempt to capture rich description of a variety of participant conceptualizations to contribute to clearer

understandings of a multi-faceted definition of digital literacy.

*Formal and informal literacy instruction* - For the purposes of this study, formal literacy instruction encompasses all curriculum designed by an educational professional to explicitly teach students how to make meaning in digital spaces. Informal literacy instruction will include any instruction occurring outside of designed classroom curricula. For example, this could include a peer spontaneously guiding another student to complete an academic task that utilizes digital literacy.

*Literacy sponsorship* - Literacy sponsorship indicates a flow of literacy from one individual to another with an inherent power dynamic. Brandt (2001) defines the concept of literacy sponsorship as follows:

Sponsors, as I have come to think of them, are any agents, local or distant, concrete or abstract, who enable, support, teach, and model, as well as recruit, regulate, suppress, or withhold, literacy – and gain advantage by it in some way. Just as the ages of radio and television accustomed us to having programs brought to us by various commercial sponsors, it is useful to think about who or what underwrites occasions of literacy learning and use (p. 19).

Participants were prompted to explain how their skills originated and in doing so to explain whether the origins may or may not have been supported formally or informally to enable independent action. Within the concept of literacy sponsorship as a transfer of agency, I discussed instances of opportunities to learn.

*Opportunity to learn (OTL)* – According to Carroll's (1977) model of school learning, the notion of opportunity to learn means the “amount of time permitted by the instructional system for learning” (p. 156). Because Schmidt, Burroughs, Zoido, & Houang (2015), found that there are discrepancies in OTL for low SES students, I considered opportunity to learn as a construct in the analysis of whether or how students felt they had specific instructional time allotted in courses to support their digital

preparation for college.

*Underserved populations* - This includes gender, ethnic, and disadvantaged backgrounds (low socioeconomic status and no higher education experience) currently not represented in higher education in proportion with the general public. The Early College High School Initiative supported by the Bill and Melinda Gates Foundation particularly seeks to support these populations to achieve college degrees (Berger, 2013).

### **Background of the Digital Divide**

In the midst of literacy shifts to digital space, those who lack access to digital tools and instruction are underserved disproportionately along well-established lines related to ethnicity, socioeconomic status, and gender (Goode, 2010; Naidoo & Raju, 2012). As digital literacy becomes more critical to functioning in everyday life, researchers continue to track a widening gap in those who have and do not have access to digital discourses. In one study, Naidoo & Raju (2012) discussed the evolution of higher education environment in South Africa since Apartheid and the simultaneous emergence of information technology skills gaps. In South Africa before 1994, Apartheid dictated that educational contexts would be determined by ethnic categories and limited access to higher education for black students. Consequently, black students lacked equal exposure to technology and digital information. The researchers sought to identify successful instructional methods to accommodate diverse student ability levels resulting from the legacy of Apartheid systems. The United States faces similar legacies of unjust educational systems related to ethnic segregation necessitating a research focus on addressing these issues.

While consensus exists regarding the crucial tie of digital skills with successful navigation of college and evidence mounts that students enter college lacking these skills, almost no consensus exists regarding how these literacies are acquired (Kumar & Vigil, 2011). Educational Testing Services (ETS), the same company that develops and administers standardized higher education exams such as Advance Placement tests and the Graduate Record Examination (GRE), designed the outcome-based iSkills test to measure critical thinking in digital environments. Using data from an iSkills test administration in over sixty-three high schools, community colleges, and four-year colleges, Katz (2007) found that poor ICT literacy performance is prevalent. Since digital literacy underpins successful academic trajectories, researchers warn that students face serious challenges if writing and digital skills are not simultaneously developed (Goode, 2010; Relles & Tierney, 2013; Naidoo & Raju, 2012). Of particular concern, research continues to reveal that underserved populations are especially at risk for digital inequities due to existing cultural capital disparities (Cotten & Jelenewicz, 2006; Naidoo & Raju, 2012; Relles & Tierney, 2013). Studies reveal that female students in low socioeconomic situations and representing minority ethnic groups might be especially at risk for being unprepared for college in the areas of writing and digital literacy (Goode, 2010; Naidoo & Raju, 2012). In addition, nontraditional adult students are at risk because they have not grown up in digital environments (Guzzetti & Foley, 2014). Significant digital skills gaps for underserved populations demonstrate systemic inequities that must be addressed through educational reform.

As the digital divide continues to move beyond simple access to computers and Internet for most groups, low socioeconomic groups continue to experience

disproportionately large barriers of basic access. These barriers perpetuate situations of difficulty in obtaining college-level readiness because they are underserved in the public K-16 educational settings in developing digital literacies. Researchers found statistical evidence that schools serve different demographic backgrounds in markedly different ways with those serving low-income and students of color demonstrating inferior instruction (Goode, 2010; Gormley & McDermott, 2014; Naidoo & Raju, 2012). Schmidt, Burroughs, Zoido, & Houang (2015) contended that a discussion of classroom content is missing from the discussion of whether or not schools have the capacity to overcome inequitable socioeconomic status (SES) situations. While noting limitations of other factors such as school funding, teacher quality, and student motivation, they found that 37% of the SES inequality relates to opportunity to learn (OTL) (Schmidt, et al., 2015). Students underserved in these schools continue to fall further behind in all literacies as technology becomes increasingly critical to the academic process. Ultimately, the lack of equitable digital literacy support for underserved students affects college entry, persistence, and success.

Within the body of evidence demonstrating a continuing digital divide, Cotten and Jelenewicz (2006) reported that the presence of computers and Internet access at universities, or assured access, diminishes the digital divide. For example, results of a logistic regression in an assured access environment revealed no significant association between race or Internet experience and Internet usage measures (such as web surfing) among residential college freshmen. However, they conceded that their study did not look at academic uses of computers and Internet. Additionally, Cotten and Jelenewicz (2006) acknowledged that their study was contextualized in a unique university setting in which

technology occupied a focal point for studies and additional programs were in place to support ethnic minority students (2006, p. 504). Other researchers found significant disparity in digital opportunities for marginalized groups (Ortega, 2013). Ortega (2013) argued for big changes in teacher preparation to support a transformation of educational practices. Curwood (2013) contributed to evidence that digital learning components position students in participatory environments where levels of critical engagement and development of advanced literacy skills are superior to traditional classroom experiences. Ultimately, real progress will only occur as hierarchical digital discourses with inherent power and privilege are flattened (Selwyn, 2015).

Beyond assessing student access to technology to support achievement, evidence continues to mount that students require formal instructional supports to overcome situations of gaps in comprehensive digital literacies. Information Communication Technologies (ICT) form a part of the foundation of an entire spectrum of digital literacies. In a qualitative study of college freshmen in Turkey, researchers measured student ICT proficiency perceptions through techno-autobiographies to access digital literacy proficiency to inform policy and instructional decisions at institutional levels related to support of skills development (Ricoy, Feliz, & Couto, 2013). They found that underlying economic factors played a role in acquisition of skills and advocated that instructors could assist in mitigating these personal factors by embedding technology instruction in existing disciplinary content delivery (Ricoy, et. al., 2013, p. 267). In addition, the researchers gave suggestions for institutional level initiatives to ameliorate disparities such as extending class times, allowing for loaning of technology, and increasing Internet access. As with much of the research associated with the digital

divide, this study supported measures to ensure equal access, but also emphasized the necessity of instructional and institutional support of skills development to address inequities (Ricoy, et. al., 2013, p. 267).

In connection with the setting of my study as an educational framework focused on addressing inequity, I sought out examples of digital inequities, or differences in expenditures per capita, at a state level. Using archival data, Barrett, Moore, & Slate (2014) conducted a study of over 2,500 schools in two academic years (2009-2010 and 2010-2011) to determine student to computer ratio as a function of poverty and race. Although improvements were noted, they found substantial inequities, or gaps in access and utilization, persist with regards to poverty and race as digital divisors (Barrett, et. al., 2014, p. 116). Notably, elementary schools with high Black or Hispanic populations were disproportionately affected by technology gaps, which perpetuates situations of educational inequality. The study highlighted the movement of some districts to policies of BYOD (bring your own device) and BYOT (bring your own technology) that problematize efforts to document access and will require additional efforts to monitor (Barrett, et al., 2014, p. 118). In addition, the study found that the highest performing schools documented higher levels of computer access than mid- or low-performing schools, warranting further investigation. Although this is one state, the issue of equitable access in early public school pipelines remains problematic across the country requiring additional research to inform more effective means of implementing and sustaining instruction related to digital skills.

Based on the afore mentioned literature from this section, considerable evidence continues to mount indicating reforms are necessary in public educational policy and

practice. Necessary reforms include implementing explicit instruction to support digital literacy development to overcome systemic inequities. This mounting evidence speaks to an urgent obligation for policymakers, educational leaders, and educational professionals to take action in the form of a unified, strategic plan to address these inequities. By specifically highlighting the experiences of ECHS graduates as a bounded group in my study, I described successful students' experiences in meeting postsecondary digital readiness demands to inform strategic policy and practice planning for PK-16 educational contexts.

### **Background of the Concept of Digital Natives**

In connection with a lack of sustained efforts to produce a cohesive strategy for digital literacy integration, researchers question pervasive assumptions about digital literacy inherent in current policy and standards (Bennett et al., 2008; Duncan-Howell, 2012; Selwyn, 2015). High-stakes testing environments linked to standards and accountability frameworks are awash with language indicating that digital literacy is critical, however, no strategic national plan has been developed and implemented. Several professional associations, such as the International Society for Technology in Education (ISTE), have developed digital literacies standards; however, the adoption of any specific standards in effort to inform PK-16 instructional frameworks remains incomplete. Research indicates that teachers are aware of the importance of incorporating use of technology in curriculum to support learning in an increasingly digital society, but are underprepared to explicitly teach those literacies (Fluck & Dowden, 2011). In this vacuum of responsibility for teaching and absence of explicit curriculum expectations, students enter college with differing levels of digital literacy with lower levels associated

along gender, socioeconomic status, and ethnicity lines (Goode, 2010; Naidoo & Raju, 2012). As postsecondary institutions continue to grapple with how to merge digital practices and processes with educational practices and processes, Selwyn (2015) argued that digital literacy education should be approached as problematic because education has not kept step with innovation.

Many education professionals assume that students have access to digital environments, such as Internet-connected mobile devices and personal computers, and the necessary skills to navigate those environments. However, research demonstrates that although students are now growing up in technological environments, their technology use and skills are not uniform nor are they universally transferred to academic settings (Bennett et al., 2008; Duncan-Howell, 2012). For example, in a study designed to test early efforts to establish college-level assessment of digital literacies with over 10,000 upper-division high school and college freshman students, Katz (2007) discovered a disconnect between what students and educators perceive about digital abilities and the actual demonstration of those abilities. Students overall performed poorly on standardized ICT test items where proficiency ranged from thirty-five to fifty-two percent in individual skill categories (Katz, 2007). Later, Murray and Perez (2014) also found a majority of students are graduating without sufficient digital literacies, such as being able to identify a suitable file formats for a specific application.

The fact that skills are neither uniform nor universal mirrors concerns with other forms of literacy gaps present in developmental classrooms. Researchers also reject the notion that the so-called digital natives evidence distinctly different learning styles as a group (Bennett et al., 2008; Kumar & Vigil, 2011). Researchers caution that while

students demonstrate affinity and comfort with digital spaces, this does not necessarily match proficiency with using digital literacies in academic settings (Duncan-Howell, 2012; Kumar & Vigil, 2011). Although evidence continues to mount and should dispel assumptions regarding students' aptitudes in digital literacies, pervasive views persist that digital natives can acquire and apply digital literacies by being exposed haphazardly to technology. Throughout this study, I aimed to assist in clarifying assumptions related to inherent digital literacies of students growing up in digitally saturated social contexts.

Stemming from a general assumption that students will be digitally literate by default as they grow up surrounded by technology, pre-service teachers are now entering college as so-called digital natives. These pre-service teachers lack the skills to transfer their personal digital literacies to professional contexts and require specific program support to acquire those skills (Fluck & Dowden, 2011; Kumar & Vigil, 2011). As these assumptions about the digital literacy of pre-service teachers are exposed, hopefully, institutions will respond with programs of instruction that embed support for teachers to transfer their personal digital proficiencies to professional practice.

One notable assumption on the part of many educators is that teaching digital literacies is not their responsibility as discipline literacy experts (Fluck & Dowden, 2011). Research indicates that ubiquitous technology will have wide implications for higher education professional development needs to support new pedagogies involving inquiry-based learning (Duncan-Howell, 2012). For some educators, the likelihood of new pedagogies being adopted are slim without support. Changes would be heavily reliant on national and institutional initiative to require evidence of integrated instruction. As such, the onus is on educational researchers to escalate the necessity of policies and

professional development for digital literacy instruction. One scholarly significance of my study could be to illuminate instructional possibilities to move pedagogical practices into alignment with current social practices.

Studies call for reform to address the myriad of assumptions about digital literacy by solidifying frameworks for instructional support (Duncan-Howell, 2012). Duncan-Howell (2012) advocated for discipline-specific frameworks to correct within programs where explicit digital literacy instruction has been noticeably absent. Research calls for “disruptive” (upsetting traditional approaches) educational events (Selwyn, 2015) such as ‘flipping,’ ‘mashing-up’ and ‘remixing’ classrooms to convey instructional methods that incorporate proactive, supportive, collaborative, and creative learning environments. Again, the successful shifts in pedagogical paradigms require a groundswell of attention to the issues and widespread action to ensure that students are afforded equitable access to digital literacy instruction. This study assisted in clarifying understandings of current student experiences related to meeting discipline-specific digital literacy demands at the college level.

### **Summary of Introduction**

This chapter provided the story of my thinking related to the digital literacy demands I observed as a professional in secondary, postsecondary, and business environments which prompted me to focus my research on clarifying understandings of student preparedness experiences in meeting those demands in college. Additionally, an overview of the background related to the digital divide and assumptions connected to concepts of the so-called “digital native” helped to highlight the struggles specific populations face in overcoming barriers to access and navigate higher education. As an

entry to the present study, the story of digital inequities and prevalent assumptions about high-levels of digital abilities began to contextualize the purpose of building a stronger understanding of whether or how students felt prepared to meet demands for advanced digital skills, abilities, and behaviors.

## II. REVIEW OF LITERATURE

At best, then, current forms of ‘digital education’ appear to be doing little to challenge or disrupt the prevailing individualization, commodification, and privitisation of contemporary education. Conversely, there is far less that actively promotes ‘positive’ concerns of social justice, inequity and the notion of education as a collective public good.

— Neil Selwyn, 2015, p. 238-239

As introduced in Chapter I, digital literacies factor heavily in college readiness along with traditional literacies such as reading, writing, and mathematics to support success for students in the second decade of the 21<sup>st</sup> century and moving forward. Pioneer researchers in the field of digital literacies, Michele Knobel and Colin Lankshear, asserted:

“We were – and are – conscious of living at a defining moment in history – when massive changes occur routinely in technologies, institutional life, everyday social practices, and configurations that are often bundled together under the umbrella of “globalization.” We wanted to understand these changes as deeply as we could” (2006, p. 79).

In the context of such rapidly changing social milieus, educational researchers have a daunting task to contribute to clearer understandings of what it means to be prepared for college environments that are increasingly dependent on digital contexts. In this chapter, a synthesis of relevant literature for three major areas is discussed including: current landscape of digital college readiness, the college readiness focus within the Early College High School (ECHS) framework, and the conceptual framework for the study.

### **Current Landscape of Digital College Readiness**

As the demands for digital literacies increase in educational contexts, the emerging area of research related to what skills, abilities, and behaviors afford postsecondary students to successfully access and participate in academic digital discourses remains sparse. Mostly, research has helped to identify some assumptions

related to the digital proficiencies of college students and digital ability gaps related to underserved populations.

### **Assumptions Related to Digital College Readiness**

In the midst of digital access and use explosion, educational researchers cite a lack of clarity in defining the concept of digital literacies as problematic in making meaningful progress toward establishing standards to underpin strategic curriculum planning (Dede, 2010). In comparing current major frameworks of 21st century skills such as Educational Testing Services (ETS) ICT Digital Literacy Framework and International Society for Technology in Education (ISTE) student standards, Dede (2010) suggested that identified skill sets and developing standards are generally consistent. For example,

As the ISTE and ETS ICT frameworks suggest, much of what distinguishes 21st century skills from 20th century competencies is that a person and a tool, application, medium, or environment work in concert to accomplish an objective that is otherwise unobtainable (such as the remote collaboration of a team scattered across the globe via groupware) (p. 63).

Although standards are being developed by different entities and there is yet to be an adoption of a single framework on which all educational decisions will be based, a general consensus is emerging to help clarify basic digital literacies (such as information and communications technologies or ICT). While progress has been made in clarifying emerging literacies, Dede (2010) asserted that postsecondary educators on the whole still shape disciplinary standards based on digital literacy as augmentative instead of central to instruction. Efforts to assess and benchmark digital literacies to show cross-disciplinary learning gaps are necessary to overcome this assumption that explicit instruction is not vital to success in all college disciplines.

Similarly, in an article discussing the Common Core State Standards (CCSS) that are designed to prepare K-12 students for 21st century literacy, Drew (2012) cited many of the same assumption issues as Dede (2010). Within the framework of the CCSS, digital literacies standards remain vague and instructors are resistant to integrating digital literacies. Drew (2012) noted that CCSS do not recognize literacy shifts to digital spaces nor do they place an emphasis on the Internet as a central text for 21st century learning. Drew (2012) used digital reading to explain the situation:

The distinction between online and offline reading is not yet considered in this conversation. Digital texts are included as add-ons ...[and] do not take into account the discursive, nonlinear, interactive, and multimodal elements of online text... As can also be argued with offline text, there is not one essential “whole” to understand with online text, especially on the Internet. It is not enough to list “digital text” as a type of text students will encounter; stakeholders need to address the additional demands of online reading to prepare students for meaningful encounters with online content (p. 324).

Unfortunately, the lack of clear emphasis on digital literacy instruction in the pre-college educational pipeline translates to a continuation of inequitable opportunities to learn. Moreover, students currently in the pre-college pipeline over the next decade will not have been exposed to CCSS design efforts to focus on more rigorous college readiness standards and may need additional support upon entering college (Holschuh, 2014). While Drew (2012) advocates for educational professionals at the state, district, and classroom level to integrate digital literacies into curriculum and assessments, the situation reflects a distinct lack of strategic planning in the U.S. for digital literacy instruction in connection with college readiness.

In comparing American educational effort to support digital preparation for college with other nations, Murray and Perez (2014) observed that other developed countries (e.g. Japan and Korea) and the European Commission have “mature digital

literacy strategies” while the U.S. has nothing “beyond providing an online portal to resource materials” (p. 88). In their study, the university was operating under the assumption that students were graduating with sufficient digital literacy; however, researchers found that if a typical grading scale were applied to the digital literacy assessment tool used in the study, 72% of the students would have failed and nine percent would have barely passed (Murray & Perez, 2014). Using a 15-item multiple choice instrument that assessed broad knowledge of hardware and operating system concepts, application software, and Internet information literacy, the findings indicated that only 19% of graduating students were digitally literate. Murray and Perez (2014) asserted that universities have taken digital literacy “...for granted or assumed [it] to be at an adequate level rather than being assessed, remediated, and amplified” (p.85). Although digital literacy is recognized as a critical skill in society, the researchers provided compelling evidence that assumptions about preparedness for participation in academic discourses mediated by digital contexts continue to leave students underprepared to fully function in digital societies even upon graduation.

While prevalent assumptions of high levels of digital literacies persist, some higher education programs reflect more progressive efforts to include digital in planning for student success at the college level. In a discussion of a directed self-placement (DSP) program at two public American universities, Michael Knievel (2016) explored what students who may be at-risk experience in first-year composition (now styled as “communication”) and whether the placement emphasized traditional print or digital composition. He discussed the impact of digital definitions of writing on the methods, processes, and rationale behind college-level writing:

In short, the way in which compositions of all kinds are created, disseminated, and consumed is undergoing a sea change in the digital age. This has had a profound impact on how legitimate communication practices are defined—and, in many ways, taught. To help incoming students understand their places and possibilities within the postsecondary learning environment—and to position them to succeed—we must examine how we directly and indirectly articulate this evolving sense of what “communication” means. Placement processes for incoming students constitute one opportunity for articulating such definitions and values (Knievel, 2016, p. 15).

As a critical point in helping students negotiate the space between their pre-college experiences and what will come during college, Knievel (2016) argued that “inviting the digital” into the process of determining incoming students’ strengths offered a more balanced approach to helping them understand where they fit in the college environment. By explicitly incorporating digital literacies into the placement decision process for incoming students who may be at-risk, institutions of higher education can proactively begin to close achievement gaps for underserved populations.

In connection with efforts at the postsecondary level to address assumptions related to digital preparedness for college, discussions at the elementary level can assist in vertical alignment of curriculum to support digital literacies. Hicks and Turner (2013) wrote, “We are parents. We are English teachers. We are citizens in a digital age. And we are worried...” that digital literacies are not being taught sufficiently, if at all (p. 58). They created two fictitious school models based on composite observations to illustrate practices that actually work against the acquisition of digital skills:

We are concerned about Exodus Elementary [fictitious model] and all the schools it represents, because we know that the digital divide is growing, and we know that students in areas without access to tools of technology and the Internet will struggle to participate economically and politically. We are also concerned about schools like Access Academy [fictitious model], where shifts in educational technology do not mean shifts in broader conceptions of literacy and what it means to teach literacy in the contemporary world. We know that instruction in

these schools must be remixed and that it will take some boldness to meet that goal (Hicks & Turner, 2013, p. 64).

The concept of remixing instruction to address gaps in how students are digitally prepared to meet demands fits perfectly with the very nature of the emerging literacies; however, the researchers emphasized that educational systems have not embraced this understanding yet.

In short, incorrect assumptions about student digital literacies are pervasive in PK-16 educational environments. The literature reflects progress in the attempt to provide definitions of all terms associated with the study of digital literacy, but more work is needed to establish clear, universal vocabulary to communicate new evidence in the field. Too many assumptions muddy the understanding in the field and clearer communication will assist in unpacking the real issues related to digital divide. As concepts are clarified, assumptions will be more easily corrected and progress can be made toward real instructional solutions in the form of strategic planning, updated pedagogy and effective professional development.

My study was the first to specifically address digital college readiness from the perspective of Early College High School graduates. The shared ECHS participant experience is significant because it represents a highly specific educational framework focused on supporting underserved students to access higher education through comprehensive college readiness development. By analyzing and reporting on individual lived experiences, my study could reveal multiple constructs to contribute to clearer shared understandings of definitions and practices related to preparing students digitally for college. These new shared understandings could offer insights into how to develop and align more equitable opportunities to learn in PK – 16 contexts.

## **Digital College Readiness and Underserved Populations**

Hand in hand with a discussion of assumptions about digital proficiencies, the literature provides information to understand the landscape of preparing digitally for college and underserved populations. For this study, I am particularly interested in understanding how Early College High School graduates perceived their digital preparedness for college and whether there may be any connections across cases to social background factors.

According to his research, Lucas's (2001) theory of effectively maintained inequality (EMI) posits that students with more affluent backgrounds have greater odds of being in the best position to have perceived agency and to choose to move to the next stratified curriculum level. He observed that "Students' location in the stratified curriculum has implications for their likelihood of making additional transitions and their location in the stratified curriculum is an integral part of the process of educational attainment" (p. 1678). For students with higher social background factors, the chances of moving to higher levels of educational attainment are greater because they have social resources to help them make the transitions.

Lucas (2001) asserted that "students encounter separate decision points that implicitly allocate them to different curriculum" (p. 1649). For example, students in this study (even those who identified as belonging to low socioeconomic backgrounds) made a decision in eighth grade to attend an ECHS that set them on a different curriculum path than they would have otherwise encountered in a traditional high school setting. In making decisions, Lucas (2001) further asserted that students consider their most recent salient performance. In other words, students use the information they have about their

ability to perform at their current level to determine if they are able to move to the next higher level.

Looking at educational attainment as a culmination of yes/no decisions, prior research had indicated that students at higher levels of the stratified curriculum (e.g. a high school junior) are less dependent on social background effects in moving to higher levels (Lucas, 2001). This effectively means that the playing field for lower SES students seems to be leveled with higher SES students as students make it to higher levels of the curriculum on their way to college readiness. Lucas (2001) refuted “unobserved heterogeneity” related to waning coefficient patterns (i.e. less dependent on parental support to make transitional decisions such as whether to drop out or take an AP class) as an incorrect representation of student experience (p. 1659). Instead, he found that there are significant quantitative and qualitative differences in the education received between less SES advantaged and higher SES advantaged students (Lucas & Beresford, 2010). For example, the less advantaged student may move up in grade level (quantitative gain) similar to a more advantaged student, but may be experiencing an inferior learning environment (qualitative loss).

Interestingly, a recent study conducted by DeAngelo and Franke (2016) indicated that the essential component of this heterogeneity is college readiness as opposed to social background factors. Using Lucas’s (2001) theory of EMI as a lens for their study, DeAngelo and Franke (2016) found:

Importantly, social status factors do not affect retention for students in the college-ready group. Thus, these results seem to indicate that if the playing field in terms of readiness can be leveled prior to students beginning college, the social background factors that put students at risk of attrition once they begin college might be largely ameliorated. These results also indicate that the college

environment itself appears to provide incomplete support for students who begin college less-ready (p. 1603).

Because the participants of my study were part of an educational framework focused on general college preparation for all students, I gleaned insights from the students' perspective of whether or how digital college preparation, in particular, helped them reach higher levels of the curriculum strata.

In another study specifically focused on low-income, first-generation college students enrolled in developmental education writing courses, Relles and Tierney (2013) reported two levels of disadvantages of being underprepared in both traditional and digital literacies causing a situation of being doubly at-risk. They reported a "spectrum of technological advocacy" to summarize a non-linear model as they sought to address digital and writing preparedness gaps (Relles & Tierney, 2013, p. 479). One of their aims was to initiate an interdisciplinary dialogue in higher education to address the lack of meaningful communication between areas of scholarship. My intention in this study is to extend the conversation by contributing to understandings of what a non-linear model of digital preparedness means from the viewpoint of students who represent underserved populations.

Another piece of the landscape related to digital proficiencies and underserved populations involves a link between achievement and instructional frameworks for digital literacies in urban vs suburban contexts. Gormley & McDermott (2014) examined the achievement gap between urban and suburban third grade students and found that suburban students greatly outperformed urban students especially in the area of new (digital) literacies. Students had access to computers, but qualitative data revealed a marked difference in how suburban children reported learning digital literacies through

explicit enriched school-based instruction with qualified teachers utilizing technology in the classroom frequently and modeling at home based on parent use of technology. In sharp contrast, the urban students reported that they only used technology at school for remedial instruction and had limited access to technology outside of school (Gormley & McDermott, 2014, p. 258). The researchers cite lack of funding in the urban schools and the pressures of standardized testing as barriers to equitable instruction (Gormley & McDermott, 2014, p. 259). They advocated for mandated curriculum development for digital literacies to correct for the omission of opportunities to learn in this area because of competing pressure to teach standardized testing skills. Gormley & McDermott (2014) provided evidence that explicit instructional supports link to achievement gains at the elementary level, but evidence at the college level remains sparse.

In contrast to findings related to urban vs suburban settings, a study of gaps related to home access did not correlate to achievement gaps. Vigdor, Ladd, and Martinez (2014) corroborated with previous research in finding significant gaps in home computer access, but refuted the inference of other studies as to the causal relationship between impact of home computer use and achievement. Within-student comparisons demonstrated that home access does not directly correlate to enhanced student academic performance. The researchers pointed to the need to clarify if early computer access does have an impact on later computer literacy. Vigdor, et. al. (2014) suggested that universal access might improve student performance by facilitating new pedagogical approaches and curriculum. They recommended additional research to address these considerations. This study supported the move from research only focusing on technology access (both in the home and at school) to more robust research encompassing access, instructional

practices, and student digital self-efficacy to understand effects for underserved populations.

Despite the newness of digital preparation for college as a research topic, some models of digital education have been offered. Jones, Johnson-Yale, Millermaier, and Perez (2009) found models of differential use of and attitudes toward the Internet related to ethnic and gender categories. Their findings supported earlier studies that indicated females use the Internet for communicative and academic purposes more frequently than males and suggested that this may be related to increasing numbers of female college students. In this study, I considered whether or not the findings of Jones, et al. (2009) bear out.

The literature provided support that underserved populations might be vulnerable to inequitable opportunities to learn in PK-12 environments to develop advanced digital literacies. My study is positioned to contribute to clearer understandings of how or whether postsecondary students representing underserved populations felt they were supported to prepare digitally for college and if so, what specific opportunities to learn were afforded them. Specifically, my study allows for a broader examination of self-selected academic products to describe performance in digital contexts beyond a classroom intervention and consider patterns across those performances to help construct clearer understandings of how underserved groups navigate digital expectations and requirements.

### **The Early College High School Framework and College Readiness**

In 2002, the Early College High School Initiative (ECHSI) was launched in an effort to provide students with a focused college readiness learning environment.

Sponsored by the Bill and Melinda Gates Foundation, the ECHS design is based on partnerships between public secondary school districts and community college systems to provide college readiness supports for traditionally underserved groups (Berger, Adelman, & Cole, 2010; Edmunds, Bernstein, Unlu, Glennie, & Arshavsky, 2011; Edmunds, Willse, Arshavsky, & Dallas, 2013). Specifically, ECHS frameworks include opportunities for public high school students to simultaneously earn a high school diploma and free college credits up to an associate undergraduate degree. Berger, Adelman, and Cole (2010) explained:

The hypothesis underlying [ECHS frameworks] is that even reluctant or discouraged high school students, who may be unengaged in traditional school settings, can be motivated at a relatively early age to view themselves as successful participants in the college experience. Recent research has supported this hypothesis (p. 334).

The core principles of an ECHS include: 1) a commitment to serving students traditionally underrepresented in higher education, 2) a joint accountability for student success ensured by a local education agency, higher education institution, and the community, 3) a jointly developed, integrated academic plan for all students to earn from one to two years of transferable college credit leading to college completion, and 4) a comprehensive support system to develop necessary academic, social, and behavior skills necessary for college completion (Berger, et al., 2010). Overall, the ECHS environment is designed to provide as much educational support as possible (including a foundational digital literacies course) to ensure students are not only college ready, but on their way to completing a degree.

The research indicates that ECHS are successful. In a report of the first years of the ECHSI, Berger, et al. (2010) reported that ECHS demonstrated success in the

following areas: high attendance rates, high progression rates from grade to grade, and accumulation of an average of 23 college credits. Edmunds, Willse, Arshavsky, and Dallas (2013) offered experimental evidence of the success of the “mandated engagement” efforts enacted in ECHS models in North Carolina. Because the schools are designed to create atmospheres of engagement and challenge in the learning process, students reported “higher expectations, better relationships, more support, and more rigorous and relevant instructional practices” (Edmunds, et al., 2013, p. 28). Research has pointed to evidence that the comprehensive support system results in successful college preparation in academic, social, and behavioral domains.

As an innovative school design, the ECHS setting represents an idealized support system to prepare traditionally underserved student populations to successfully transition to and complete four-year degree programs (Berger, et al., 2010; Edmunds, et al., 2011; Edmunds, et al., 2013). For the purposes of this study, the shared secondary educational setting of an ECHS allowed for an interesting case to investigate the differences in the phenomenon of general and digital college readiness.

### **Conceptual Framework**

In seeking answers to my main questions related to ECHS graduates’ experiences with advanced digital skills, abilities, and behaviors demands, I utilized a new literacies conceptual lens. The new literacies lens enabled me to describe deictic (contextualized) literacies within a community of practice incorporating the use of ever-evolving digital technology.

Within the new literacies studies paradigm, my initial research challenge was to understand the context of literacy development in the digital age. Building from social

constructivist views, researchers in the area of New Literacy Studies (NLS) have underscored the importance that ways of knowing in the digital age have shifted dramatically and represent a new specific discourse (Coiro, Knobel, Lankshear, and Leu, 2008; Gee, 2008; Knobel & Lankshear, 2006; Leu, Kinzer, Coiro, & Cammack, 2004). The central question of researchers interested in the emerging area of new literacies is understanding how the Internet and other digital technologies have had and continue to have a profound global impact on the nature of literacy as a socially constructed concept (Coiro, Knobel, Lankshear, and Leu, 2008). Social constructivism underpins much of the new literacies research as one researcher observed, “...oftentimes, the sense we make of events, contexts, and other people are sociocultural products, not natural facts” (Steinkuehler, 2008, p. 614). In discussing learning and the World Wide Web, Kuiper and Volman (2008) argue that “sociocontractivists step even further away from the perspective of cognitive-learning theory. They interpret learning as increasingly competent participation in the discourse, norms, and practices associated with particular communities of practice” (p. 244). In this study, my research questions focused on participant perceptions of how they experienced participating in digitally mediated contexts within a shared community of an ECHS setting and in various communities in higher education settings. My study is designed to contribute credible findings through a new literacies lens related to the problem of inequitable preparation to participate in these discourses.

From a new literacies lens, this study sought to convey of a variety of participants’ stories. Gee (2014) discussed the notion of typical stories that can marginalize people and things that are not taken as “normal” or “typical” in the story (p.

88). In our current PK-16 educational system, there is a prevalent story that students as “digital natives” do not need explicit instruction to develop their digital skills. This assumption contributes to the marginalization of people and denies access to equitable opportunities in Discourses (Gee, 2008) occurring in the reality of educational contexts demanding high digital literacies. A new literacies lens highlights the importance of providing multiple points of view of how people growing up in digital age contexts are navigating demands for preparedness to build richer understandings of many stories.

Finally, Leu (2000) emphasized that learning has become increasingly deictic, and this dependence on the specific context problematizes the ability of researchers to distinguish what is “new” from traditional concepts of literacy. As college students continuously encounter demands to use new digital tools, they must out of necessity change and adapt their literacy practices to new literacies appropriate for that specific context bounded by a specific time (Wilber, 2008). This deictic nature of learning new literacies, as contextualized by meanings constructed in digital spaces, provided a nuanced lens for the present study in looking at the phenomenon of how students construct their views of whether or how they were digitally prepared for college. This nuanced lens allowed for layers of analysis related to postsecondary settings mediated by digital contexts.

Ultimately, a new literacies lens provides a framework to problematize the current social context of inequitable digital preparation for college in American K-16 settings. By examining ECHS graduate experiences with meeting demands, I can contribute thick description toward clarifying assumptions related to how or whether students develop digital college readiness.

## **Summary of Review of Literature**

In this chapter, the current landscape of digital preparation for college was explained specifically in terms of identifying assumptions about so-called digital natives and divides related to underserved populations. Based on this information, I realized an urgent need to reassess social justice issues associated with digital discourses, which have an impact on teaching and learning at all levels. My research is positioned to help clarify assumptions to inform ways to address systemic inequities to bridge digital preparation gaps associated with marginalized populations. Especially in consideration of students enrolled in developmental education courses, my study could be used to shed light on gaps in clear understandings by describing successful instances of advanced digital proficiencies development.

An overview of the ECHS framework was presented to explicate the college readiness environment shared by the participants. Because the participants shared a common ECHS secondary setting specifically designed to support college readiness, my study could contribute insights to clarify assumptions that so-called digital natives inherently possess sufficient levels of digital preparedness simply by being immersed as members of a digital society. My study is the first to consider Early College High School frameworks and the phenomenon of digital college readiness.

My conceptual framework of new literacies provides specific focus on problematizing current social contexts related to equitable opportunities to learn in preparation for college-level digital demands. Since the literature indicates a lack of decisive strategies in supporting all students to attain digital preparedness for college, this lens will help guide my proposed study to contribute to gaps in understanding the

complex phenomenon of digital college readiness to inform backward planning for more equitable PK-16 learning frameworks.

### **III. METHODS**

This study utilized a qualitative multi-case study approach (Merriam & Tisdell, 2016; Stake, 2000; Yin, 2014) in a naturalistic inquiry of Early College High School (ECHS) graduates' perceptions of whether or how they felt digitally prepared for college. A multi-case study approach allowed for redundancy across cases representing traditionally underserved populations to inform emerging patterns toward understanding different trajectories of advanced digital skills, abilities, and behaviors development. As a highly specific college readiness environment, the ECHS context provided an excellent shared secondary setting to collect rich sources of data to help contextualize the phenomenon of DCR.

To facilitate a rich description of cases toward answering my research questions, multiple types of qualitative data were collected from open-ended online survey items, digital artifacts, course syllabi, and semi-structured interviews. Semi-structured interviews included ECHS graduates who have persisted to upper-undergraduate level courses or have graduated from four-year postsecondary institutions. Additionally, semi-structured interviews with ECHS professionals contributed to contextualizing the ECHS environment in relation to college readiness development experiences. Multiple data sources enhance the trustworthiness of my study in the form of triangulation of data (Merriam & Tisdell, 2016) to support a robust and reliable discussion of my research questions (See Figure 1).

Within a new literacies conceptual framework, I analyzed student perceptions across cases related to whether or how they felt prepared to participate in digitally mediated college discourses. Additionally, a new literacies lens (Leu, 2000) allowed for

the reporting of multiple realities shaped by specific contexts. These multiple realities were captured in multiple sources of data to richly describe ECHS graduate perceptions of navigating demands for digital expertise in postsecondary environments –both at the community college level and four-year institutional level. My positionality as a former educator in the ECHS environment was described to acknowledge my role in interpreting data. In this chapter, I describe the following: research questions, rationale for a multi-case study inquiry design, description of setting and participants, data collection protocols, data analysis procedures, study trustworthiness, and limitations.

### **Research Questions**

This study examined the following questions:

4. What digital college readiness demands do Early College High School graduates encounter in higher education environments?
  - a. What aspects of digital college readiness are assumed in higher education environments?
  - b. What realities do postsecondary students encounter related to instructional support or lack of support for digital college readiness to meet demands?
5. What opportunities to learn do Early College High School graduates report occurred inside or outside of the ECHS, community college, and four-year institutions of higher learning environments which enabled them to develop digital college readiness?
6. How do Early College High School graduates perceive the experience of attending an ECHS and whether it did or did not support their development of digital college readiness in tandem with their overall college readiness?

## **Research Design**

In considering the deictic, or contextualized, nature of new literacies, Leu (2000) noted that case studies are effective for exploring unique situational contexts that “...can provide useful insights into the use of these technologies within classrooms” (p. 19). My rationale for using a multi-case study design was that multiple cases of Early College High School (ECHS) graduates who demonstrate successful trajectories in digital preparation for college could reveal insights about effective opportunities to learn to inform instructional policies and practices.

Researchers employing a case study design are basically asking “what is going on in this particular situation?” Yin (2014) asserted that a case study is especially appropriate for inquiry in which the constructs of the phenomenon are inseparable from the context. In other words, the examination of the phenomenon of ECHS graduates’ perceptions of building digital proficiencies for college is deictic and cannot be completely extracted from experiences in secondary educational contexts. Additionally, a multi-case study design was appropriate in building trustworthiness and credibility through replication to gain insights about how successful college-level digital preparation trajectories can inform instructional supports for students who may be underprepared in one or more literacy areas.

Moreover, this qualitative multi-case study research design involved a systematic investigation of individuals in a bounded system (Merriam & Tisdell, 2016; Stake, 2000; Yin, 2014). A bounded system is defined as a finite unit of analysis (Merriam & Tisdell, 2016; Yin, 2014). The bounded system of this study was the shared secondary educational context of an ECHS during the 2009-2015 timeframe. The phenomenon

under investigation was the lived experiences of ECHS graduates encountering demands for advanced digital skills, abilities, and behaviors in postsecondary environments. The unit of analysis was holistic cases of ECHS graduates who have persisted into four-year postsecondary environments. Stake (2000) used the term *collective case study* interchangeably with multi-case study in discussing how the researcher can build a stronger understanding and more compelling argument related to a bounded system through patterns occurring across cases (cited in Barone, 2011, p. 9). By using a multi-case study design, I contributed new information specifically related to the phenomenon of digital preparation for college as experienced in the bounded system of ECHS graduates.

To further build credibility and trustworthiness in a multi-case research design, multiple sources of data are needed (Merriam & Tisdell, 2016; Yin, 2014). I collected three types of data: survey, artifacts, and interviews. Two electronic surveys were distributed: one in the fall of 2015 and one in the spring of 2017 (See Appendix G). Using preferred criteria for selection, participants were invited to participate based on survey responses. If selected for an interview, participants provided two artifacts: 1) a completed upper-undergraduate digital course project, and 2) the syllabus associated with the digital assignment. Semi-structured interviews were conducted in the fall of 2015 and spring of 2017. A retrospective Think Aloud Protocol (TAP) (Van Den Haak, de Jong, & Schellens, 2003) was used during the semi-structured interviews to help interviewees articulate their experiences navigating college-level digital demands and reduce limitations of self-reported data and researcher bias (Greene, Yu, & Copeland, 2014). Multi-case research design allowed for intensive data analysis across cases and multiple

sources of data to arrive at a converging line of inquiry (Merriam & Tisdell, 2016; Yin, 2014).

In Figure 1 (see below), I provided an overview of the research design to support a converging line of inquiry.

	Substantive Topic	Data Source	Data Analysis
Case contextualization	Context	Researcher observation as a participant	Positionality
		Survey items	Matrix for preferred criteria
		ECHS professional interviews	First and second cycle coding
		Prior research	Review of literature
RQ1	Demand	Survey items	Descriptive statistics; Content analysis
		Digital project artifact	Content analysis
		Course syllabi artifact	Content analysis
		ECHS graduate semi-structured interviews	First and second cycle coding, memo writing
RQ1a	Assume	Digital project artifact	Content analysis
		Course syllabi artifact	Content analysis
		ECHS graduate semi-structured interviews	First and second cycle coding, memo writing
RQ1b	Reality	Survey items	Descriptive statistics
		Course syllabi artifact	Content analysis
		ECHS graduate semi-structured interviews	First and second cycle coding, memo writing
RQ2	Opportunity to Learn	Survey items	Descriptive statistics
		Digital project artifact	Content analysis
		ECHS graduate semi-structured interviews	First and second cycle coding, memo writing
		ECHS professional interviews	First and second cycle coding, memo writing
RQ3	ECHS Experience	Survey items	First and second cycle coding, memo writing
		ECHS graduate semi-structured interviews	First and second cycle coding, memo writing
		ECHS professional interviews	First and second cycle coding, memo writing

*Figure 1. Research Questions, Substantive Topics, Data Sources, and Data Analysis Chart. This figure summarizes the methodological connections between research questions, substantive topics, supporting data, and data analysis*

Figure 1 provides an at-a-glance research design organizational tool for introductory reference to this study. Additionally, this chapter explicates each element of design related to a converging line of inquiry.

An IRB application (# 2017398) was approved through Texas State University on February 2, 2017 (See Appendix A) and a modification was approved on February 16, 2017 (See Appendix B). A consent form was distributed as part of the electronic survey and verbal consent was obtained as the audio recording of interviews began.

### **Setting and Participants**

**Setting.** The shared setting of all study participants was a newly formed ECHS called Focus on Success Academy (FSA) (a pseudonym) located in the southwest region of the United States. The school building is physically located on the Accelerated Learning Community College (ALCC) (a pseudonym) campus. ECHS students walked between buildings to attend both secondary and postsecondary classes.

As a former teacher in this setting, I can report the following ways that the ECHS differed from other traditional high schools in the district:

- All students applied for admittance, were interviewed in the process of selection, and met minimum academic and behavioral criteria. Students are selectively admitted based on criteria to match demographics of the district at large.
- The student population was significantly smaller than the district traditional high schools (approximately 100 students per cohort compared to averages of about 1500 incoming freshman at the other schools in the same district).

- Faculty and staff include approximately two administrators, three counselors, and twenty-one teachers. Faculty and staff reflect the diversity of the student population.
- The school day was an hour longer at the ECHS.
- All students attended mandatory tutoring daily.
- All secondary courses were taught at the Pre-AP and AP level with additional ECHS learning frameworks embedded in curriculum.
- All teachers had a Master's degree or higher.
- All students were enrolled in a college preparation course for all four years of attendance.
- All students were required to take a business communication information systems (BCIS) course lasting one semester, which covered topics related to using Microsoft Office products. At the time of this study, this required course has moved to the community college and is not currently part of the ECHS curriculum.

These institutional differences created a situation intended to offer traditionally underserved students the access and support to be successful in postsecondary educational environments.

Participants shared an experience of transitioning to four-year higher education settings. The various four-year higher education settings included public and private institutions with various enrollment sizes and areas of study. Five of the ECHS interview participants attended/are attending a four-year institution within the same state of

residence that they had at the secondary level and two are attending four-year institutions outside of the state of residence.

**Early College High School graduate participants.** As part of the multi-case research design, I purposefully selected cases of ECHS graduates to study. Yin (2014) observed:

Selecting such cases requires prior knowledge of the outcomes, with the multiple-case inquiry focusing on how and why the exemplary outcomes might have occurred and hoping for literal (or direct) replication of these conditions from case to case (p. 62).

I had prior knowledge of this ECHS educational context and purposefully selected multiple cases to understand why and how graduates of this context demonstrated successful postsecondary outcomes.

Participants were recruited from the first and second cohort of the ECHS described in the previous section. Participants from both were at the end of their K-16 educational tenure, thus, they could speak to their experiences from the vantage of having passed through all levels. Participants from the first cohort graduated from high school approximately two and one half years ago (2014) and the second cohort graduated approximately one and one half years ago (2015). The participants were between the ages of twenty to twenty-one years old. Because of the ECHS framework, these students represent underserved populations in the district at large and could be considered a critical sample for this reason (Fraenkel, & Wallen, 2009, p. 431).

To begin the recruitment process, I created a combined list of potential participants from the class of 2014 (Cohort 1) ( $n=113$ ) and class of 2015 (cohort 2) ( $n=110$ ) using graduation brochures for an overall total ( $n= 224$ ). Through my personal Facebook social media account, I attempted to contact every student in each cohort. In

fall of 2015, I sent ninety-nine messages to Cohort 1 graduates and fifty-seven individuals responded (response rate = 57%). In spring of 2017, I sent sixty-seven messages to Cohort 2 and received thirty-five responses (response rate = 52%) with personal email accounts. I sent an initial recruitment communication to the potential participants on the list who were Facebook friends. Through snowball recruitment, some participants volunteered to pass on a recruitment letter to graduates of their class and students from the third cohort. One participant volunteered to post the recruitment letter on the class FB site. As part of the recruitment process, I offered incentives in the form of two \$100 gift certificate drawings for which winners were randomly selected.

After the initial recruitment of respondents for the survey, I moved to the selection of interview participants. Based on the survey results, I purposefully selected participants for interviews who met the following preferred criteria:

1. Having successfully transitioned from ECHS to four-year university (as defined by a Bachelor's degree attainment or continuing credits toward a Bachelor's degree at an accredited four-year postsecondary institution)
2. Possessing a self-created digital artifact (individually or as part of a group) representing completion of a college-level learning task
3. Representing diversity in the categories of gender, ethnicity, SES, and generational college going status

For both cohorts, I actively sought participants who self-identified as belonging to traditionally underrepresented groups to “corroborate, modify or reject” findings from the DeAngelo and Franke (2016) study (Yin, 2014, p. 40). I identified a negative case example (Yin, 2014, p. 60-61) (a survey respondent who had not persisted into a four-

year postsecondary environment), but was not able to schedule an interview with the individual. Of sixteen potential interview participants (Cohort 1, n=6; Cohort 2, n=10) who met some or most of the preferred criteria and agreed to be interviewed, seven participants were purposefully selected and interviewed (See Table 1).

**Two-tier selection method for interview participants.** Based on the background information of participants reported in the surveys, I was especially interested in recruiting interview participants who reported belonging to traditionally underrepresented groups to uncover issues related to how students navigate college-level digital demands in situations involving economic, ethnic, and generational college student status challenges. The preferred criteria for a two-tier, purposeful selection (Merriam & Tisdell, 2016; Yin, 2014) of ECHS graduates will be based on survey responses for the following items:

1. Selecting one of the two lowest SES levels.
2. Selecting high school/GED or lower for mother and father's level of education.
3. Selecting ethnic categories including: American Indian or Native Alaskan, Black or African Descent, or Spanish/Hispanic/Latinx Descent.
4. Selecting levels of educational attainment that indicate persistent to upper-undergraduate level or Bachelor's degree completion.

The resulting purposeful sample included (See Table 1):

1. Three participants who identified as belonging to the two lowest SES levels
2. One participant who indicated a first-generation college student status.

3. All participants identified as belonging to ethnic categories including  
American Indian or Native Alaskan, Black or African Descent, or  
Spanish/Hispanic/Latinx Descent
4. All participants indicated levels of educational attainment at or beyond the  
upper-undergraduate level

Table 1

*Preferred Criteria among Interview Participants*

	Alayna	Brenda	Evan	Lamont	Olivia	Sam	Travis
<b>Cohort</b>	2	1	1	2*	1	1	2
<b>Gender</b>	Female	Female	Male	Male	Female	Female	Male
<b>GCSS</b>	No	No	No	No	No	Yes	No
<b>Ethnicity</b>	Spanish/ Hispanic/ Latinx Descent/	Black or African Descent and White or European Descent	Spanish/ Hispanic/ Latinx Descent	Black or African Descent	American Indian or Native Alaskan	Spanish/ Hispanic/ Latinx Descent	American Indian or Native Alaskan, Black or African Descent and White or European Descent
<b>SES Level</b>	\$120,000 - \$149,999	\$90,000 - \$119,999	\$30,000 - \$59,999	\$60,000 - \$89,999	\$30,000 - \$59,999	\$30,000 - \$59,999	Not reported
<b>Highest Level of Education</b>	Bachelor's degree	Bachelor's degree	Associate degree + senior undergrad status	Associate degree + senior undergrad status	Associate degree + senior undergrad status	Associate degree + senior undergrad status	Some Graduate credit

Note: generational college student status (GCSS), socioeconomic status (SES)

\*Lamont transferred to a traditional high school in his junior year.

**Early College High School professional participants.** To show support for research on the ECHS framework and DCR, the principal of Focus on Success Academy, Mr. Wells, agreed to let his faculty and administration staff members be approached for interviews. I purposefully selected a college preparation course teacher to specifically gather descriptive data related to this embedded college readiness instructional

framework. I also purposefully selected to interview the teacher who was responsible for the classes dealing with digital literacies content. Lastly, I purposefully selected a counselor to better understand the more global connection between what is happening at the school-level versus the classroom-level. The semi-structured interviews with professionals supported a more robust description of the shared context. Additionally, they revealed clearer understandings related to policy and instructional decision-making within ECHS frameworks at various levels which map to conceptualizations of general and digital preparation for college.

**Researcher as a participant.** According to Yin (2014), a case study is “an empirical inquiry that investigates a contemporary phenomenon … in depth and within its real-world context…” (p. 16). As a former teacher in the Early College High School attended by the participants, this design allowed for a real-world researcher/participant exchange since a relationship already existed with the participants. As the primary instrument in qualitative research (Merriam & Tisdell, 2016), I employed this established relationship to gather replication of data toward gaining a clearer understanding of underserved students’ perceptions of preparing digitally for college and the opportunities to learn that they encountered to build digital skills, abilities, and behaviors.

I identify as a first-generation college student, White, female currently pursuing a Ph.D. in developmental education at a research university. Prior to this, I was a teacher at the Early College High School where the participants attended and graduated. As a first-generation college student who was in a low SES bracket throughout my childhood and undergraduate tenure, I understand the many barriers which can impede persistence in postsecondary environments. Although I am not a member of an ethnic group

traditionally underrepresented in higher education, I have witnessed the additional barriers faced by students of color as a teacher. I was specifically attracted to the ECHS educational environment as a professional interested in discovering ways to remove educational barriers and increase postsecondary access for underserved populations.

Because I had been a part of the shared educational setting, I believe the participants were willing to discuss their experiences. I have an established rapport with potential participants who had been students in my courses. Due to the nature of the environment as a small community in which the teachers and students interacted on many levels outside of the classroom including club time, tutoring time and school-sponsored events, I also have an established rapport with the students of the other instructor.

As first-generation college student from a low SES background, I value education highly as a pathway to escape class cycles. My values were consistent with the ECHS framework and created an immediate sense of belonging as an educator in this environment. My experience and presence in this setting contributed to the goal of providing tangible connections for students to realize the value of higher education. One example of a tangible connection for students was the mandate for all teachers to display their degrees in the classroom. I also displayed banners from the universities that I attended to emphasize the value I placed on being part of the academic community.

### **Data Collection**

Data collection in a multi-case study is a systematic collection of extensive data from a bounded system (Creswell, 2013, Merriam & Tisdell, 2016; Stake, 2000; Yin, 2014). Yin (2014) posited that multiple sources of data support triangulation to help build a convergence of evidence toward construct validity. Moreover, a chain of evidence from

multiple data sources to findings help establish reliability (Yin, 2014). The collection is recursive in that the researcher may need to circle back to participants for member checking or to collect additional information. Responses from an initial survey of all possible ECHS graduates from the first and second cohort of the selected site informed a two-tier purposeful selection (Merriam & Tisdell, 2016; Yin, 2014) of semi-structured interview participants to collect in-depth, descriptive data. Additional sources of data were collected including digital artifacts, course syllabi, and semi-structured interviews of ECHS professionals. Additionally, my design contributes to understandings of college students as creators of digital products to address research gaps caused by prior designs focused on evidence of digital consumption (Duncan-Howell, 2012).

**Survey.** The first data source used in this study was a researcher-developed, self-report survey to gather pertinent background information data, perceptions of the Early College High School environment, and levels of perceived digital proficiencies (See Appendix C). The survey was first created in Survey Monkey (2015 distribution) and then in Qualtrics (2017 distribution). Distribution of the surveys occurred via participant provided preferred email addresses. Prior to distribution, the surveys were peer-reviewed and revised to correct for editing errors, word choice related to validity, and functionality of survey in the electronic platform. A side-by-side comparison chart was created to check consistency of survey items from both distributions.

Quantitative and qualitative data from the survey was designed to inform discussions of RQ2 (What opportunities to learn do ECHS graduates report occurred inside or outside of the ECHS, community college, and four-year institutions of higher learning environments which enabled them to develop DCR?) and RQ3 (How do ECHS

graduates perceive that the experience of attending an ECHS did or did not support their development of DCR in tandem with their overall college readiness?).

As survey responses came in, I assigned pseudonyms that were randomly selected from a list of popular baby names (omitting any names that are actual names of ECHS cohort members) on a separate list stored offline. All survey data and subsequent interview data related to the respondent was be coded by the assigned pseudonym. At the member check stage, participants were offered the option to select their own pseudonym.

Part I of the survey documented informed consent for the study (See Appendix C). The next part of the survey collected background information data. To inform a two-tier, purposeful selection (Merriam & Tisdell, 2016) of traditionally underserved higher education populations consistent with my conceptual framework, background information items included: gender, SES, ethnicity, and generational college student status (See Table 1).

The third part of the survey focused on the respondents' perceptions of their general Early College High School environment experience. Part III solicited open responses to collect descriptive data related to being a member of the first and second cohort of a newly opened Early College High School. The prompts were aimed at establishing the common college-focused academic supports during the high school years to contextualize the study. Any common academic supports provided insights to contextualize my research questions of how or whether participants felt digitally prepared to meet college-level demands and if so, how they were specifically supported.

The fourth part of the survey consisted of Likert scale questions soliciting participants to consider various aspects of their digital literacies. Items were structured to

distinguish between ECHS, community college, and four-year institution contexts. Part VI was designed to capture preliminary data related to my third research question of how ECHS graduate perceive the ECHS environment did or did not support their development of DCR in tandem with overall college readiness. At the end of the third part, an open-ended question prompted participants to define the term *digital literacy* (2015 survey version) or *digital college readiness* (2017 survey version). This question was designed to be an informal member check to ascertain the participants' general understanding of the phenomenon of the study and provided a data collection point for analysis toward offering a shared construct of the phenomenon. The final questions of the survey established if the respondent was willing to participate in an interview.

**Digital artifact.** Using a retrospective Think Aloud Protocol (TAP) (Van Den Haak, de Jong, & Schellens, 2003; Greene, Yu, & Copeland, 2014), the participants selected for interviewing focused on demonstrating a self-selected digital artifact completed during enrollment in their postsecondary tenure. Retrospective TAP allowed for the participant to verbalize their thinking as they discussed the purpose, design, and functionality of the artifact. The digital artifacts included student-created presentations, videos, and a research paper that reflected college-level learning outcomes represented in digital formats. The rationale behind collecting the artifacts and using them as a data source include consideration of the inherent digital literacy demands participants faced to complete the assigned academic tasks. The variety of digital artifacts reflected different educational environments and various levels of digital proficiencies, especially regarding discipline-specific contexts. Specifically, the digital artifacts spoke to RQ1 (What DCR demands do ECHS graduates encounter in higher education environments?) and RQ1a

(What aspects of DCR are assumed in the demands that students encounter in higher education environments?).

As digital artifacts were collected, participants were asked to remove any identifying information and artifacts will be coded by the participant pseudonyms. None of the reporting of artifact information, whether in writing or screenshots, contains any identifiable information and was discussed using pseudonyms references or in aggregate.

Interview questions prompted participants to discuss their experiences with navigating digital literacy demands in postsecondary learning environments based on what they created. As such, the interviews uniquely connected with their metacognitive perceptions as a process related to the experience of creating the artifact. The presence of a digital artifact is itself evidence of digital literacy demands; thus, in addition to the interview participant reported experience, I could discuss observational data from these artifacts.

**Course syllabi.** The use of course syllabi as a data source extended the scope of the Cohort 2 data collection from Cohort 1 (Furness, 2016). In connection with the digital artifact collected for the interview, I asked the Cohort 2 participants for the specific course syllabi for which the artifact was created. As course syllabi information was collected, it was coded by the corresponding participant pseudonym. All reporting of course syllabi information does not contain any identifiable information and was discussed using pseudonyms references or in aggregate.

As the official course document of a college-level course, I analyzed this data in addition to observational and interview data to provide corroborating evidence toward building credibility for my study through triangulation (Creswell, 2013; Erlandson,

Harris, Skipper, & Allen, 1993). The course syllabi contributed to discussions related to RQ1 (What DCR demands do ECHS graduates encounter in higher education environments?) and both sub questions (a. What digital literacies are assumed in the college readiness demands that students encounter in higher education environments? and b. What realities do postsecondary students encounter related to instructional support or lack of support for DCR to meet demands?).

**Semi-structured interviews.** A third data source in the form of semi-structured interviews (Merriam & Tisdell, 2016) was utilized to collect descriptive data to support answering my research questions (See Appendix D). Two distinct sets of open-ended questions that could be used in a flexible order were developed to conduct interviews with both ECHS graduates and professionals. I also gave prompts to solicit more in depth descriptions of relevant topics as they emerged during the semi-structured interviews. The ECHS professional interviews as a data source served to contextualize the bounded system of the shared secondary educational setting.

***Semi-structured interviews with Early College High School graduates.*** As the central data source in this study, the semi-structured interviews of ECHS graduates supported discussions of all research questions in this study. Inquiry topics of discussions included: 1) what demands for digital proficiencies were encountered, 2) what opportunities to learn digital skills, abilities, and behaviors are reported, and 3) how attending an ECHS did or did not have an impact on overall college readiness.

To facilitate the data collection via a semi-structured interview process, the interview questions were sent electronically via personal email to the seven interview participants approximately one week prior to the interview. Interviews were conducted

face-to-face or via online conferencing tools (such as Skype or Google Hangouts) and were audio recorded using QuickTime on an Apple Mac laptop. The interviews lasted approximately thirty minutes to an hour and were transcribed verbatim and coded for participant anonymity using pseudonyms. All information was discussed using pseudonyms as a reference or reported in aggregate.

Throughout the interview, I followed interview guidelines based on a Think Aloud Protocol (TAP) offered by Greene, Yu, & Copeland (2014). More specifically, I used a retrospective TAP that allowed for a less distracting interview environment than the in-situ TAP (Van Den Haak, de Jong, & Schellens, 2003). A retrospective TAP afforded the capture of metacognition in situ as participants describe the digital artifact that they created and unpacked the experience of navigating digital demands related to its creation. Additionally, the use of a retrospective TAP as a facet of the interview process created a metacognitive path for the interviewees to consider the phenomenon of preparing digitally for college at a deeper level than that of an ordinary conversation to facilitate collection of rich, emergent data (Halberg, 2006).

Allowing for self-selected, self-created digital products and experiences to lead the interview responses assisted to minimize the effect of *a priori* researcher bias in answering my research questions. Member checks were conducted as part of the interview process by restating what was said during the data collection and then revisited during the coding. Individual case reports were sent to the participants for final member checks to support trustworthiness of interpretations.

***Semi-structured interviews with Early College High School professionals.*** I conducted three semi-structured interviews with two ECHS classroom teachers and a

counselor. The interviews with professionals contributed to contextualize discussions related to RQ3 (How do ECHS graduates perceive that the experience of attending an ECHS did or did not support their development of DCR in tandem with their overall college readiness?).

The interviews were conducted face-to-face at the Early College High School and were audio recorded using QuickTime on an Apple MacBook Pro laptop. The interviews lasted approximately thirty minutes to one hour and were transcribed verbatim and coded for participant anonymity using pseudonyms. Member checks were conducted as part of the interview process by restating what was said during the data collection and then revisited during the coding. Individual interview write ups were sent to the participants for final member checks to support trustworthiness of interpretations.

### **Data Analysis**

Especially for analysis in qualitative research design, Charmaz (2014) argued that a qualitative research lens rejects “an objective external reality, a passive, neutral observer, or a detached narrow empiricism” (p. 13). Additionally, an underlying assumption of naturalistic inquiry is that “human beings must operate within realities they themselves have constructed” (Erlandson, et al.,1993). My data analysis process was linked to considerations of how to bracket my experience with the participants, the ECHS environment, and other personal life experience. This approach allowed me as a researcher, not only to acknowledge my own assumptions as an “insider” of the ECHS environment and instructor of traditional literacies (specifically language literacies), but also to highlight the problematic situation of larger societal assumptions related to the necessity of instructional support for digital literacies.

In preparation to analyze the data collected from several sources, I utilized computer-assisted qualitative data analysis software (CAQDAS) to organize analysis processes. All study data was stored and maintained in MAXQDA 12 Analysis Pro software to facilitate access and maintain accurate records of coding throughout the data analysis process (Miles, Huberman, & Saldaña, 2014). While use of computer software in the inquiry process provided an effective method to accomplish data preparation, identification, and manipulation, the software did not replace the human researcher as the primary “tool” of the investigation (Merriam & Tisdell, 2016).

Using MAXQDA 12 Analytics Pro, I coded all data and considered within-case causal networks (Miles, et al., 2014). Consistent with naturalistic inquiry methods, analysis of data was ongoing as data was collected and coded (Erlandson, et al., 1993). I utilized a constant comparative approach to data analysis in which data within and across cases was consistently considered during the entire analysis phase (Glaser & Strauss, 2008). Through first- and second- cycle coding (Charmaz, 2014; Miles, et al., 2014) within constant comparative cycles (Glaser & Strauss, 2008), I consistently built and refined codes to develop evidence of patterns. As a measure to build credibility and trustworthiness, I conducted peer reviews of my coding and analysis. Additionally, individual case records were drafted and member checked by participants. Finally, a cross-case synthesis (Yin, 2014) was conducted to inform analytic generalizations.

**Analysis of survey.** Survey data was exported as an Excel spreadsheet from both electronic survey platforms (Survey Monkey and Qualtrics). For each data collection set (Cohort 1 collected in Fall 2015 and Cohort 2 collected in Spring 2017), an Excel spreadsheet was prepared for uploading to MAXQDA for coding and analysis. Initially,

following frameworks set out by Merriam & Tisdell (2016) Yin (2014), the analysis of the survey data focused on determination of viable ECHS graduate candidates for the semi-structured interviews based on preferred criteria. Self-reported data for survey questions related to preferred criteria was considered to determine interview participants in a two-tier selection process (See Table 1). The survey also supported triangulation of data analysis related to all research questions (See Figure 1).

**Analysis of interview data.** All transcribed interview data was housed in MAXQDA 12 Analytics Pro software. Following an analytical coding offered by Yin (2014), I made a matrix of substantive topics related to my research questions (demands, assumptions, realities, opportunities to learn, and the ECHS learning environment). Next, I referenced the matrix as I used the coding and memo features in MAXQDA to complete first- and second-cycle coding (Charmaz, 2014; Miles, et al., 2014) of all interviews. Throughout first-cycle coding I created codes that named meanings for words, phrases, or sentences that aligned with the substantive topics (Yin, 2014) Then, I added an additional coding step, as a data management technique, to label the code as it aligned with the substantive topics to facilitate retrieval in the software for later second-cycle coding. Next, I developed second-cycle codes across cases to develop emerging pattern codes (Charmaz, 2014; Miles, et al., 2014). I utilized first-cycle coding to create initial codes and created coding memos throughout (Charmaz, 2014; Miles, et al., 2014). Second-cycle codes were created across cases to develop emerging pattern codes (Charmaz, 2014; Miles, et al., 2014). Glaser and Strauss (2008) argue that a constant comparative method involving ongoing cycles of coding throughout the analysis allows for a systematic approach to qualitative analysis.

To increase the trustworthiness of my findings, I conducted a peer review session of my initial coding. Four peer reviewers each reviewed one code category representing codes aligned with the main research question topics (demands, assumptions, realities, and opportunities to learn). By focusing on one code category, reviewers developed a more in-depth understanding of the constructs that supported feedback on validity of coding and additional connection suggestions.

**Analysis of syllabi.** Three syllabi were analyzed in tandem utilizing a content analysis following an approach offered by Krippendorff (2013) (cited in Merriam & Tisdell, 2016). I coded and created research memos to make a basic assessment of the presence of demands for digital proficiencies. Based on these demands, I inferred “the communitive roles they play in the lives of the data’s sources” (Krippendorff, 2013, cited in Merriam & Tisdell, 2016, p. 179) by considering how the presence of a digital requirement in the syllabus was manifested in the student-created product.

**Analysis of digital projects.** Seven digital projects were analyzed using content analysis (Krippendorff, 2013, cited in Merriam & Tisdell, 2016). I coded and created research memos to support a rich description of the digital expectations for the student-created project (e.g. learning objectives, course materials, and project requirements). In tandem with the analysis of the course syllabi and the participant description of the digital project in the interviews, I sought to “...make inferences about the messages within the texts, the writers, the audience, and even the culture and time of which these are a part” (Hoffman, Wilson, Martinez, & Sailors, 2011, p. 29) to add to the convergence of evidence related to digitally preparing for college. Resulting codes relating to my

substantive topics were considered within a new literacies lens (focusing on college-level digital contexts) and combined with patterns emerging from interview and survey data.

### **Trustworthiness and Credibility**

In conducting naturalistic inquiry, I acknowledge my subjectivity in research design and interpretation of data. In effort to increase the trustworthiness and credibility of my findings and to support a converging line of inquiry toward analytic generalizations, I followed tactics suggested by Yin (2014) to build validity and reliability of case study design. To build construct validity, I collected multiple sources of evidence that supported triangulation of constructs (Merriam & Tisdell, 2016; Miles, et al., 2014; Yin, 2014). Triangulation supported the credibility of my analysis of multiple cases to establish cross-case synthesis toward analytic generalizations (Yin, 2014). Additionally, I conducted peer review sessions of data coding and analysis to ensure construct validity (Creswell, 2013; Yin, 2014). Additionally, to build external validity and support credibility of findings, I used replication logic across multiple cases to explain patterns. Member checking was performed during the interview process and key informants were offered an opportunity to member check the case study reports. To check for reliability and build trustworthiness, I employed a protocol (See Appendix H) across the cases for consistent collection methods for interview data. Finally, I used Stake's (1995) checklist for criteria of a good case study to evaluate my reporting (cited in Creswell, 2013, p. 264).

### **Limitations**

While the design of this multi-case study can contribute reconstructions of ECHS graduates' (as a bounded group) lived experiences related to meeting college-level digital

demands, the scope of this study was limited in generalizing to other ECHSs or traditional high schools (Creswell, 2013). The design relies on the reader to assess the transferability to other contexts (Erlandson, et al., 1993). Additionally, because participants will be self-reporting background, academic record, and experiences with navigating college-level digital contexts, the findings will reflect a holistic view of personal meanings that may or may not contain some reporting errors. Finally, the findings of this study are limited to the interpretive lenses of a researcher participant leaving the possibility that readers could construct alternative interpretations.

### **Summary of Methods**

To answer my research questions related to what experiences ECHS graduates report related to navigating demands for advanced digital proficiencies in postsecondary environments, I utilized a multi-case study design (Merriam & Tisdell, 2016; Yin, 2014). The design is appropriate for answering my research questions related to demands for advanced digital proficiencies as they are currently being experienced by graduates of an ECHS environment (See Figure 1). The ECHS setting provided a compelling bounded system to study because of the focus on college readiness and multiple cases within this bounded system supported a more robust inquiry (Yin, 2014). Multiple sources of data were collected to support triangulation (Yin, 2014). Data analysis procedures, managed within MAXQDA Analytics Pro, included first and second cycle coding (Miles, et. al., 2014), content analysis (Krippendorff, 2013, cited in Merriam & Tisdell, 2016), and constant comparative analysis (Glaser & Strauss, 2008). Multiple data analysis approaches supported a converging line of inquiry (Merriam & Tisdell, 2016; Yin, 2014) related to the phenomenon of DCR within the bounded system of a shared ECHS

educational framework. Study trustworthiness, credibility, and limitations were addressed.

#### **IV. FINDINGS**

...they're only gonna do what they can, I guess, put together from past experiences. And they're either not gonna do it right, or they're not gonna get the full extent of what they can do with it.

—Alayna, ECHS graduate

Speaking in general of the process of education, it makes sense that people are only going to be prepared to apply learning based on their individual access to educational experiences. It also makes sense, as Alayna pointed out when speaking about how students manage demands for advanced digital proficiencies, that sometimes gaps in preparedness can prevent full participation. To begin unpacking how or whether postsecondary students experienced learning which helped them feel prepared for college digitally to facilitate full participation, I considered my data in a systematic analysis within cases and across cases to establish patterns. Following Yin's (2014) framework, I considered how individual coded pieces of data aligned with substantive topics related to my research questions. The multiple case study supported a purposefully selected group of participants to help clarify the phenomenon of DCR related to the research questions to provide a conceptual structure for presenting individual cases (Stake, 2006). Based on guidelines offered by Yin (2014), I considered within-case findings and cross-case emerging patterns related to the substantive topics of the research questions.

In this chapter, I explicate my findings related to the substantive topics of my research questions to create a converging line of inquiry. My findings addressed the following substantive topics: demands for advanced digital proficiencies with the assumptions and realities related to those demands; opportunities to learn formally and informally to support development of DCR; and how the Early College High School

(ECHS) experience may or may not have supported both traditional and digital preparation for college.

To provide a foundation for presenting my findings, I first discuss the findings that support contextualization of the ECHS environment as the bounded system of this study. Then, following methods suggested by Merriam & Tisdell (2016, p. 233) and Yin (2014, p. 60), I provide within-case reports to establish the first link in a chain of evidence. The use of multiple cases within the bounded system of the shared ECHS allowed for replication of evidence toward establishing convincing generalizations related to the phenomenon of DCR (Yin, 2014). Because of my “insider” position in a strategically designed college readiness environment, I specifically selected cases that would represent underserved populations to achieve literal replication (Yin, 2014, p. 62). These findings create the foundation for discussion of analytical generalizations in Chapter V.

### **Contextualization of the Early College High School Environment**

In this section, I draw upon student, teacher, and counselor views to provide a foundational understanding of the bounded system within which each of the cases exists. This contextualization contributes to evidence of the ECHS environment as a framework for supporting general college readiness.

### **Student Perspectives of the Early College High School Environment**

In response to a prompt that asked graduates whether the ECHS experience was different than a traditional high school experience in building college readiness, respondents unanimously indicated that there was “totally,” “highly,” “absolutely,” “definitely,” and “oh my goodness, yeeessss,” a difference. They repeatedly expressed

views that the ECHS was different in a positive way because it was: a smaller learning community, more individualized, more academic, and like a family.

One of the first attributes of note in an ECHS framework is the purposefully controlled low enrollment numbers. Anabella noted, “Yes, I think it was very different. The school was so much smaller (which is something I loved).” Jaleesa observed, “Our school was tiny and strictly academic.” Using a colorful metaphor, Leonore explained a perceived disadvantage to the smaller community: “Our school was so small that everyone knew everything and gossip spread around faster than wildfire in a dry field.”

Another frequently occurring idea was a more individualized experience. Dahlia reported, “Because of the smaller class size, I thought the ECHS experience was more beneficial in terms of college preparation because it allowed professors to personally guide each student down the path they imagined following.” Similarly, Charity said, “In a traditional high school I would of just became another number but in an early college I was an individual not just a number.” Jareth observed, “There was a much bigger draw towards the academic side of school, and for a period, the students were addressed as individuals instead of a mass of teenagers.” As part of a smaller learning community, students expressed a feeling of a more personalized school experience.

Because the focus of the environment is on college readiness, the student perceptions logically reflected the rigorous academic context. Many noted very high expectations and the difficulty of keeping up with required tasks. Khloe said, “Going to an Early College High School was way more rigorous and it shaped a mindset that others who did not go don't have.” Jackson reported, “Being able to take classes with actual adults was probably the greatest difference that you couldn't simulate at a normal high

school. There was an air of professionalism that taking AP classes couldn't provide." In both instances, the former students' comments connect the rigorous academic environment with development of more mature views. Overall, the ECHS difference was often described as a family. Aubrey reported, "Everyone in your grade at least was treated like family. Everyone knew everyone's first, middle and last name."

While the responses tended to emphasize the benefits of the different environment, some also expressed that they missed out on some aspects of the high school experience. Some respondents reported that they had to forgo athletics and social events (such as homecoming). Harmony reflected, "Sometimes I wonder what it would have been like at a traditional high school, but even now I wouldn't trade my experience at FSA in for high school normalcy. Olivia reported,

I had given up art and singing in order to attend my ECHS, which was a big part of who I was prior to high school. Those artistic outlets allowed me to express myself and escape stress from my daily life. It also introduced me to people who had similar artistic interests. Once I attended my ECHS, I found that there wasn't as much time or opportunity to partake in these anymore. I began to relate to people only on an academic level (aside from my friends) which is a rather insignificant part of life to those outside of an ECHS. So, while I may have developed traits that helped build my character, I do believe that my socialization skills greatly suffered from being in such an isolated environment.

In short, the participants realized a trade off in the benefits and limitations of attending a school focused on college-level academic success that coincided with professional perspectives presented in the next section.

### **Professional Perspectives of the Early College High School Environment**

Along with the ECHS graduates' perspectives, I conducted semi-structured interview with ECHS professionals. The questions were designed to capture descriptive data related to what made the ECHS different from other high schools. Each participant

was asked to give a brief professional biography including an explanation of what brought them to FSA. Next, they were asked what made the ECHS different from other high schools including prompts to focus on supports for college readiness. Lastly, the participants were asked to describe what aspects of the ECHS environment specifically support digital preparation for college.

**“A noble program”: A college preparation course teacher’s perspective.** To understand the core of the ECHS experience as a college readiness institution, I interviewed Mr. Jaramillo, the college preparation course teacher and team lead. Mr. Jaramillo has dual bachelor’s degrees in Reading and English and holds a Master’s degree in Education. He taught at the middle school level for five years, then at the high school level for two years. Upon finishing his administration program, he accepted a position as Vice Principal at a middle school. After five years in administration, Mr. Jaramillo explained:

I felt that administration wasn’t for me because I was always on the phone trying to call parents and tell them the bad news that their kid was going to get consequences for having done something they shouldn’t have done. It got to the point where I was always being the bearer of bad news. You know what I mean? I miss the classroom. I miss the interaction.

He found out about the position at Focus on Success Academy and made the move back into the classroom. In total, he has eighteen years of experience as a professional educator.

One of the distinguishing features of this ECHS setting is the series of college preparation courses that students are required to take every year. As the department chair, Mr. Jaramillo leads the team of four teachers who move up with their cohort of students

each year and begin at the freshmen level again after the cohort graduates. He explained the college preparation structure:

This is my sixth year. I already graduated a cohort of students. I went with them from freshmen all the way through seniors, the class of 2015. It was very interesting because I was learning how to be that college preparation teacher from teaching them everything from learning habits to self-awareness as learners to handling college courses, the financial aspect of college, what to look for in universities; just everything that it entails to be aware of college readiness.

Beginning in their freshman year and throughout their tenure at FSA, one teacher works with each class to support development of a comprehensive array of college habits, dispositions, and behaviors that contributes to an overall school-wide focus on preparing students for college. In collaboration with the principal at the time, Mr. Jaramillo recalled that about four years ago a shift was made for this course to focus on the Career and College Readiness Standards instead of the state standards to create “a class for real world learning.”

In beginning to describe how the ECHS environment is different from traditional high schools, Mr. Jaramillo stated, “It’s a noble program because the thing is it’s helping at-risk students that otherwise wouldn’t have been able to go to college without this assistance.” As I sat in a classroom filled with images of male and female comic book heroes, Mr. Jaramillo further explained why the ECHS was different:

When I heard that the model basically focused on that, on serving those students that might be at risk of not graduating or going to college, that’s what drew me to the program... because I’ve always believed in helping kids. You know what I mean? I just love helping kids that’s why I love superheroes.

As opposed to traditional high schools that focus on accountability for what students are achieving before graduation, the ECHS focus is on “the accountability to the student after

high school.” He explained that the culture of the ECHS school involves a focus on the future.

When discussing the ECHS environment specifically related to the digital aspects of support for college readiness, Mr. Jaramillo reported structures in place that afforded students and teachers access to technology. He explained that during the time he has been at the school, computer access has increased from two lab classrooms to a 1:1 campus situation with each student having a Chromebook (a laptop that runs Google’s Chrome Operating System). Additionally, Mr. Jaramillo noted, “The district, they go out of their way to actually train us on different programs, different applications.” At the campus level, Mr. Jaramillo reported that the principal reinforces the use of technology:

All of our teachers here at FSA, we each got a Chromebook as well. We attend the Google camps...We learn from each other in our monthly faculty meetings because the principal has implemented a technology feature where every month the teachers are supposed to take a lesson that they did with technology that the students interacted with. Not so much the teacher but what did the students do. Whatever we ask the students to do, we have to be able to know ourselves.

Beyond physical access to digital environments, Mr. Jaramillo described a collaborative digital learning culture that reflected his view of an interactive approach to supporting development of DCR. While he acknowledged responsibility to learn first before requiring his students to perform, he recalled:

I remember my first year here ... I was like, “Oh, my God. I’m going to have to learn this on my own.” ...I got a kid and I was like, “Come over here. Okay, log into Aces. Log into Canvas. Let me see what you’re able to see.” That way I can learn from them and actually guide the rest of my students.

He also explained how he made affordances for students to drive the learning:

We still have a lot of learning to do. Sometimes, the kids really need to educate us. I told a student, “Oh, [student name], you know, you’re doing this in your Chromebook. How did you get that done?” Then he teaches me. Then I either ask him to teach the class or I teach it myself as to what it is that they can do.

Mr. Jaramillo described a system of self-assessment to determine which digital skills he needs to develop as a professional. Teachers at FSA complete an inventory each year and decide on professional development goals that are supported through district and campus initiatives, such as Google Camp. Moreover, he emphasized that the partnership with the community college campus provides additional college readiness supports. He specified how students' knowledge of the use of database research is collaboratively supported through college library staff.

As part of the general college readiness instruction, Mr. Jaramillo reported that the Career and College Readiness Standards are followed and the use of technology is incorporated daily. He said,

Every day we use technology here. There's not a day where technology is not an issue. Every single day I'm putting in work orders because we do have the student Chromebook so we have a Wifi system at the college. We have a Wifi system here. They get to take their Chromebooks home with them so whenever there's an issue dealing with technology, the college prep teacher, us, we put in the work order for the student.

Although there is no formal system in place designating which staff members are responsible for ensuring students have functioning Chromebooks, the college preparation team takes on the responsibility to submit work orders. Mr. Jaramillo expressed an understanding that his role was to provide comprehensive support for the students:

As college prep teachers, you have to be wearing different hats all the time. When principals come in every time there's a new change in the administration, they come in and they ask us, "So tell me about your job description," because being a college prep teacher is a bit ... It's not very common so they ask us what is your role. Sometimes, we have to be an adviser. Sometimes, we have to be a counselor. Sometimes, we have to be that parent. Sometimes, we have to be that technology facilitator.

Mr. Jaramillo provided a view that the role of teachers in preparing students digitally for college involves embracing a goal of integrated, comprehensive support.

In describing some of the challenges he faces when attempting to support digital preparation for college, Mr. Jaramillo gave a specific example:

...it's just every day there's a new challenge and you don't know what kind of problem. They did a Chromebook update where some of the extensions were not accessible on the student Chromebook so we had to put that in. All the kids are panicking. They came to the college prep teachers asking us what's going on. We're like, "Don't worry, guys. We already put in the work order. Right now, work with resources that you need." Sometimes, when like we had an outage once here at the district level and students had college assignments that was due. A lot of my students were like, "Sir, but we need this." We have that luxury where we can walk over to the college, go to the lab.

The fact that the ECHS students and faculty have access to college labs when the 1:1 situation is not working speaks to a systemic commitment to support DCR initiatives at the district level.

Although some may see technology as replacing or removing the human interaction between the teacher and the student, Mr. Jaramillo sees digital space as enhancing the connection. He observed:

There's a humanity in there. A lot of people make the case that there's no humanity in that. That people are becoming more disconnected. I feel that we're becoming a bit more connected... A lot of people might consider it a paradox but I think that the more that we're connected with people around the world, the more that we immediately connected with our students, the better we make this place...

Mr. Jaramillo gave an example of how teachers stay connected with their students using a school communication application called Remind:

Mr. S., our math teacher, he gets messages in Remind. "Sir, I don't understand this kind of formula, this kind of problem." Mr. S. says because of the fact that the kid took time to reach out to me, I'm going to take time to respond back. I think technology and humanity, even though some people might disagree with this, I think they have to go hand and hand.

Not only are the ECHS teachers like Mr. Jaramillo and Mr. S. (the math teacher) demonstrating a commitment to supporting digital literacies across the curriculum, they exhibit dedication to being connected to their students. For Mr. Jaramillo, digital space is facilitating the human connection.

Beyond the institutional commitment to help students to prepare for college digitally, Mr. Jaramillo made an interesting point that the FSA parents perceive the necessity of maintaining Internet access. He observed:

If there's an issue at home, we try to work it out here in school. In my experience, that hasn't really been an issue with kids coming to me saying, "Well, we don't have that capability at home." I think it comes from the fact that a lot of people love being connected to the world. Now it's become a necessity as much as a phone was just a couple of years back.

Although we did not specifically discuss the parental commitments for the ECHS in the interview, there are specific processes in place at FSA that require parent involvement in the focused college readiness environment.

Overall, Mr. Jaramillo expressed that the ECHS environment, as a very focused college readiness educational context, was positive for the students and faculty. He observed, "I think I'm lucky enough to work in a setting like that where every single teacher cares about the kids." This positive connection between the faculty and students was also tied into his concept of supporting digital preparation for college. He said: "In a way, it's good to have this technology but if you don't have that human factor backing up that technology need, then what good is technology if you don't have that human entity there. I think that's very complementary."

Because Mr. Jaramillo's experience as a college preparation teacher represents a relatively unusual content area, I sought to balance his classroom perspective with

another teacher perspective. In the next section, I provided findings related to a content area (media literacies) classroom teacher perspective.

**“Something special”: A digital media course teacher’s perspective.** As the only teacher at Focus on Success Academy (FSA) teaching courses dedicated to digital content, Mr. Moreno provided a specific view of the study context related to both general and digital college readiness. He is in his fifth year as a second-career teacher. His first career was in the field of graphic design, but then he decided to go back to get certified to teach because he enjoyed a tutoring experience as an undergraduate student. When asked what brought him to FSA, he recalled:

One, it was the opening, but our babysitter's daughter was a student here and I just heard so many great things about it. I just couldn't believe that a high school like that existed – An Early College High School – because I had never heard of that concept before. When they were telling me about it and all of the opportunities it opens up for them, I was just amazed. I was like, wow, it'd be something awesome to be a part of. I'm very proud to be a part of it.

Like Mr. Jaramillo, Mr. Moreno expressed that the ECHS environment was a decidedly different and positive educational framework. Because of the smaller learning environment and the unique focus on college, Mr. Moreno views FSA as a private school:

In my opinion, I think it's definitely a private school... I describe it that way to other people that don't understand because the students are given smaller classrooms. We don't have to be worry about fights or stealing or behavioral issues. Students here see the big picture and the end game. I think that's what makes them special, as they drive for that big picture rather than just seeing what's in front of them right then and there. I think it's hard for a lot of the students first coming to FSA and be like, whoa, I don't get to play sports now. I'm like, you can possibly get an associate degree. It's two years of college taken care of already. They start to realize it as they go on the program. I think that's something special.

At the very core of the ECHS framework is the opportunity to get an associate degree.

For Mr. Moreno, the reason why the environment is special is the focus on the big picture of college access.

In describing the courses that he teaches, Digital Media 1 and 2, Mr. Moreno pointed out several explicit digital literacies that were targeted including vocabulary, how to create products using a variety of programs, and editing. He explained:

I teach Digital Media 1 and Digital Media 2. Digital Media 1 is basically an overview of a lot of programs, things that I feel they would need to know if they were given a project from either FSA or from a college, things that would help them succeed in that project and excel in that project, maybe even stand out from everybody else. We're constantly looking at different programs, free programs so that they don't have to pay and were learning the vocabulary of the programs, vocabulary of like graphic design kind of stuff...

In Digital Media 2, they're more on their own, more independent projects. It's more of self-guided. I tell them, "This is what has to be done," and then I let them go and then they have to decide which program they're going to use, how they're going to do it. You know of course, I'm still on them about timeline and a deadline about it, but I'm not day to day like, "Hey. Where are you at?" Just checking on them like that. It's more of an opening classroom I guess.

Also recently, we started doing the newscast again where they're actually the ones doing all the recording, doing the edits, coming up with the topics, doing all the interviews, things like that.

The graduates of Cohort 1 and 2, who represent the cases of this study, did not have access to these classes. They took the basic computer information systems (BCIS) course. The presence of the Digital Media 1 and 2 courses in the current school curriculum speaks to a recognition of the need to support digital communication skills. Mr. Moreno provided an example of Media course activities to support digital preparation for college:

I definitely think at the college level, you're given more projects...Right now, I have my freshmen and sophomores. The freshmen just finished reading *Anthem*. The sophomores are still reading *Atlas Shrugged*. Instead of having them write a paper or a book report about it, I'm saying, "Okay. Build me a website on this book where you had to tell me about the characters...historical background...symbolism and imagery used.

When asked if he thought that digital communication skills were just as important as traditional communications skills (on paper and in person), he said:

I think it's definitely just as important...I think definitely working both sides of the brain and helping them exercise that so that they can expand their knowledge ... I think it definitely helps them see things from different angles when they're thinking creatively, not only just from writing papers.

As a teacher focused on digital communication, he made connections to his course content and the critical thinking process that supports acquisition of knowledge. This comment also speaks to the fact that the teachers at FSA are doing “double duty” in that they have to find ways to provide some of the learning experiences that would have otherwise been available to the students on traditional campuses.

When asked if he assumes that his students come into his class with some digital knowledge and skills, Mr. Moreno responded:

I always start from square one with Microsoft Suite because I have freshmen. I have some sophomores. In Digital Media 1, I actually have five juniors. I think they had just taken all math or something like that. I don't know how that worked out. I know the juniors already know it. They know how to use Microsoft Office because they've already had to more than likely used Word and PowerPoint for their first years. Sophomores, I'm assuming they already know how to write a paper or using Word. Freshmen, I don't try to assume but it being the digital age that it is, I know they probably know how to open a Word document, how to save it, things like that, but I just go over it just in case.

From his point of view, the freshmen have not had the exposure to academic tasks that sophomores or juniors have had because they have taken other courses that required use of digital tools. He did qualify that freshman probably have some knowledge since they are exposed to digital environments, but he explicitly teaches how to use the software to ensure that all students have a working knowledge.

Another interesting concept that came up in Mr. Moreno's discussion of critical thinking in the learning process was facilitating a class discussion on the topic of whether or not technology has made life easier. He explained:

We did a Socratic seminar format [student-led discussion using questioning]. What we did was the question, is technology a good thing or a bad thing? Are you a pro or are you a con? I don't remember how we broke it up, but the arguments were, "well, yeah, it helps the students." Then, another student came in and said, "Well, yeah, but that doesn't make you lazy?" These kids are just so smart to think of that sort of thing. For me, I know technology has gotten a lot easier for me to look up things, but I don't think about the other end of it as far as, in my working. I think the conclusion they came to was it is definitely helpful to have the technology and the tools to do the research, to do the writing and all of that, but it doesn't necessarily mean that we need to take it easy when we're doing it. We still have to work as hard as we would before all of this technology came around.

In this scenario, Mr. Moreno provided a working classroom example of the experience students and teachers are having as they grapple with the role of digital tools in the learning environment. This struggle parallels ideas in research about the transfer of digital literacies to academic use in that technology has facilitated some parts of the learning process, but it has not replaced the learning process.

One way Mr. Moreno appears to merge personal and academic digital literacies instruction is to use a project-based learning approach. He described his approach as follows:

My class is a very project-heavy class. Day one, it's like okay, let's review Word. Let's go over all the tabs and all of these different sections, things like that, on the top bar and then, okay, boom, I give them their first project. It's like a hit or miss. You know which student can knock it out of the park. If you don't know what you're doing, you're going to miss and then I just have to go over it again in more thorough depth, which is fine. It just gives me a chance to see what they actually know. Once we get past that, then, okay, let's move on to PowerPoint next.

Interestingly, Mr. Moreno accepts the project will be a "hit or miss" situation that speaks to an informal, hands-on formative assessment as part of a purposeful and supported

digital literacies learning process. He scaffolded foundational digital literacies in using the specific software, then lets the students experiment with the platform. By making an affordance for the application of prior knowledge, Mr. Moreno demonstrated a progressive pedagogy for digital native students.

Like Mr. Jaramillo, Mr. Moreno reported that he learns from the students. He explained the following:

Actually, this year, I did something different. I had the students do a comparison between Microsoft Suite and Google Suite. They did differences between Word and Docs and then they did differences between PowerPoint and Google Slides... They liked what Google had to offer as far as the sharing option, being able to work together and collaborate, pretty much live. A student actually found out that in Google Slides, you can ask live questions, which I didn't know about. I was like, "Hey, I learned something today."

Not only does Mr. Moreno embrace the idea that learning is a two-way exchange between the teacher and student, he also designs learning within a project-based learning environment to support self-directed and authentic learning.

Mr. Moreno pointed out that his courses are not required. The students take BCIS in their freshman year at the community college campus. Although the digital literacies that Mr. Moreno teaches cross all disciplines, only the students who take his classes have those opportunities to learn.

Generally, Mr. Moreno described the ECHS educational environment as differing from larger public schools in terms of the college readiness focus within a small learning community. For digital college readiness, Mr. Moreno felt that the students still need explicit instruction although they are exposed to an increasingly digital society. He commented, "It's definitely safe to not assume that they know everything. They know a lot, but they don't always know everything."

**“An environment of success”: A counselor’s perspective.** As one of two current counseling professionals in the study setting, Ms. Shaw has seven years of public teaching experience at the middle school (grades 6-8) level and has served as a counselor at Focus on Success Academy (FSA) for just over two years. Ms. Shaw holds a Master’s degree in counseling.

When asked what brought her to FSA, Ms. Shaw repeatedly responded, “I got lucky.” Many times, Ms. Shaw expressed that working with the ECHS students and the environment was an “amazing” experience. She explained:

It's a lot of work on our end still, on the teacher's end, it's a lot of work, but you see the benefit right away. I get the gratification just from knowing that I helped. Just something as simple as writing a recommendation letter. They are just so thankful. They're like, "Thank you so much." They're very appreciative, they're thankful and that just makes you want to do it even more. It makes me want to do it again. Like, "Oh, okay, who else needs a letter." I look forward to helping them because they make it easy to want to help them. It's not easy to help them, but it makes you want to help them because they're so involved and willing to do what it takes. You don't have to convince them to be successful. They're going to be successful. It's just a matter of ... they need a little guidance sometimes.

Ms. Shaw reflected a viewpoint that the educational context was positive for both the students and the professionals.

Although the student population is purposefully selected to be diverse, Ms. Shaw observed that they share common traits such as being a “hard worker” and are focused on success. In turn, the focus on success creates an environment of success. She emphasized that the students at FSA go through a selection process that creates a different atmosphere than a traditional high school:

I feel that after going through the interview process and just learning, okay, are you willing to work hard? Do you really want to be here? Do you want to move onto post-secondary? What are your goals? When we find that out ... for students that may not be, like I said, they may not be an A/B student. We don't have all A/B students here. But the fact that they want to ... they want to succeed and they're

willing to put in the work, even if they're a solid C student, they're still willing to put the work in to succeed. So, I think that is the biggest difference between us and a traditional high school.

Because the students have been screened to share this common drive to succeed, Ms. Shaw felt they were better prepared to know “what they’re going to do with their lives.”

Another highlighted benefit of this educational context was the fact that the smaller learning community allows for individualized attention to students. As an example, Ms. Shaw described the process of reviewing transcripts with students:

That's the beauty of this campus because it is smaller. So, I do have the time to actually meet with each student individually as opposed to a traditional high school where they have 3000 students, 4000 students. It's literally impossible for a counselor to sit with each student and give them the time that they're going to need just to look at their transcript. Let alone anything more than that. I feel lucky again in that sense that I can sit down and make appointments and see them, and build that relationship with them where they can come and get what they need. So that's helpful. I love our small population. It helps.

The viewpoint of being “lucky” comes up again as Ms. Shaw described her role as a counselor for students in the ECHS setting. The repetition of this idea of a fortunate situation speaks to the general sense of how the ECHS framework is different in a positive sense from that of a traditional high school framework in providing a more individualized educational experience.

When we shifted from talking about the general college readiness environment of FSA to specific efforts to support DCR, the picture became a little less clear. Ms. Shaw reflected, “...now that you ask the question it's kind of like ... what do we do digitally?” She observed that the campus is a 1:1 Chromebook campus, but qualifies that it is only for the freshmen and sophomores. Ms. Shaw reported that some of the juniors did not have “the money to buy or walk around with a laptop or Mac or whatever.” While explaining that the teachers were very willing to support students to be college and career

ready, she felt that it was still a struggle to figure out how to help them. From her point of view, she felt that digital instruction should be “...a class, but then also embedded... to get reinforcement in every class.” This idea that digital literacy instruction should be reinforced in every class was connected later in her saying “when anyone learns something in isolation, they don’t realize that they can apply it to all areas of their lives.” Ms. Shaw expressed several times that there should be ways to incorporate digital learning in all classes to increase the chances that the students would retain the learning.

In general, Ms. Shaw emphasized very positive aspects of the ECHS framework as a cohesive, strategic system to support students to be generally ready for college. However, when it came to specific supports and strategies for the development of digital preparation for college, she was less sure. Her uncertainty about the exact picture of integration of traditional and digital preparation reflects the increasingly complex nature of an evolving digital society and the difficulty of pinpointing skills that are not yet known.

### **Summary of Contextualization of the Early College High School Environment**

Across their responses, the ECHS professionals emphasized what differentiates the educational context as “a noble program,” “something special,” and “an environment of success.” The professionals indicated that they were “lucky” and “proud” to work at this school. Several commonalities emerged from the descriptions of the ECHS environment as a support system for DCR including: 1) students and teachers demonstrate dedication and hard work, 2) collaborative and reciprocal learning, and 3) a perceived importance of digital preparation for college.

The interviews indicated that the faculty and staff of FSA are highly qualified based on education levels and professional experience. They all conveyed high levels of commitment to the students and willingness to go beyond their job descriptions to support the learning environment. Each participant reported that the students were especially enjoyable to work with because they were focused on success. The two teachers and counselor represented the diversity of the student population and expressed views that aligned with a vested interest in helping ensure that all students were successful. Like other education professionals, the participants indicated that they had to “wear many hats.” In this environment, the participants often referenced many job roles to ensure that students were not missing opportunities that would have been available to students in the larger high school settings.

Interestingly, the ECHS professionals indicated that the learning environment was collaborative and reciprocal. The learning was collaborative in that allowances were made for students and teachers to learn from each other at their respective levels. The learning was reciprocal because in many instances the learning crossed the teacher/student levels and professionals were acknowledging the contributions that students made to the learning community. Administration, faculty, staff, and students worked together to create the overall successful learning space.

Within the future focus framework, preparing students for digital college contexts was acknowledged as an important part of the overall support system. The district implemented a 1:1 campus design and teachers were dedicated to supporting the use of digital tools. The principal initiated activities to continuously provide professional development for use of technology in lesson plans. Although efforts were clearly in place

to encourage digital learning environments, strategic, vertically aligned support for DCR was still in flux, a constantly changing and evolving concept.

### **Within-case Reports**

In shifting from the contextualization of the shared educational setting as a bounded system, this section provides findings related to the ECHS graduate perceptions related to digital college readiness (DCR). Following methods suggested by Merriam and Tisdell (2016) and Yin (2014), I created individual case reports to build understandings of the phenomenon DCR. To support stronger internal validity, the case reports were then sent to the participant for member checking (Merriam & Tisdell, 2016). The within-case reports are organized alphabetically by pseudonym within Cohorts. Each case report contains findings from survey responses, course syllabi, digital project artifacts, and interviews.

#### **Alayna**

Alayna finished her high school education at Focus on Success Academy (FSA) in 2015 as part of Cohort 2. She identifies as a twenty-one-year-old female with a Hispanic ethnic heritage. She maintained high GPAs (above 3.6) through all educational settings and was on the verge of completing a bachelor's degree with a major in business eighteen months after graduating from high school. She reported a high SES and was a continuing-generation college student. Alayna responded that she had "much more" digital skills and abilities when compared to her peers and that these skills were an "important" contribution to her overall college success. She indicated that digital skills and abilities would be "extremely important" in her career. She defined digital college readiness as:

DCR begins with the basic uses of a computer. During my time [at the] ECHS, I had to take a few courses on basic computer skills, but these classes focused mainly on Microsoft Office Suite. While learning to use Microsoft was important, especially in the case of Microsoft Word and Excel, there are things that need to be furthered addressed, such as learning to navigate through web-based portals such as Blackboard and Canvas. On these websites, there are certain ways to navigate and certain terminology that is essential to DCR. Outlook is absolutely essential, as it is most commonly used in the workplace and also for network communication at the university - it is required that students use Outlook when addressing professors, so students must know how to use it correctly.

In explaining her concept of DCR, Alayna reported background factors that were strong predictors of postsecondary success. She noted, “To be completely honest, without sounding full of myself, traditional high school would have been a breeze for me, at least the traditional high school in my area.”

For the interview, Alayna chose to demonstrate a research paper she had recently completed. The paper included graduate level digital formatting expectations (use of discipline-specific research publication standards) and use of embedded graphics. She explained:

I had trouble with this one because I guess I didn't understand all of these different parts of it, as far as the research goes, because typically, especially in high school, a research paper was, like, you go, find five sources, put it together into a nice three-page paper and you were done with it. This one actually made you specify who are your participants? How are you going to do it? What makes your way of doing it the best way of doing it? Why is it something we should believe? And that was something I had never done before.

Although Alayna reported that writing a research paper was “something that my Early College High school did a lot of,” she felt the demand at the end of her postsecondary career for research paper writing was different and caused her to feel underprepared. Alayna further described the details of the difference by observing, “Analyzing, actually analyzing a research element was very different. This was the first time I had to do that, and this was my last semester of college at a university.” For her, the combination of the

college content expectation of original research synthesis and creating embedded graphics based on that research in a word-processed document posed a stressful situation.

Alayna described increasingly pervasive digital contexts as she progressed from the high school environment to the community college and then to the university level.

She said:

Personally, I'm a very technology savvy person. I mean, I work for Geek Squad, so I had to teach people how to use these things. So I didn't know how to do it. My high school section did not touch the Internet, pretty much. It was very rare that a teacher said you can email them something... However, the college attached to my early college used Canvas. It was new, at the time. They had just switched over from Blackboard, so many of the teachers there at the college portion didn't know how to use it. So, they didn't... But those that did, I did have to turn in written assignments on there because they checked for plagiarism. So, I did know how to use it for those purposes. But when I got to university, the Blackboard page had so much more to offer than just my classes. Like, when you got onto Canvas, on the early college side, you had access to the current classes that you were in, and you had access to their syllabus, maybe, if they put it on there. Assignments, if they decided to use it. And grades, but they never updated the grades, so you really couldn't tell. But my Blackboard, it was pretty much always updated with grades. You had access to every course, and it was labeled by semester... Additionally, you have your portal that gets you to Blackboard, so you can't get to Blackboard without going through that portal. So, on that portal, you have access to registrar, to the library, to your business office, to eCommerce to pay your bills. I mean, everything is on there.

After identifying herself as a ‘technology savvy person,’ she immediately explains that she did not immediately know how to use the learning platforms as she transitioned between educational levels. While Alayna succeeded in eventually making the transitions, her view as a strong student who is comfortable in digital space does not represent the challenges a student who is struggling academically would face in trying to navigate the same situation.

Alayna described experiencing a postsecondary reality that was inconsistently supported through institutional frameworks and instructor decisions. In an interesting

connection between academic tasks and digital demands, she perceived that handwriting assignments indicated hastily prepared work. She felt strongly that her peers (specifically peers who were student athletes) who did not use a computer to complete the learning task did not reflect a serious commitment to doing well on assignments. She explained:

So this is why I consider it last minute if you do it handwritten. Because, one, I did see [student athlete peers]. But the thing is, ...every single one of them has a lab for you. And some of them are 24-hour labs. So you have those. Sometimes the floors even had two, where they had Macs in one room and regulars in the other. So if it was like, "Oh, I don't do Windows," you have an option. They also have the library, and within the library they have multiple labs. Some of them 24-hour labs. So [student athlete peers] had that option.

Additionally, she expressed confidence that the instructors took access into consideration when designing learning tasks. She opined, “No teacher would give you an assignment that required a computer knowing you didn't have access to a computer, know what I mean?” Alayna took a stance that access to digital devices was not an issue for students at her school. However, she also discussed a situation in which one student had to continually rely on his roommate's computer, but got his work done. Although efforts had been made to provide access to computers, these contrasting observations create a more complex picture of the reality that students who have access to their own devices are at an advantage to those who do not.

In addition to complex realities related to access to digital devices in postsecondary environments, Alayna discussed how her opportunities to learn were hampered by “the teacher just not being there.” She recalled an instance of being unable to figure out how to complete a specific part of the assignment:

If my teacher can't help me, if I can't go to her for questions on how to do it, I'm not gonna do it. I did look it up, on how to do it. All I found on Google was definitions on what it was. So, for me, all I put was, I tried to stay unbiased in it, and these are the questions I asked, and that kind of a thing. And that's what I put

in that little section. When she gave me my feedback for it, she didn't even mention it. I was supposed to have a number, or something, in that section. And I didn't, and I knew I didn't. And she did not say anything about it. So, I don't know if she didn't read it, or she didn't care, if she thought it was good enough. I'm not sure. But that frustrated me, because I did spend a good hour or two trying to figure out what it was and how to do it, and I couldn't.

According to the syllabus, the instructor stated that she would be “happy to assist” if a student was having a specific problem with course tasks. However, Alayna encountered a barrier in getting instructor help or feedback with a specific issue and, as a workaround, attempted to get help with the content online. When she failed to solve the issue with online information, Alayna expressed that she had a negative learning experience. While uncomfortable with not knowing exactly what was being required of her, she reported that she completed the assignment based on her incomplete understanding and was assigned an A grade. For many students who might be less digitally prepared for college than Alayna, this type of negative learning experience involving a lack of access to formal or informal support could contribute to giving up on completing an assignment in the short term and compound issues with their long-term ability to persist (Relles & Tierney, 2013).

Alayna attributed many aspects of being digitally prepared for college to the ECHS environment. She reported:

[ECHS] was different in that we didn't have the typical "jock-cheerleader" drama. I feel in some ways I missed out on opportunities; however, I was so prepared for university that it didn't even challenge me and I am 21 with a completed degree, a salaried job, a house, and 2 brand new cars - with VERY little student debt. I accredit this to how much I had to grow up during my Early College High School days. Putting a 14-year-old on a college campus and having them "blend in" without being noticed makes a motivated student mature very quickly.

As part of the college-focused atmosphere of the ECHS, Alayna noted in an open-ended survey response specific aspects of the experience that built her readiness:

Paper-writing formatting, forming relationships with professors, understanding syllabi, keeping track of deadlines, figuring our work-life balance, coping with extreme workload and stress, public speaking, time management without someone constantly breathing down your neck about your whereabouts.

In contrast to ending this response with a sense of being monitored that seemed to speak to a decided lack of independence, she indicated in other responses that teachers were “hands-off with allowing me to direct my own educational path.”

Overall, Alayna demonstrated digital proficiencies that supported completion of tasks at the postsecondary level despite specific instances of feeling unsupported. Often, Alayna focused on either positive or negative teacher/student interactions to explain how she navigated digital demands in ever changing contexts. Although she recognized a desire to be independent, she also relied on instructional guidance to support her participation in digital discourses.

### **Brenda**

Brenda graduated from Focus on Success Academy (FSA) in 2014 as part of Cohort 1. At the time of the interview, she was on the verge of graduating with her bachelor’s degree in psychology and moving into applying for a master’s program approximately one and one half years after high school graduation. Brenda identified as a female having multiple ethnicities and is a continuing-generation college student. She reported a mid-range SES background and high level secondary to undergraduate GPAs (above 3.6). From descriptive data in online survey responses, Brenda emerged as digitally ready for college. She described her Early College High School experience as supportive in helping her to “take proactive steps for my own future...” She explained that the smaller learning environment helped her take on more leadership roles and develop as a “confident, assertive, and ambitious individual.” Brenda felt that she stood

out in a four-year university environment by being more prepared. She indicated that her digital skills were a “moderate contribution” to her college success and would be “very important” in her future career. In her last survey response, Brenda said “Digital literacy means the rate at which you are able to use technological processes and the understanding of jargon in order to complete basic tasks over digital mediums.”

Brenda was one of three interviewees who participated virtually using Skype. Brenda, demonstrated a digital project created for an English course during her second year of community college tenure. For her digital project, she utilized the digital tool, Prezi, an online presentation platform. Brenda mentioned that her instructor directed students to use Prezi instead of PowerPoint and introduced her to the platform. Because of her developing expertise in using the Prezi tool, she volunteered to lead other group projects and pointed out how the Prezi platform features facilitated the collaboration by allowing for sharing accounts, emailing presentations, and real-time editing for multiple users. Demonstrating the integrated nature of traditional and digital literacies, Brenda wove her disciplinary interests of the psychological aspects of the American literature author’s history and the literary period into the selection of the project visuals.

Brenda reported formal and informal supports for her developing digital expertise. Especially citing courses related to her minor in human resource management, the opportunities for her to present in courses were numerous. In addition, Brenda noted that she had a class in basic Microsoft Office during her freshman year in high school, but explained that the basic use of those tools was not enough to meet demands as a student research assistant. She expressed how she sought out training from her research supervisors to learn advanced digital skill:

That's the biggest thing that I've realized is that I really had to ... When I wanted to kind of learn SPSS, I went to my supervisor and told her ... I know I only have a couple more months here, but if you could teach me, and so last year, at the lab that I was at, she did teach me kind of like the beginnings and coding and making code for SPSS. This year I told my supervisor that I really was interested in at least some data entry. She sat down with me and kind of taught me. In terms of finding opportunities to learn more and increase not only my digital literacy, but also things that are going to help me later on, I really feel that I've always been proactive. If I want to learn something, like I'm going to find a way to learn it and from the people that can help me.

In independently recognizing learning gaps and seeking a sponsor to help bridge those gaps, Brenda demonstrated self-regulated learning which aligns with independent levels of readiness.

Brenda was enthusiastic about the intersection of digital, traditional, and discipline-related literacies. Brenda observed that “PowerPoint was already starting to get boring for me. Everybody was using PowerPoint.” She expressed that using Prezi was more engaging and pointed out several ways that the content became more appealing through the use of movement as a feature of the platform. In addition to creating presentations at the college level, she reported moving into an undergraduate research position as a student with responsibilities to perform statistical analysis and data entry which she said is “always interesting.”

The fact that this interview was conducted in digital space provided an observation opportunity of the participant encountering a learning opportunity in situ. Although Brenda was initially unsure of how to navigate the Skype platform, she worked through the process of screen sharing with my support. This incident revealed that Brenda had no reservations in utilizing an unfamiliar tool to communicate in digital space and could also indicate that she felt comfortable enough with me to risk being a vulnerable learner.

Brenda connected her level of digital proficiencies with marketable work skills. Brenda expressed that learning digital skills as a research assistant was at first, “kind of boring, but then I realized how awesome it is to be able to do that and be able to put that on your resume.” Once she was vested in the value of acquiring digital skills related to the workplace, such as using statistical software (SPSS), she assumed more responsibility for seeking out opportunities to learn. She said, “That’s the biggest thing that I’ve realized is that …when I wanted to kind of learn SPSS, I went to my supervisor and told her I’d really like …if you could teach me.” Brenda was driving the learning process at that point to address specific learning related to her professional skills development agenda.

In Brenda’s account of her experience in preparing for college digitally, she revealed a supported environment, but there were still gaps in her preparedness. Brenda’s perception of the need to provide higher level instruction to support development of DCR in secondary setting mirrors research findings that student skills and abilities are not uniform nor universally transferred due to inconsistent opportunities to learn (Bennett, et al. 2008; Duncan-Howell, 2012). Overall, Brenda’s perception was that she needed more support, especially at the secondary level, to meet digital demands in postsecondary educational and professional settings. When she was unable to independently meet the digital demands, she sought out additional, specific support to successful participation in college-level digital discourses.

### **Evan**

Evan belonged to Cohort 1 and graduated in 2014. At the time of his interview, he was one and one half years post-high school and continuing a bachelor’s degree program

in accounting. Evan was specifically pursuing a certification that merged information technology (IT) and accounting. Evan identifies as a twenty-year-old Hispanic male. He is a continuing-generation college student and reported being part of a lower SES household. His GPAs in secondary and postsecondary were above 3.6.

Across his online survey responses, Evan demonstrated a desire to “grow” as whole person. Evan noted that respect was an important aspect of his ECHS experience because, “We knew many things about each other. Some good, some bad. I felt that as long as you respected everyone, they would respect you as well.” Evan did not feel that his ECHS experience set him apart in the university setting, but he noted that attending college courses as a high school student “made me mature and gain experience.” He rated his digital skill and abilities as a “moderate contribution” to his college success and “important” in his future career. Evan skipped the prompt to define the term *digital literacy*. He did meet some of the preferred criteria and was selected as an interview candidate based on the survey data.

In his interview, Evan, described his preparation for college-level digital contexts as heavily influenced by his ECHS experience and his choice of major as he presented an Excel training project. The project was created as part of an internship he was completing for a corporate employer while he was attending a private, four-year university. As an accounting major, Evan highlighted many instances where digital demands in college tied directly to his ability to be productive as an apprentice in his field. He noted that “[e]verything is digital...something that we really use on a daily basis.” Of all the interviewees, Evan stood out as demonstrating digital preparedness at an authentic, advanced professional level.

For Evan, digital preparation for college happened under formally supported conditions such as coursework or within-work contexts involving training mostly during his postsecondary tenure. Although he cited his ECHS several times as beneficial, he also expressed that a traditional, large high school experience would have given him the opportunity to take electives that were not offered in the smaller school environment.

Yes, I think one of things that as an Early College High School we did was lack electives. I think it was very vague in trying to find something that all of the students wanted. I'm talking a lot about Excel because I'm a business major. If you were to talk to a science major or person that was studying in science, I don't think they would find necessarily Excel that important. Trying to find the right path or the right equality for everybody I think that's important as well. I wouldn't necessarily know how to answer that question just, because I mean it's a very thoughtful question to answer.

As Evan points out, the lack of elective classes in the ECHS setting prevented him from pursuing opportunities to build digital proficiencies for his career path beginning at the high school level. His ability to build discipline-specific digital proficiencies was delayed until he was already at the upper, postsecondary level. Evan recognized the trade off in the benefits of both environments:

Yeah, career ready. I mean we did have college prep but I think college prep involved more getting ready for SATs, ACTs, kind of getting us ready for college. Which, was good I mean I liked it, but they didn't have a class where if students find passion of I guess business let's have a little class for them. Let's have some Excel classes or IT classes we unfortunately didn't have that. Maybe because we just barely started off we we're [the first cohort].

He had support for college readiness in the College Prep course at the ECHS, but he had no options to take courses which would have supported his interest in business and helped him build digital literacies for that specific career path.

In connection with his discussion of not having support for developing his digital readiness skills through elective courses, Evan described being initially intimidated when asked to complete projects in college requiring high levels of preparedness. He reported:

I feel like Excel has given me a lot of exposure to things that I didn't know I could do. I think on a personal basis I think it was just also a sense of overcoming myself. When you're given an opportunity to do something that you haven't really been exposed to you are scared or you get a bit intimidated. That's basically what I was with Excel. I was intimidated the only function that I knew how to use or program was Microsoft Word that's because we would write essays in class. It was something that we see in a daily basis in high school. Here in Excel I guess it was also a sense of me believing in myself, believing that I could do the work. I think Excel taught me not only that there is a lot of functions that you can use that can make your life or work easier. I think it was also a sense of me personally thinking, believing in myself, having more confidence in myself. That you know what I can handle this job, I can handle the pressure of learning new things and learning new perspectives.

As an ECHS student, Evan cited many instances where he felt fearful that he would not be accepted in the college environment based on his skills in a number of areas. He was able to overcome the fear as he built expertise in his skills. Not only did Evan recognizing his own ability to overcome fear of learning, he recognized the need to alleviate fear of learning digital skills as he designed his project. He mentioned that he included a comical video about “how Excel can make you feel” so that the training participants would feel more at ease.

To build his digital preparedness to meet college-level demands, Evan began taking elective courses in the private, four-year university setting. He described how he had to proactively seek out courses to support discipline-specific digital preparedness for his program. When asked if he felt that program support was needed for digital preparedness, he reported:

I think so. Being able to use macros is like simplification. I think that's the best word to call it. If you're able to build macros you're able to build and automate

reports. It alleviates a lot of tedious process that you have to do over and over again. You can just create a macro that does the thing over and over again with a simple click of the button. I think it really elevates process, it's more efficient and I think as an accounting major it would be good if we had an information systems class, an ERP class, or something along those lines that give you exposure to macros or Excel BVA which is basically the same thing.

When prompted if these courses were required, he explained:

They were not required. Thankfully [private university] has a data analytics major as well. Whenever we do have electives I try to take those classes like accounting information systems, business intelligence, and those classes help me out and figuring these things out I really enjoyed.

Evan reported having to make conscious choices to pursue opportunities to learn digital skills outside of his program of study. He used the word, *thankfully*, to denote a situation that would otherwise have not been ideal. In addressing my second research question, Evan had opportunities to develop advanced digital skills, abilities, and behaviors through other programs at the institution, but not as strategic instructional support within his program in the form of embedded, sequenced discipline-specific digital content courses.

As a direct result of gaining discipline-related digital literacies, he expressed how building his skills translated to job opportunities:

I think when we talk about digital space it really helped me get where I am today. Being exposed to all of these digital software really gave me an edge when I was competing with other people or we're trying to get the same internship or same job. One of the things they told me was "what have you been exposed to?" When I started talking to them about Vizio, SAP, Oracle, all of these digital software, it kind of gave me an edge.

Evan considered his digital preparedness an academic support through educational environments and into the workplace.

For Evan, developing digital proficiencies was a supported situation. He leveraged the strength of his experience working collaboratively in small ECHS and

private university learning environments to secure a corporate internship. He observed, “students [who] go [to the ECHS] have a lot of potential especially learning wise if they continue working on projects in groups. I think that’s something that employers really want.” This perspective addressed the third research question in that Evan believed he had a self-described “edge” or strong positive impact related to his digital proficiencies development in combination with personal qualities resulting from his experience of attending an ECHS.

### **Lamont**

Lamont differs from the other participants in that he did not complete his high school education at FSA. Lamont matriculated from high school in 2015 at the same time as Cohort 2, but had transferred from FSA to a traditional high school during his junior year. He switched his postsecondary major from education to business and is currently in a “self-study, self-paced” online program. Lamont identifies as a twenty-one-year-old male with a Black ethnic [heritage]. He comes from a mid-range SES background and is a continuing-generation college student. He maintained a high GPA (over 3.6) from secondary through postsecondary. He perceived his digital skills and abilities to be “much more than” his peers and these skills have been an “important” contribution to his college success. Lamont responded that digital skills and abilities will be “extremely important” in his future career. He viewed digital college readiness as:

It simply means being technologically proficient for the everyday tasks of post-secondary research such as knowing how to conduct research on your own from credible sources, and being able to navigate college systems such as Blackboard.

Because his high school pathway varied from the other participants, Lamont’s case provides some contrast for consideration in understanding the phenomenon of DCR

Lamont selected a PowerPoint (exported as a video) project to discuss for the interview that was created for an online course. As a business major, Lamont was required to present a business plan and mock findings. He explained:

The way that the video assignments work is when we publish them, a week later everybody has to, everybody in class has to reply to at least two, I think it's two, to at least two of the video assignments. Watch the video, we have a rubric that we follow to student grade it, student evaluate it. It's a pretty good, foolproof system. Students grade the work. This was the ... I'm also taking this professor's macroeconomics course, and this part of the course is set up the same way. This is my second try at a video like this. The first was very, very poorly constructed.

His description of the classroom video review and collaborative evaluation protocol as “foolproof” speaks to his comfort level with navigating the portal. The syllabus he provided contained many instances of explicit guidelines for the digital components of the assignments. For example, the instructor included a netiquette section in which definitions and examples of concepts were provided. Even with the explicit support from the instructor in the learning environment, he noted that he struggled with the creation of the first video in this series. After this video, he explained, “The way I got the idea for this one is I started doing the student evaluation part for the other course. I'm like, wow these are some really good ideas. I ended up taking the PowerPoint idea and made it my own.” Lamont managed the digital demands once he had a clear idea of what he wanted the product to be like based on exemplars from his peers, which was part of the course design.

Because his current program is not fully online, he mentioned that he is transferring after finishing his current four online courses. He explained, “Yeah. I mean they're still working on developing their online programs but it's not coming along as fast as I need it to, which is why I'm transferring out.” For Lamont, the option to complete his

degree online was a deciding factor in finishing his undergraduate degree program. This fact is an interesting [contrast] with his view that the social aspects that were lacking at the high school level prevented his growth as an individual, yet at the postsecondary level, the face-to-face social environment was apparently less [necessary].

For Lamont, the ECHS environment lacked some supports in helping him develop as an individual and he observed, “I don’t believe I developed as an individual until after I left the early college program.” In an open survey response, he expressed:

I feel that Early College students are usually very well prepared for college. But attending also effected some of us in a sense that we did not have that high school experience in the way that most do. So, after graduation, a lot of my peers started doing things that most people do while in high school. Due to the work load of an Early College High School, we skipped the second half of our childhood.

Moreover, Lamont indicated missing not being able to be “around anyone from my freshman friends from the track team.” He expressed mixed opinions on the smaller learning environment: on one hand, it allowed for more individualized attention from instructors, but was not consistent with the large university environment he encountered. Like many of his fellow ECHS peers, Lamont recognized the tradeoff that being a part of a rigorous, college-focused environment required.

When asked in the survey if the ECHS teachers allowed for self-directed learning, he responded, “Yes, especially the English teachers, perhaps because, although they were there as aids, they were not supposed to be our search engines.” It was interesting that Lamont used a term, *search engine*, associated with digital discourses to describe the teacher-student relationship. Lamont reflected a practical critique of his experience with the ECHS educational framework and digital college readiness. He acknowledged the benefits of being exposed to a technology-rich learning trajectory:

From the education side of it, in middle school I had a couple of courses that taught digital literacy. Then having BCIS in high school and then the orientation courses with my different colleges or technologies. It's just the repetitiveness with the education part. That's also what I was talking about where some students don't get that luxury growing up, whereas in middle school and high school I had three courses for technology, strictly for technology, where a lot of people, their schools might not have more than two computers.

While he acknowledges his technology-rich experience, he noted that all students are not equally able to access digital learning because of an inequitable distribution of resources. Lamont explained that he changed his major from education to business because he wanted to be able to make a difference in his community:

Lamont: I felt like ... I learned a lot moving from education to business, and the reason behind that switch is actually a book that I read. It's called Rich Dad, Poor Dad. I'm not sure if you've heard of that one.

Interviewer: Rich Dad, Poor Dad, no.

Lamont: Basically, it's this guy telling the story of how he had two dads, one was his friend's dad but he claimed him as a father as well, and then his personal dad. One was a teacher and one was a businessman. Basically, they made about the same amount of money, but they had a different mindset, so they had different financial struggles with having the same income. It's more the mindset of things than the fact that investments and finances kind of influence everything in life, even down to the education system with private schools, with charter schools, sad as it is to say, even with public schools and the content being taught at the schools. I think the main reason for that switch was to have a bigger influence, I guess. Kids are with the teacher more than their parents, but the teachers teach what they're taught to teach from legislation. I want to get the right things to be taught.

In considering how to have an impact on education, Lamont provided a personally meaningful decision to switch majors because he perceived that funding plays a pivotal role in curriculum.

Overall, Lamont's case represented the most variance in educational trajectories. Lamont conveyed a sense of digital preparedness based on building proficiencies that were explicitly supported through formal education environment. He also conveyed a

view that his participation in digital contexts was influenced by peer exemplars and interaction. Lamont summarized his idea of effective learning:

When students have to teach, they learn themselves, honestly. That's why a common saying that I hear a lot right now just in recent times is the best way to learn something is to teach it. If you learn, for example, how to use PowerPoint, you're not going to completely know everything with PowerPoint just from that learning it for a week, using it for a week. Now when you show someone else, you're going to see something that you skipped over. You're going to be like oh, I can do that. Cool. It's kind of that. The best way to learn is to teach, basically.

His view is consistent with new literacies that acknowledges the constantly shifting context of learning in the digital age (Leu, 2000). Lamont embraced the reality that he will have to move through being a novice with any given digital task before he really learns. He judged the measure of learning to be able to pass the learning on to someone else. His concept of the role reversal of teacher and learner addresses my second research question in that opportunities to learn in digital contexts have shifted to more affordances for self-directed learning with reciprocal teacher/student roles (Curwood, 2013; Gee, 2017).

### **Olivia**

As part of Cohort 1, Olivia graduated from FSA in 2014. At the time of the interview, she was twenty years old. Olivia represented the only case of a person identifying as having American Indian heritage. She reported a low level of household income and was a continuing-generation college student. She maintained high GPAs (over 3.6) and was a business major. Olivia perceived that she had “much more” digital skills and abilities than her peers and this contributed as an “extremely important” part of her college success and future career.

Through her open-ended survey responses, Olivia revealed a general confidence built from her ECHS experience. Her first response began with “There was not a doubt in my mind that I would get into the ECHS that I was applying to.” As she transitioned from the ECHS environment to four-year university level, she noted that her fellow university classmates were “fairly stressed out” with workloads while she reported having grown accustomed to academic rigor in high school. There was a strong thread of community throughout her answers and she reported that “...stronger personal bonds translated into our academic success...” Selecting the highest levels on the Likert scale responses, Olivia indicated that her digital skills and abilities were a “critically important contribution” to her college success and “critically important” to her future career. In her final survey response, Olivia defined digital literacy as follows:

Digital literacy, to me, would be to have the cognitive AND [participant emphasis] technical abilities to gather and share information on technological platforms. Digital literacy would include an individual’s ability to find information on a variety of platforms, evaluate it to their need, and then place it into the context that they need to communicate it to someone else.

Because Olivia’s demographic, academic, and perceived digital literacy met initial sample criteria, she was invited to interview.

In her interview, Olivia, narrated her thoughts on participating in college-level academic discourses in digital contexts as she described the creation of a tailor-made, brand-specific PowerPoint presentation. The project was created for a marketing course. She led the group work and took ownership for editing all group contributions for “consistency.” As a marketing major, Olivia valued consistency in font, bullet points, and color choices because she was highly aware of the need to produce a professional quality digital product to match potential business client expectations.

Additionally, Olivia emphasized a need to distinguish herself from her peers by using her digital skills. In analyzing Olivia's need to be recognized, my memos indicated that she could self-assess her literacies and adapt to changing demands. She reported that her digital skills in familiar contexts also allowed her to express herself in different program. She was able to read in the unfamiliar and daunting program based on her understanding of meanings in a familiar, mastered program. She also clearly tied her digital literacies to her academic success:

I think anything you do scholastically at this point, technology is instrumental in so many different levels. When you're applying for school, for scholarships, for anything, having a very nice, clean resume, application, any sort of form you're sending in. It needs to look clean and professional, but it also needs to reflect who you are, so using a professional font that may be a little more fun could help a lot, just how you format the pages. Even if you're doing something for a specific class, just personalizing it in a professional manner, I think technology is the most important thing to know and be proficient for school.

This is indicative of her ability to adapt to changing demands across personal and professional environments and was supported by a perceived high level of preparedness to meet digital demands at the postsecondary level.

Olivia reported many formal and informal supported conditions under which her expertise developed including coursework and tapping into parent expertise. She remembered going to computer classes in elementary school and explained that she never felt intimidated by trying to use new software because "...you can always just close out, re-open, and you're back where it was, or just undoing mistakes." Olivia also explained that she had support from her parent in learning digital literacies (See Figure 4). In college, Olivia was exposed to digital literacies related to her field in marketing, branding and advertising courses where she reported technology was part of the learning. She also took courses in Microsoft Word and Excel.

On a personal level, Olivia mentioned “fiddling with it” as a context for learning new skills in digital space. Several times, she described instances when she was faced with a digital task that required her to just try out unfamiliar features of digital tools until she learned how to use them. From data analysis, a clear picture of Olivia’s digital preparedness emerges in a variety of contexts including educational and personal. She demonstrates a high level of confidence in that she claims more expertise than her original literacy sponsor (parent).

Within reported instances of supportive educational conditions, Olivia seemed to exude an overall feeling of confidence in her experience with meeting digital demands. When asked about her level of confidence in creating and delivering digital presentations in a professional context, she said, “I know that I have a lot of experience working with technology to create presentations. I’m very comfortable there.” Although she described instances of being highly anxious when encountering new software, she noted, “...knowing how it was set up similar to other software, knowing you could go into File and edit things...helped a lot.”

Olivia also demonstrated an ability to problem solve in digital contexts outside of the school setting. She recalled:

There was a campus-wide Internet crash on my campus one day and everyone was scrambling because we all had presentations that were still due. Turning in work is all online now, unless the teacher says, “I want a physical copy as well.” Regardless, we’re all trying to find a way to figure it out. A lot of people resorted to just waiting to see if it would come back online. I went to the public library. I couldn’t wait.

Not only did she succeed in turning in her academic work despite a lack of campus Internet access, she exhibited an awareness of community resources beyond her immediate educational environment. By considering resources outside of her immediate

educational setting, she revealed a proactive mindset that in her view distinguished her from her peers.

Olivia described how her digital proficiencies changed from basic knowledge to a point when she had to begin learning by “trial and error.” She explained that she learned from watching her peers and noticing mistakes they were making and would adjust her approaches in creating digital products based on what wasn’t working for someone else. Additionally, she began to move from a position of dependence to independence when she began “going in and fiddling with all the different settings.” For Olivia, moving to a level of confidence to independently seek nuanced levels of expertise with various digital tools indicated that she demonstrated agency or an ability to promote an individual agenda using her digital literacies.

Overall, Olivia recognized the benefits of developing her digital proficiencies. For her, the demands of digital literacies in her postsecondary experience were supported by opportunities to learn involving an early enriched environment with instructional support through her college years. Olivia’s experience provides a view of a successful trajectory involving being supported at home and in educational environments.

### **Sam**

Sam graduated with Cohort 1 in 2014 and at the time of the interview was finishing her bachelor’s degree majoring in elementary bilingual education. Sam reported being a twenty-year-old female of Spanish/Hispanic/Latinx heritage and speaks two languages (Spanish and English). She indicated that her SES background was in the lower levels and was the only case in this study representing a first-generation college student status. She was the only participant to report an increase in her GPA category

from high school to college. Sam expressed her level of digital skills and abilities as “much more than” her peers and indicated that these digital skills and abilities were “extremely important” to her college success. For her future career as a bilingual teacher, she also indicated that her digital expertise would be “extremely important.” When prompted to define the term *digital literacy*, Sam wrote:

Digital literacy means having the ability to use technology not only to compete simple daily tasks, but use that ability to advance as a human being. Technology is becoming a language and people who do not “speak” it will start to be left behind in school, work, etc.

She described *digital literacy* in terms of being a new language that either privileges or marginalizes based on access.

Based on her online survey responses about her ECHS experience and digital literacy skills, Sam revealed a “can do” attitude built from accepting challenges and overcoming them

[Deciding to attend an ECHS] is one of the greatest decisions I've ever made. I am both a stronger student and person. I manage my time accordingly. I understand the importance of teamwork and education. But most of all, I feel that I can accomplish anything with hard work and dedication.

As noted in Sam’s response, she identifies qualities that have led to an overall feeling of agency in being prepared to successfully navigate challenges that she may encounter in the future. Among her postsecondary peers, Sam did not feel that she stood out in higher education although she was younger than her peers because she could, “communicate and get the job done just as well as they can...” Sam rated her digital skills and abilities as a “critically important contribution” to her college success and selected “critically important” to describe how important digital skills and abilities will be in her career.

As an aspiring teacher (who has graduated and become employed as a teacher since the time of the interview), Sam selected a video project she created to teach a math lesson as the driving artifact of her interview. The project was created as an assignment in her Fundamentals of Math for Teachers course as a bilingual, early childhood education major at a large, public 4-year university. Sam was the one of four participants who was demonstrating a digital project that was completed for an online course. She was vested in the development of these video lessons as part of a “flipped classroom” (one in which part of the learning occurs online) because she felt that it would help her expand the timeframe for learning and provide opportunities for more one-on-one interaction with her future students. She described the preparation for this specific project:

Well, I just bought this computer, and I didn't have [video software] installed so I had to look for it, download it, make sure it was compatible with the computer. Then, once I found that out I had to download it, but it was still having some problems. I looked it up online and had to check it's- it configured something with it's compatibility, and then go into the settings and change that. I had to change all that in order for it to work, because when I first opened it and I transferred the video files onto the program, you couldn't hear the video.

Based on her description, Sam conveyed a view that she accepts the necessity of being able to negotiate hardware and software set up as a college-level student.

Additionally, Sam presented a view of being digitally prepared for college as a “lifesaver.” She explained:

I recently had a project and we had to create a prop box for an early childhood classroom. Since we have really different schedules, I feel like technology was really the lifesaver as far as what times we were going to meet, where we were going to meet, what we were going to do, and we had to write a reflection as a group, and we couldn't really find the time to sit down and work as a group, and write our ideas down. We really used a lot of, of course texting, and we used Google Docs. So, we were all able to work on our own time and input everything into that one reflection on our own time...

For Sam, the movement of the learning environment to increasingly digital spaces came with many benefits. She embraced the potential of digital space to facilitate communication and collaboration on academic tasks.

In her blended teacher education program delivered in both online and face-to-face courses, Sam explained digital demands in the context of instructors of online courses expected the students to just “play with it” until they figured it out when working with new devices and unfamiliar digital tools. Sam felt that this reality did not pose a problem for her. She explained:

I feel like I still would have made the same progress, it just would have taken a little longer. Because I feel like technology nowadays, it's very complex but it's easy to learn. I mean little kids, like I said, are playing with iPads and I feel like technology is becoming something kind of like a new language. It's very easy for people to adapt and learn that language, so yeah I feel like I would have been where I am right now but it would have taken a little longer. If I weren't in that class, I wouldn't be getting that specific instruction on that technology.

Clearly, the demand for digital literacy was in the context of an instructor assuming that the students would possess the necessary skills without instructional support. Sam persevered without the support of a literacy sponsor, either from personal, commercial, or educational sources. Sam adapted by “playing with it” until she was able to overcome barriers in setting up her computer and learning the media platform.

In addition to being the only participant who was discussing a project required for an online course, Sam reported other unique contextual challenges. Sam provided an explanation of logistical challenges she faced in creating her video project related to living in a multi-generational household:

Finding a space to record the lesson was difficult because I have my nephews and my nieces in the house, so sometimes they're a little too loud or interfere with the lesson, or they'll come in and I'm like, “Wait! No! I'm recording something.”

In addition to the location challenge, Sam mentioned a specific challenge in uploading video where it took, “four hours just for a ten-minute video” in the platform, Canvas, that most students were using. She found a workaround in using YouTube, “because it’s a little easier, so I just upload the link into the discussion and then that’s pretty much it.” Despite these contextual challenges, Sam persisted and described her digital preparedness for college in terms of being adaptable:

I’ve been in my [student teaching experience] …and they have this thing called a Smart Board. I’ve never been familiar with that. When she asked me, “Have you played with the Smart Board or are you familiar with it?” You know I’ve never had access to it. I’ve never been exposed to it, but I feel like, with my abilities, I don’t think it’ll be too hard to really get into the groove of using it and being familiar with its – what’s the word – it’s features.

Sam felt confident in exploring new technology as she encountered it because of her level of preparedness.

At all educational levels, Sam reported being formally supported and learning independently. She specifically recalled a course in her freshman year of high school, Business Communication Information Systems, in which she learned how to use Word, Excel, and PowerPoint. Additionally, in that class, she had to produce a video project in Movie Maker. She remembered “…that was the first time I had used Movie Maker, so that class really sticks out to me because I learned a lot of things that I am still using today…” Since the digital artifact used in the interview process was a video, it made sense that Sam remembered this educational support specifically.

Sam reported mixed feelings about opportunities to learn at the postsecondary level. When her grade was on the line, Sam felt very stressed about expectations because she “wasn’t sure what [the instructor] was going to expect…how she was going to grade.” Once she got her first grade and noticed that it was a completion grade, she

became more comfortable. She embraced the concept that the process of learning digital literacies will continually change and focused on making her learning more independently driven. She said that technology makes the world bigger. As a future teacher, she said, “I feel like I can give students the opportunity to go to places they’ve never been before, maybe places they don’t even know exist.” Moreover, Sam perceived that technology was changing how learning occurs:

I think it's a different kind of learning. It's more immersive, more fun, more ... At times I think it's more like inquiry, you want to know more because of technology. If you're curious about something, it's easier for you to go ahead and just Google it or research it. I feel like technology really fuels a lot of students' curiosity about things. Yeah, definitely it's a new type of learning, a really immersive experience.

Sam represented this new way of learning in that she often immersed herself in a new digital experience independently. The example she gave of being able to use Google to find answers to anything speaks to the power of digital preparedness in her individual experience to support her ability to successfully engage in self-directed learning.

Sam fully embraced the ambiguity of being digitally prepared by focusing on being adaptable. The digital literacies demand in her program of elementary education existed in a context of assumed literacies. She often observed that instructors gave little or no support and she relied on her willingness to adapt to function in digital discourses. When asked how she felt about completing the video project, she explained:

I was definitely stressed. The very first time I was going to upload a lesson; I wasn't sure what she was going to expect. I wasn't sure how she was going to grade, so when I received that completion grade I was like, okay well I don't need to stress out as much as I did the first time. I'm on my third one now, and I feel like she's not really looking to, what's the word, too deeply into what we're doing in our videos, I guess. If there's a mistake or something I don't really worry about it too much, as I did on the first one.

Sam's case demonstrates the reality that students face in being digitally prepared for college often falls on the shoulders of the individual.

Based on her background as a bilingual speaker and educator, Sam was very positive about the possibilities of students becoming digitally prepared for college - like learning a new language. Interestingly, she does point out that formal instruction assisted her in learning more quickly. The impact of her participation in academic discourses specifically mediated by digital contexts was that she became a stronger college student; however, her experience highlights systemic educational inequities related to assumptions about universal digital readiness. For example, an instructor assuming all students will have the necessary skills to navigate complex video projects can pose real access barriers for less "adaptable" students. Especially in comparing development of digital skills, abilities, and behaviors to learning a new language, many students would need specific, formal instruction in the new language to successfully attain a level of fluency to participate in the community of practice.

### **Travis**

Travis belonged to Cohort 2 and graduated from Focus on Success Academy in 2015. In the one and one half years since his high school graduation, he has already acquired a bachelor's degree and some graduate credit toward a master's degree. In his survey responses, he identified as a twenty-year-old male with a diversity of ethnic [heritages]. Travis reported a slightly lower GPA in postsecondary (between 3.1 – 3.5) than he had in high school (between 3.6 – 4.0). Travis perceived that he had more digital skills and abilities than his peers and indicated that these skills were "extremely

important” in contributing to his overall college success. and in his career. In an open-ended survey response, Travis defined digital college readiness as:

DCR to me is being able to keep up with this digital day and age where technology has become the norm for everything. Throughout my bachelors and master’s degree I went to a very digital college for a degree field that requires me to stay informed on the updating technology that’s happening in the film world all the time.

In summing up his survey responses, Travis indicated that he was a very aware of the impact of digital space on his education and career.

For his semi-structure interview, Travis described a recently completed, professional quality film (his films are listed in IMDb) that he had collaboratively created as an online masters-level student. He provided a link to YouTube for us to view the film as we talked. He described the experience of being in an online master’s degree program for filmmaking as being like a “full-time job” with classes and project collaborations happening every day and around the clock. The syllabus and structure of his online program highlighted the immersive digital environment in which he created this product. For example, ten of twenty-three course learning outcomes specifically refer to use of digital tools and five specific hardware and software items were required in addition to Internet access.

Travis also explained that every student works exclusively with Mac products as the industry standard. Moreover, he discussed the fact that the school had a deal with Apple to facilitate lower rates for their students to purchase the hardware and software. In connection with the exclusive Apple learning environment, Travis explained:

Any time Apple updates their stuff we can update our computers. My Macs are newer than people who were even just a couple months ahead of me because a couple months before I came to [this university], Apple released a new Mac. So people in the extended program, which means instead taking the two classes a

month they took one class... I would catch up with them in classes, and they would have these older thicker Macs with cd drives and stuff... We get different programs and a little bit more updated programs. Like in my bachelor's [program] I didn't get Avid. We had to use the Avid labs that were at the school. But now in master's [program], I have Avid on my computer and I'm able to use that software that I'm more comfortable with and in the comfort of my home without having to go to a lab at school.

This scenario depicted a view consistent with the new literacies lens that emphasizes the continuously evolving nature of literacies to match evolving technology. Even in the span of months, students are experiencing new contexts requiring updated approaches to continue participating in the learning community.

One interesting intersection of the demands of the master's program and Travis's ECHS trajectory was that the people in his courses were older and, in his view, less digitally prepared for college. He explained, "All of the people in my Master's class were older. My first masters class was welcome back to school – here's how you school." Common to the feeling expressed by many of the ECHS graduates, Travis noticed the difference in being younger than his college peers. He felt that older students in his program were not adept at fully participating because they had not been fully exposed to social media like the younger classmates. Specifically, Travis expressed that this age difference translated to differences in digital preparedness. In the following example, he made direct connections between soft skills (entertaining people) and participation in digital communities to achieve business communication goals:

I think there should be a little bit of exposure to [using social media] in school because you can do a lot of stuff if you know how to manipulate social media and those different sites. There's this one guy who because he knows how to ... I think this is also personality wise... because he has the personality and skill set to entertain people, and so he got an idea for a kick starter and it went viral on he wanted to make a potato salad. He got people to donate, and he's like I only need five dollars but he's like this is all the stuff I'm going to do if I get so much money

for some stuff, and he ended up raising over \$100,000. Well over \$100,000 just because he wanted to make a potato salad.

For his field of filmmaking, Travis considered social media expertise as crucial for exposure to build professional identity. He used an anecdotal experience to emphasize the career connections between what can often be considered a non-academic skill (use of social media) and real-world applications (such as professional branding). For someone starting out in independent filmmaking, Travis identified social media skills as foundational to his future success.

Especially for supporting students to be prepared for careers heavily dependent on digital expertise, Travis recognized the challenge in providing equitable opportunities to learn at the secondary level, He said:

I do think that it would be a challenge especially for school districts that don't have a lot of money. I think this would be a really big challenge and hard to implement because technology is expensive and just by going into the film industry I realized other technology from people's high school may not be as expensive as the gear here, because film equipment is ridiculously expensive for no reason because of supply and demand. Even on a smaller scale for like high school and stuff it would still be expensive.

Travis further explained:

Because of this field and not knowing anything about it, we were all kind of immersed in it at the same time. We started out with about the same amount of knowledge mostly came with the film making and from there you paid attention in class...

Travis expressed that he felt prepared for the basics and had to rely on his courses in his degree program to support his discipline-specific digital knowledge. From Travis's account and the information in the syllabus, it seemed that this specific program was vested in supporting digital literacies tied to discipline literacy. He reported that he had a "digital literacy class ... from the beginning of this college they were setting us up for the

digital age and stuff.” With supports in place to mitigate preparedness gaps, Travis’s postsecondary experience reflected a strategically aligned, integrated learning context.

In retrospect, Travis believed that graduating from the ECHS environment supported his college success. He said:

I feel like high school, at least FSA, prepared us pretty well for traditional college. Going to another traditional college from FSA would be a really smooth transition and even going into an advanced, a lot different, nontraditional college that I went into at the beginning, I was pretty ready because of FSA and because of high school experiences.

He also credited the support at his postsecondary institution, “The more into the digital industry we went, the more support we had at this school. It was never like I was lost with no lifeline to bring me back.” In general, Travis represented an ideal transition within two supported, strategically aligned secondary and postsecondary educational contexts.

Travis ended his interview with a positive outlook on the future. When asked about his future film projects, he said, “Maybe I’ll get a Webbie or something.” After the interview, I had to “google,” or conduct a web search, for “Webbie.” I discovered that the International Academy of Digital Arts and Sciences awards for excellence in Internet media products, “the Internet’s highest honor.” This final detail shared in the interview underscored the constantly evolving nature of society in a digital age and the need for educators to keep up with student aspirations.

### **Summary of Within-case Reports**

The within-case reports provided the foundations of a chain of evidence grounded in data sources (semi-structured interviews, digital artifacts, syllabi, and survey responses) to discuss emerging patterns. It is important to emphasize that the participants

were purposefully selected as representing successful digital preparation trajectories for postsecondary settings. All participants had successfully transitioned to four-year postsecondary environments and had completed an academic project requiring the use of digital literacies. From these within-case reports, I moved to consideration of the substantive topics associated with my research questions across cases.

### **Cross-case Synthesis**

In this section, I described patterns occurring across cases. I determined patterns by considering codes occurring frequently across all or most cases and the co-occurrence of codes across substantive topics (Miles, et al., 2014). For each research question, I reported the most compelling patterns. Moreover, I provided concepts unique to specific cases where the evidence differed from the pattern to consider other plausible interpretations.

### **Digital College Readiness Demands**

The first substantive topic that I considered was the demands for DCR experienced by the participants including the assumptions and realities subsumed in those demands. This topic related to my first research question and sub-questions:

1. What digital college readiness demands do Early College High School graduates encounter in higher education environments?
  - 1a. What aspects of digital college readiness are assumed in the demands that students encounter?
  - 1b. What realities do postsecondary students encounter related to instructional support or lack thereof for digital college readiness to meet demands?

Patterns that emerged included: conceptualizations of DCR, “everything is digital,” “I knew this already,” and technology as a “lifesaver.”

**Conceptualizations of digital college readiness.** Across data from multiple sources and participants, understandings of DCR were articulated. Mirroring existing research about digital literacies related to development of digital college readiness discussed in Chapter II, participant survey responses consistently identified foundational components of DCR to include operable levels of proficiency for: 1) using digital tools daily, 2) understanding college-level course content within digital contexts, 3) applying digital literacies to achieve personal and academic goals at the college-level, and 4) enacting self-directed learning to improve digital preparation (See Tables 2 and 3).

Table 2. *Sample Definitions of Digital Literacies from Survey Responses*

<b>Participant Source</b>	<b>Definition of Digital Literacy</b>
Anabella	Everything everyone deals with is connected to a computer and being able to understand different aspects of the programs.
Blaine	How to do something online or with technology
Charity	Digital literacy means taking data or information in our daily lives and then manipulating it to form our own thoughts or our own language that we use to communicate with others or better understand a subject that we had not understood in the first place
Harmony	Digital literacy might infer someone's ability to use technologies. For example, one's knowledge on using a smart board or simply how well one can navigate the internet and find resources and then maybe how they might apply those skills to assist with area's one might be less skilled in on the vast landscape of technology advancements.
Jaleesa	Being able to understand "digital language"
Jareth	Those who are digitally literate can use computers to aid them in any task.
Khloe	I think digital literacy is the ability to read and comprehend things online.
Lainey	Being able to use online tools or digital applications in order to complete a project or assignment.

Table 3. *Sample Definitions of Digital College Readiness from Survey Responses*

<b>Participant Source</b>	<b>Definition of Digital College Readiness</b>
Belinda	Being prepared to use the tools you have available through technology.
Bristol	The ability to maintain time-management and self-discipline to complete a college level course in an online setting.
Daphne	To me, digital college readiness would be the process of getting students prepared to utilize technology to further their education.
Eilene	It means that you acquire abilities to navigate technology in a proficient manner.
Ellison	Knowing how to use databases for research, knowing how to distinguish credible sites, knowing how to use different computer programs, knowing how to create an effective presentation
Jackson	The ability to navigate through misinformation and to present yourself in the best light possible to the world.
Kandence	I believe that digital college readiness is being able to complete tasks the same way digitally as one would off of the digital world.
Lamont	It simply means being technologically proficient for the everyday tasks of postsecondary research such as knowing how to conduct research on your own from credible sources, and being able to navigate college systems such as blackboard.
Myles	Being computer ready to be able to upload and download assignments as well as accurately give the professor what they need done.
Sally	The ability to self-motivate and finish all work without outside prompting
Simone	To me digital college readiness means to be technologically sound and being able to advance in coursework using digital pathways

Moreover, some of the responses contributed nuanced evidence in aligning DCR with what new literacies research posited as a way of knowing and being that varies from one specific context to the next (Leu, 2000). For example, Charity mentioned manipulation of digital information to shape thoughts and Bristol highlighted students' metacognitive decisions to manage time and behavior within digital environments. Additionally, Jackson connected DCR with how his identity was presented to the world.

This shift to understandings based on complex self-regulated learning was repeated in interview data.

Across interview responses, the participants expressed views that being digitally prepared for college went beyond basic skills in using digital tools toward self-regulated learning and agency to teach others. Brenda and Evan specifically expressed a desire to learn “tricks and tips” and “shortcuts” as part of moving to a higher level of proficiency with use of digital tools within their discipline. Evan explained:

I think so being able to use macros is like simplification, I think that's the best word to call it. If you're able to build macros you're able to build and automate reports. It alleviates a lot of tedious process that you have to do over and over again. You can just create a macro that does the thing over and over again with a simple click of the button...it's more efficient and I think as an accounting major it would be good if we had an information systems class, an ERP class, or something along those lines that give you exposures to macros...

Overall, the data supported new understandings of DCR that built on work in the field related to digital literacies. My study shifted the focus from understanding digital literacies to understanding digital literacies specifically within the context of being prepared for college-level academic tasks. Participants described how they navigated postsecondary demands for digital skills, abilities, and behaviors including: using digital tools daily, understanding course content in a variety of digitally mediated college contexts, and applying digital literacies to achieve goals.

**“Everything is digital.”** Overall, the participants recognized in survey and interview responses, the increasing presence of digital technologies in educational contexts. Especially as they moved into postsecondary environments, the participants described experiences that required very high levels of participation in digital discourses necessitating equally increasing levels of digital readiness. This viewpoint that learning is

dependent on expanding digitally mediated contexts is consistent with new literacies studies which holds that digital technologies have fundamentally changed ways of knowing (Coiro, Knobel, Lankshear, and Leu, 2008; Gee, 2008; Knobel & Lankshear, 2006; Wilber, 2008). Lamont observed:

I feel like there was a very heavy [digital] presence in Accelerated Learning Community College, not so much at FSA. It was more for the preparation of college as far as like, how we wrote our papers, how we analyzed text and different things. On the ALCC side, for mass-com, for philosophy, all of those classes, everything was digital. Almost everything was digital.

In tandem with the increasing digital presence from the student viewpoint, the ECHS professionals also reported the digitally saturated contexts required an additional layer of technology-related issues to resolve. Mr. Jaramillo reported that the use of technology in the ECHS setting occurred every day and in all classes. Especially for digital academic requirements, the college prep course teachers accepted responsibility, not only for teaching the students how to use digital technology, but also in facilitating how the equipment is maintained. While Lamont felt that the digital presence increased from the ECHS to the community college, the professionals expressed a daily awareness of embedded connections between the two environments.

At the four-year university level, the participants accepted that the use of digital technology would permeate their college lives whether they were in face-to-face or online courses. Alayna stated simply, “Everything did [involve use of digital technology]. There was not one class I took that did not involve a computer. Not one.” Evan described how digital communication facilitated collaboration in his discipline:

Yes, it is. Everything is digital, I think its easier access something that [company 1] does have is Microsoft Link. That's something that we really use on a daily basis, it's faster than e-mail, it's like instant messaging. If I do have a question on a report and I have to ask my manager or my senior accountant it's easier just to

shoot him a message, tell him my situation, hopefully they can assist me with it. That's why we put it online just so they can have a better view of when we have our availability.

Like most of the participants, Evan embraced the idea that participating in college, not only required the use of digital space, but that it was more of a benefit than a limitation.

Keeping in mind that the participants were identified as strong students and specifically supported to be college ready in the ECHS environment, not all college students would have the necessary level of preparedness to benefit from the ever-present digital contexts. Specifically, Brenda contrasted her mother's struggle with use of digital technology:

She gets frustrated very easily, even with her own iPhone. She had a flip phone up until a couple years ago. I look at both my parents and I kind of compare them. I do see how my mom has a lot more difficulty when something new comes out that would make her life easier, in terms of online taxes or what else? Even like a FitBit, you know, stuff like that, and how she gets frustrated with it and how we have to kind of like teach her to where my dad is very relaxed about it, and it may be frustrating, but like I kind of got that from him, that he persist, like, no, I want to learn as much as I can because pretty soon ... and essentially a lot of the digital things make our lives a lot easier and makes us get things done a whole lot faster and more efficient.

Brenda's mother was also attending college classes and could be viewed as one example of a non-digital native attempting to navigate the college environment with limited preparation. While Brenda highlighted how digital "things" make her life easier, she recognized the possibility that not all students would be able to adapt as easily. Especially for students who are struggling with being underprepared in other literacies, the interdependence of digital and traditional literacies could pose serious persistence barriers for many college students (Relles & Tierney, 2013).

**"I knew this already."** In addition to recognizing an increasingly digital environment, the participants were mostly confident about many of the digital preparation

demands required of them. Indeed, to some extent, the participants epitomized the assumptions related to so-called digital natives being automatically digitally literate (Bennett, et al., 2008; Duncan-Howell, 2012). Similar to the results found in the Katz (2007) study, the participants often reported greater perceived abilities than their demonstration of those abilities - reporting challenges, confusion, and frustration.

At the secondary institutional level, Mr. Moreno, the Digital Media teacher, said, “I always start from square one...Freshman, I don’t try to assume, but it being the digital age that it is, I know they probably know how to open a Word document, how to save it, things like that, but I go over it just in case.” He presented a balanced view of supporting digital preparation for college that recognizes a need to not assume students will have acquired the necessary basic skills even though they may have been exposed to digital contexts. From a new literacies perspective, his pedagogy reflected the concept of literacies within very specific contexts and the need to address the specific contexts explicitly in instruction to support equitable access. He reinforced the idea that the ECHS framework supported general and digital college readiness.

Especially with presentation projects, these ECHS graduates expressed comfort within digital space. As a psychology major, Brenda observed, “I had already done two years’ worth of [presentation] projects.” For her, it seemed that digital presentations were an entrenched part of the learning process. Additionally, as a marketing major, Olivia emphasized the importance of professional-looking presentations and declared, “I know I have a lot of experience working with technology to create presentations.” For Lamont, creating presentations based on content was “... a pretty foolproof system” referring to posting the presentation as a video in an online discussion board and participating in the

discussion. He qualified the idea of universal access by saying, “I would assume that in lower level classes they give more detail as to how they want the video to go.”

Moreover, the participants expressed that they had support for the “basics” which for them included accessing the learning management system (like Blackboard or Canvas) and using Microsoft Office software. Alayna expressed that she, “... knew how to do [basic digital literacies tasks] already. So, I didn't really need to take the class, but I had to for the credit.” She discussed how she was ahead of the traditional freshmen at her university because of her college credits due to the ECHS experience and had worked out a deal with her instructor where she did not attend classes while completing some assignments on her own. In a comparable situation, Travis expressed that his fully online degree program included specific support and that he had a digital literacy class.

When describing his digital project that was a presentation on how to create macros in Excel, Evan said, “All of the simple functions, I knew what to do.” He did cite the BCIS course at his ECHS as the source of learning the basics about the software. As discussed in her within-case report, Sam often returned to the idea of knowing the basic functions and being adaptable from there. Even when she encountered a new context, Sam felt that she would be able manage because she could adapt her foundational digital preparedness to newer technology situations.

In contrast to perceptions that a basic level of digital preparedness would support general ability to complete academic tasks, Evan pointed out that use of digital technologies can be intimidating. He added a brief video of a man smashing his computer into his presentation on how to use Excel to represent the frustration that people sometimes encounter when trying to work in unfamiliar digital spaces. He said the video

depicting a negative encounter with computers was “just to make them laugh and just to break the ice” during the training. After the video, he provided step-by-step instructions to help the learners feel more comfortable about using the software.

Across the board the participants and ECHS professionals acknowledged certain basic digital skills to be a given albeit the context was always changing. While it is important to acknowledge that most students are likely to be familiar with some ubiquitous digital contexts (such as Word) to navigate college-level assignments, it is equally important to consider the reality that some students may not have been exposed to these contexts. Again, the participants represent a very carefully orchestrated educational environment designed to focus on college readiness; therefore, it cannot be concluded that all students in the PK-12 pipeline have access to the same level of instructional support.

**Technology as a “lifesaver.”** A frequently recurring pattern across the cases was the ability of the participants to manage the digital requirements that they encountered, which speaks to acquired digital proficiencies as preparation for college. The participants represented different majors and faced different academic tasks; however, they all demonstrated an ability to overcome challenges involving digital contexts. Moreover, the participants indicated instances in which digital technology helped facilitate the completion of academic tasks.

A foundational idea occurring across cases related to managing the digital requirements was the concept that digital tools helped make completing tasks easier and less time consuming. For example, Alayna created templates to reuse for assignments:

So what I do on every single project, once I got my APA formatting down, I saved a blank one. And I would go back in, re-open it, re-title it, and save it. So

that's how this ended up here. I did not re-type this information; it was already there. I just changed my date, changed anything I need to on this page. And my cover page is the same, formatting was the same. I just went from there.

Her explanation of how she reduced her work time for writing papers mirrors Evan's efforts to cut time in managing data. He said:

Here I have text to columns and basically what you can do here is hit data and then enter hit text to columns. You can hit delimited and once you hit delimited you can just click on other, or you can put all commas. Since, we have it separated in commas. You can just hit next and once you press finish it separates it for the spaces...I mean it's a good way whenever we get files from Oracle or we get files from CSV. All of the files are just in one column, all of the information is just in one column. What we do is we use text to columns to kind of separate all of the data. That usually takes around ten minutes especially for big files, so we do run it on big files.

By learning how to leverage functions in digital platforms, the participants were able to manage their time on task more efficiently. As a critical college readiness behavior, the participants demonstrated that time management skills can be supported with sufficient levels of digital preparedness to increase the likelihood of success across the curriculum.

Using digital features to mesh with discipline content, the participants indicated that the flexibility of using digital tools provided affordances for helping manage discipline-specific communication tasks. Brenda recalled:

What I did was I made sure that I didn't talk about the timeline the whole time. I have the Prezi going to the timeline, and then flipping back to relevant works. For example, I skipped back from here to his family and how that influenced one of his works, I talked about some of his other short stories, jumped back again, and this one I really like because what I actually did was there was a pamphlet of the original copy of The Scarlet Letter. What I did with Prezi was I took that picture, and with Prezi, you can zoom in on whatever part of the picture you want. This way, it was kind of cool to like zoom in on the picture and as you get closer to the picture, there's actually like a little blurb about The Scarlet Letter and what I wanted to talk about in terms of the elements of it and the themes.

Brenda emphasized that the use of "cool" digital presentation features helped her avoid spending too much time on one aspect of her project to deliver information on all

required elements of the assignment. Similarly, Lamont explained how balancing discipline content was much easier in an exclusively digital environment:

With the first video, instead of doing the different PowerPoint slides on it and saving those individually, I spoke on the video and it was actually me on the video with different charts and everything. That was, it was very difficult to get that the way that I wanted it to....It was the technical issues, because it was like a personal video of me. That part made it difficult [at] first, because I had my charts laid out in front of me. I'm going through [the physical charts], going through the verbal part [at the same time], and I'm trying to find okay, which chart is my macro...

He described a situation in which trying to juggle a digital tool (video recording) while physically manipulating visuals proved very challenging; whereas, he later described the effectiveness of using PowerPoint exclusively to manage and organize the production of a video file. Lamont learned to use PowerPoint to complete the assigned course tasks from watching the videos of his peers and he applied the idea to his subsequent video projects.

Ultimately, the participants added to evidence that suggested students view digital tools as an asset to managing academic environments. Sam explained:

[Using Google Docs and texting] really, really helped out because we were able to finish that paper without having to meet and sit down, take time out of our day to get that done. It was really cool because you were able to see who worked on what and what time. If you had comments you could write some comments on a sticky note kind of thing. If, by any chance, we were all online at the same time, we could chat while we were writing that document. I think that's a really cool feature that Google has come up with and it really has helped out because I've used it a few times with other group members. Like I said, it's really, really ... It's crazy how we are changing. We couldn't even think of this years ago and now it's becoming the norm. It's crazy, it really is.

Sam emphasized that moving from attempting to do group work in person to completing group work in digital platforms not only makes the process easier, it has become the “norm.” Also, Sam reflected that she is baffled (“It’s crazy”) by the speed at which the

changes are occurring. Sam's experience coincided with Wilber (2008) findings that college students must demonstrate an ability to adapt to new contexts specifically bound to time. By being prepared to adapt to the changing contexts, the participants, on the whole, viewed technology as an asset.

### **Opportunities to Learn to Develop Digital College Readiness**

The second substantive topic of this study was the opportunities to learn that participants reported. The topic related to my second research question:

2. What opportunities to learn do ECHS graduates report occurred inside or outside of the ECHS, community college, and four-year institutions of higher learning environments which enabled them to develop digital college readiness?

Both inside and outside of formal education environments, the patterns that emerged across the cases related to opportunities to learn to develop DCR included: the intersections of money and DCR, "the teacher just wasn't there," and discipline-specific opportunities to learn.

**The intersections of money and digital college readiness.** Although there were no specific prompts related to the costs of becoming digitally prepared for college, participants discussed financial considerations as part of their experience in developing digital skill, abilities, and behaviors. At both a personal level (such as digital device and software ownership) and at the institutional level (such as maintenance of computer lab facilities), they recognized a clear connection between financial costs associated with participation in digital discourses and the ability to develop college-level readiness.

Additionally, participants expressed concern that not all students or schools would have the financial resources to equitably prepare students digitally for college.

In the literature related to the persistence of the digital divide, a consistent pattern also occurs that correlates educational opportunities with socioeconomic status. Notably, DeAngelo and Franke (2016) found that college readiness was a factor in ameliorating social background factors, such as low socioeconomic status, in helping students to persist to higher levels of education. Especially in consideration that participants were financially supported to access college credit free of cost in high school as part of a purposeful attempt to provide equitable access to higher education for underrepresented groups, it is interesting that they independently highlighted how financial considerations factored into DCR.

Many of the participants conveyed an understanding of the proprietary nature of digital educational contexts. When asked whether she agreed with some who would say digital natives do not need explicit instruction because they grow up with technology, Alayna observed:

I would disagree, because the technology that we're growing up with is a cell phone and a computer, and things that we have on the computer...When you purchase your own computer it doesn't come with Microsoft Office on it, anymore, so you do have to get that and learn to use it.

But, as far as the university goes, the technology that you use at a university, as far as Canvas, Blackboard, the Cengage, the Pearson, all that, it's proprietary to educational services. So regardless of what you grew up with, if you used the Office Suite, you used the internet constantly, it's different. It is. Using that journal thing, or LibGuides, or whatever it's called. It's different. The way you search things in it is different. To the point that they do have to have a course when you first enter a college and a university, on how to search in that thing. Because if you search the way you search in Google, you're not going to find the same results. So, I do not agree that they don't need training or tutoring or anything like that.

In connection with the digital space that students use personally and through the university, she posited that digital contexts are proprietary, or owned, and emphasized that the platforms and devices are going to be consistently “different.” This ownership of digital contexts translates to consistent situations of ‘haves and have nots.’ In Brenda’s case, she had purchased a version of Prezi presentation software that enabled her to use functions (e.g. group communication and editing) that were not available in the free version. She shared her purchased version with her group, but the other members did not have the same level of access unless they purchased the same version. Because of proprietary differences, students will need instructional and institutional support to participate in changing digital contexts influenced by commercial considerations.

Moreover, participants observed that the digital contexts of learning are very different for students based on the levels of financial support in a given environment. Lamont posited, “Even then with superintendents and higher level people on the Board of Education, Texas Board of Education, they only have so much influence. Most of it does come from the financial aspect, who's our biggest investor?” Similar to Alayna’s point about the proprietary components of digital learning environments, Lamont considered educational decisions, even at the highest levels, to be dependent on financial resources. In a very practical way, Travis’s account of his program being directly connected to Apple hardware and software demonstrated how financial barriers could pose challenges for students and institutions:

I do think that [keeping up with digital technology advances] would be a challenge especially for school districts that don't have a lot of money. I think this would be a really big challenge and hard to implement because technology is expensive and just by going into the film industry, I realized other technology from people's high school may not be as expensive as the gear here, because film

equipment is ridiculously expensive for no reason because of supply and demand. Even on a smaller scale for like high school and stuff it would still be expensive.

Given that technology advances require constant financial expenditures, it is reasonable that school leaders would consider the costs; however, educational leaders must also weigh long-term outcomes of failing to support students in accessing and participating in a global, digital society (Knobel & Lankshear, 2006).

Ultimately, the opportunities for students to learn within digital contexts depends on access to proprietary environments. According to the concept of *literacy sponsorship*, Brandt (2001) discussed an awareness of “who or what” underwrites the occasions of literacy learning. In other words, digital literacies learning toward a level of readiness for college requires formal (instructors, educational leaders, and corporate entities) or informal (family and peers) “sponsors” to gain access to digitally mediated discourses. Unfortunately, students from lower SES backgrounds are particularly susceptible to not having informal sponsors and, therefore, need purposeful support within formal educational contexts (Schmidt, et al., 2015).

**“The teacher just wasn’t there.”** As part of a connection to the substantive topic of the realities related to digital college preparedness (research sub-question 1b) and opportunities to learn, some participants demonstrated self-regulated learning, or a motivation and capacity to “systematically focus their thoughts, feelings, and actions on the attainment of their goals” as part of constructing knowledge (Schunk, 2012, p. 441), as an opportunity to learn in building digital readiness. Not only was the learning self-regulated, more specifically, the participants revealed some situations in which they overcame lack of formal instructional support for required digital skills through accepting a responsibility for their learning progress.

As the only participant who was a first-generation college student, Sam cited many examples of not being supported by explicit instruction in her postsecondary learning environment. Despite situations where she had to get through challenges without instructional support, she viewed the responsibility for learning as being a “balance”:

It's a balance because a lot of it came from school, from projects, things we had to do. Then again, there's a lot of things that I've learned out of school while trying to fix my computer or trying to download something or play with the TV or something. There's definitely a balance as far as where I've learned all those skills.

Interestingly, Sam’s description of learning partly in formal setting and partly on her own as a “balance” also suggests the idea of the difficulty of maintaining equilibrium.

Especially for first-generation college students, Relles and Tierney (2013) argued that the situation may not be “balanced” in the sense that some students would be at-risk of being underprepared without higher levels of formal instructional support. Students who are underprepared may need more structured learning environments.

Similar to Sam’s view that learning outside of the classroom was an established part of the college experience, Lamont discussed independent learning in terms of dependence on the maturity level of the student. He explained:

I think it's the maturity level, more from the students' side than instructor, just because in community colleges and post-secondary, you see a lot of students taking notes on their laptops, even using Google Docs for that and taking them as a group. When someone has a question, they'll type it into Google Docs. If people are already understanding it, they'll answer it in Google Docs [by time the instructor does]. If not, they'll just ask the professor while he's giving his lecture. I think that's the part that holds it back for high school students, just because college students have that maturity level, they have that mindset of I'm paying for this somehow, so I want to get my money's worth. They're either coming out with a ton of student loan debt or they're working through to avoid coming out with student loan debt. It's the maturity level and the mindset that holds it back for high school students.

Lamont gave an example of how digital technology has transformed how students and instructors interact during a traditional content delivery situation, a lecture. He described the self-regulated learning occurring in digital space as interactive and collaborative. Lamont attributed this ability to move toward more self-regulated learning to financial factors, such as motivation to avoid student debt. Whatever the motivation, the example suggests that students have adopted some affordances of digital technology in place of instructor support.

While the participants indicated high levels of self-regulated learning, there were also instances when they felt that the instructor's presence was an important factor in their opportunities to learn. Alayna recalled:

But if I'm gonna be completely honest, I started to lose interest in this project because the teacher just wasn't there for ... There's just that connection that you have with teachers, and I was very into this topic because my husband's military... I wanted to actually do this. And she had so much on her plate. She's also a doctoral student doing her research on the side, so she just wasn't there to help. So, I did lose interest in it.

Alayna provided an interesting case of a student who demonstrated what Bennet, et al. (2008) discussed as an assumption about so-called digital natives. The researchers argued that while some people assume digital natives learn differently than previous generations, they found that there was no one identifiable unique learning style. As a very capable student (evidenced by consistently high GPAs and degree completion) and one motivated to participate in an academic task, Alayna still relied on core teacher/student relationships as a foundational part of her learning style. This connects to what Mr. Jaramillo, the ECHS college preparation teacher, observed in that the ECHS students sought out their teachers to navigate technical issues related to class assignments.

In summary, while the participants demonstrated abilities to learn independently, some revealed a preference to depend on instructor support during completion of assignments. Because these students represent successful postsecondary experiences with being digitally prepared, it is important to consider the levels of instructional support that would be required for all students to equitably prepare for college digitally regardless of their backgrounds.

**Discipline-specific opportunities to learn.** In all cases, the participants discussed how they acquired digital knowledge and skills in conjunction with building their discipline-specific expertise. Some of the participants explained situations in which degree programs purposefully designed learning to include digital tasks and some reported self-initiated paths to access learning.

At a minimum, professors expected students to be proficient in finding resources using the Internet and synthesizing the information into coursework. Olivia stated, “Professors want to be able to know that you can analyze documents from online and incorporate it into the lessons that we've been learning. They really want to hear it in your words.” Olivia’s observation corroborated studies by Drew (2012) and Relles and Tierney (2013) in that college readiness, at a foundational level, requires the student to navigate both online and offline texts.

With the shift of learning into digital spaces, some participants expressed positive attitudes toward the use of digital technology to manage learning. Sam reported:

Well, I'm thinking of my math homework right now for my online class. All the homework is online, but the cool thing about it is that it's linked to our textbook. So if, for example, we're on a question that we're having trouble with, maybe it's a concept we haven't mastered, that question is linked to where in the textbook you can find it. It saves a lot of your time because you're not looking for the subject or the concept in the book, you're not looking in the glossary, it's just right there

literally. You click a button that says, read it and it takes you right to the textbook, where in the textbook you're learning about that. Then, it pretty much gives you step-by-step how to do what the question is asking you to do...I feel like it's easier, too to learn because it's literally spoon feeding you the information.

Sam described a specific example of new affordances being made by digital tools for personalized instruction to meet college-level learning demands. She pointed out how publishers design digital textbooks to deliver just-in-time tutoring. Again, as discussed in the previous section relating economic considerations and the learning environment, this type of learning experience depends upon instructional decisions made within for-profit structures. As digital space creates affordances for new types of learning, it is imperative to consider issues of equal access to address conditions of digital 'haves and have nots' (Gonzales, 2016).

Beyond basic digital preparedness for learning discipline-specific content, participants encountered increasingly more challenging tasks requiring specific opportunities to learn to navigate digital tools and platforms to apply skills in their fields of practice. Brenda recognized a need to know more and actively sought out learning opportunities:

... last year, at the lab that I was at, [my supervisor] did teach me kind of like the beginnings and coding and making code for SPSS. This year I told my supervisor that I really was interested in at least some data entry. She sat down with me and kind of taught me. In terms of finding opportunities to learn more and increase not only my digital literacy, but also things that are going to help me later on, I really feel that I've always been proactive in if I want to learn something. Like I'm going to find a way to learn it and from the people that can help me.

Keeping in mind that Brenda is an overall successful student, it makes sense that she can independently assess and direct her efforts to learn. From a new literacies lens, this metacognitive skill of consistently evaluating changing digital contexts of learning (Leu,

2000) and adjusting strategies accordingly has become a necessary part of being a college student (Street, 2003).

Some participants expressed that they experienced a smooth transition into upper undergraduate educational digital contexts based on ECHS and university-level instructional supports. Because the field of filmmaking is heavily dependent on digital tools, Travis reported a very structured bachelor's degree program that strategically integrated discipline-related content with use of digital technology. When asked if he encountered times when he struggled with the digital aspects of college as he transitioned to a four-year postsecondary environment, Travis stated, "I don't particularly think so. We even had a digital literacy class I think month two that I was here. ...from the beginning of this college [experience], they were setting us up for the digital age and stuff." As mentioned in his within-case report, Travis expressed that he always felt that he had a "lifeline" to support him as he encountered unfamiliar situations involving digital contexts.

In transitioning from educational context to increasing immersion in professional contexts, the participants provided several examples of how their digital college readiness directly related to on-the-job skills in their discipline. As part of a college intern experience, Evan's case demonstrated a clear connection from digital college readiness to career readiness. He described an instance of being sponsored to learn digital literacies used in the accounting field:

When I started doing this little template for Excel, I was still fairly new to Excel so I didn't really know how to condense all the information... or even how to sort it out... or how to put pivot tables, filter and sort, how to label these little ribbons. Thankfully I got the help from [supervisor name] who was the senior analyst. We would have one-hour meetings once a week... He would basically tell me "if I

needed anything I should just contact him". This was a project that I did in my free time... I took it like a [school] project ...

Because Evan had taken elective courses specifically to acquire expertise with digital platforms used in his field, he became more fluent in using Excel. He also had a supervisor who was willing to instruct him during the process of creating this project. Similarly, Alayna described how she applied knowledge acquired in secondary and postsecondary courses:

Because both my BCIS classes focused heavily on Excel because that's what they assumed you needed in the job force. And, when I did take my statistics class at the university level, I took Business Applied Statistics, which actually focused on Excel, as well. So I had a lot of knowledge in Excel that I was able to use on these, which actually helped in my job, as well.

In the syllabus provided for the course in which she created the discipline-specific research paper, the instructor required an oral presentation and specified that "PowerPoint should be used." The requirement to use PowerPoint in association with making a research presentation not only speaks to the assumed uses of digital space when communicating "orally," but also that there are preferred digital platforms for academic communication.

Overall, the collective narratives of the participants clearly showed that both formal and informal instructional support was necessary for them to successfully navigate digitally mediated tasks across all represented fields of study. This repetition of evidence in my findings related to such a wide variety of learning experiences (even for students who share a common college-focused secondary learning environment) is consistent with prior research discussing the persistence of a digital divide because of inconsistent opportunities to learn (Goode, 2010; Gormley & McDermott, 2014; Naidoo & Raju, 2012).

## **The Early College High School Experience**

In synthesizing answers to my third research question (How do ECHS graduates perceive that the experience of attending an ECHS did or did not support their development of digital college readiness in tandem with their overall college readiness?), I analyzed descriptive data from open-ended survey items, ECHS graduate interviews, and ECHS professional interviews. One major pattern emerged that revealed tensions between feeling simultaneously prepared and unprepared for digitally mediated academic contexts.

Because the participants all shared a common college-focused high school experience including attending community college classes, they discussed several ways in which they were prepared to complete college-level academic tasks at the four-year postsecondary level. However, they also indicated that they were not necessarily prepared for digital tasks. For example, in thinking about how she felt about being prepared to complete her word-processed research project, Alayna said, “I wasn't necessarily prepared for, but I wasn't unprepared to adapt to the formatting, if that makes sense.” This pattern of uncertainty about specifically being digitally ready for college repeated across the cases and mirrors studies that pointed to a distinct need to consider digital preparedness in connection with making placement decisions as students transition to college-level work (Kneivel, 2015).

As reported in the ECHS contextualization section, the professionals conveyed, on one hand, a collective sense of the necessity of supporting development digital preparedness, on the other hand, varying views of the form of the support. Mr. Moreno discussed how the students had the option of taking second language classes (Spanish) or

his media courses. Other than the Business Communication and Information Systems (BCIS) course that covered basic use of Microsoft Office products, Mr. Moreno's observation meant that some students would not have any other dedicated digital literacies courses. Additionally, Ms. Shaw's responses indicated that the digital facets of college readiness had not yet become a prominent part of curriculum planning to ensure that instruction for digital literacies matched the level of focus on general college readiness. According to Jones, et al. (2009), "Students of color are more likely to have been exposed to Internet at school. Whites exposed at home" (p. 260). From this research lens, curriculum planning efforts were needed to better support all students.

ECHS graduates also expressed that gaps exist in instruction to support development of digital skills, abilities, and behaviors. Evan considered the lack of specific classes as related to the newness of the school. He reported that efforts were in place to support foundational aspects of digital college readiness, but specific courses designed to support discipline-specific digital learning pathways were not yet in place since the ECHS was new (see within-case report).

Moreover, the ECHS graduates indicated that, in some cases, the digital environment was controlled at the instructor or institutional level which removed opportunities to learn at the student level. For example, Alayna observed:

So, on that [Blackboard] portal, you have access to registrar, to the library, to your business office, to eCommerce to pay your bills. I mean, everything is on there. Where at the [ECHS], they limited everything because they didn't want you to mess it up. Because they were giving [college courses] to you for free, they had it set up a certain way. You couldn't touch it. So, they said, "Don't give them access." And when you get to the university, it's like you have access to everything because you're controlling it. That wasn't hard, but it was a shock. It kind of took you back a little bit because it made you feel like an adult at that point. Everything had been handed to me.

She viewed the highly restricted, albeit supportive, digital environment of the ECHS to not be effective in building her ability to transition smoothly to a four-year institution organized by digital platforms. In both examples, explicit instruction was missing from the curriculum that could have made postsecondary transitions more manageable for struggling students.

Some specific digital literacies were embedded in the curriculum. Olivia found that the BCIS course offered her a chance to build basic skills in using digital software functions that transferred across coursework and helped her succeed. She reported:

[SPSS] was so difficult to have to work through, but knowing how it was set up similar to other software, knowing you could go into File and edit things to make it personalized, I think that helped a lot. Just to try to differentiate your work from your classmates' work, I think helps a lot when it comes to an instructor grading your work, seeing that it is different, that you tried to take the extra step to personalize your graphs and everything. Despite the fact whether or not I was good at statistics or not, putting in that extra effort, I think really sets you aside [from peers].

Similarly, when discussing how she used digital bibliography tools to create her works cited page in her paper, Alayna recalled, "My early college school, they took us to the library at the college every single semester. And I hated it, but it showed us the resources at the library." In these instances, the ECHS graduates noted an appreciation for foundational digital skills acquired in the ECHS environment. In short, they were prepared in some specific ways, but noted that more instruction for digital literacies would have helped them prepare for college and career.

### **Summary of Findings**

In this chapter, I provided case contextualization, within-case reports, and cross-case synthesis that reveal the complexity of the phenomenon of digital collage readiness from multiple views. Throughout, I employed tactics including representativeness, checks

for researcher effects, and triangulation to confirm a converging line of inquiry related to my research questions.

The findings pointed to an awareness on the part of the participants that digital discourses are an integral part of college-level demands. As successful postsecondary students, participants also demonstrated a perceived level of confidence that they would be able to adjust to new requirements in contexts of constantly evolving digital technologies by seeking out both formal and informal opportunities to learn. The shared common ECHS experience supported their perceptions that they were generally ready for college, but not necessarily digitally ready for college when they encountered specific and unfamiliar digital academic contexts. Although the setting of this study is relatively unique and these students fall into the category of so-called digital natives, these findings contributed to the growing body of evidence that digital readiness is not universal among students transitioning to postsecondary environments (Bennett, et al., 2008; Duncan-Howell, 2012).

## V. DISCUSSION AND IMPLICATIONS

I would say that we still need that [digital college readiness] instruction in the classroom, just because it's a different kind of instruction. Knowing how to maneuver through an app on a phone when you're four years old is completely different from doing a project for macroeconomics in college.

—Lamont, ECHS graduate

As I was conducting this research project, I encountered several instances of not being fully prepared to work in constantly evolving digital contexts. One particularly stressful example was trying to migrate my work from an existing laptop (which had been accidentally dropped from a height of about three feet creating issues with operation) to a new desktop. Although the migration process is set up to be relatively automated, the glitches in my dropped laptop were preventing certain parts of the process. While a software technician in another country supported me virtually via email to overcome the glitches, I was “saying” what I thought was the appropriate “phrase” in keyboarding a command on my desktop computer to get the migration task done. However, the “conversation” was not going smoothly between the human to human email exchange happening over a period of five days and the corresponding human to computer communication resulting in successive roadblocks. In short, my level of digital preparedness to navigate a task assumed to be automatic was directly related to my ability to get professional work done in digital space. Ultimately, I required some direct instructional support to complete the task, but even then, it was challenging because the context was new.

Like Lamont observed, I found that the demands for increasingly complex participation in unfamiliar digital spaces have become inevitable. Although I feel prepared with a level of proficiency for routine digital contexts, I still need explicit

instructional input of some kind as I encounter unfamiliar situations. My ability to meet those demands to navigate unforeseen contexts has become critical to my personal and professional success. But how do I know what it means for postsecondary students to be prepared for participation in ever-changing educational contexts mediated by digital technology? What does clearly understanding levels of digital preparation for college mean for me as an educator and researcher? Ultimately, what do clearer concepts of digital college readiness (DCR) contribute to field of education related to students transitioning to postsecondary environments to inform equitable opportunities to learn?

In this chapter, I discuss how the findings related to my research questions connected to the problem of the digital divide that continues to marginalize students and pose postsecondary access barriers. I examine how the findings contributed to the body of evidence in clarifying understandings of DCR from a new literacies lens that positions learning in specific, time-bound contexts. Specifically, I focus on findings related to my dual study purpose: 1) clarifying concepts of DCR and 2) how ECHS graduates navigated opportunities to learn in postsecondary environments to build digital skills, abilities, and behaviors. Finally, I consider the implications of digital preparation for college in policy, practice, and future research.

### **Research Questions**

This study examined the following questions:

1. What digital college readiness demands do Early College High School graduates encounter in higher education environments?
  - a. What aspects of digital college readiness are assumed in higher education environments?

- b. What realities do postsecondary students encounter related to instructional support or lack of support for digital college readiness to meet demands?
2. What opportunities to learn do Early College High School graduates report occurred inside or outside of the ECHS, community college, and four-year institutions of higher learning environments which enabled them to develop digital college readiness?
3. How do Early College High School graduates perceive the experience of attending an ECHS and whether it did or did not support their development of digital college readiness in tandem with their overall college readiness?

### **Discussion**

As explicated in Chapters I and II, the problem of the digital divide persists and has moved beyond simple access to digital devices and the Internet. It has become a new form of literacy that continues to disproportionately create barriers for groups of students who are traditionally underserved in higher education (Cotten & Jelenewicz, 2006; Goode, 2010; Gonzales, 2016; Gormley & McDermott, 2014; Guzzetti & Foley, 2014; Naidoo & Raju, 2012; Relles & Tierney, 2013). Although ECHS graduates and professionals reported that demands for digital literacies permeate higher education courses, no consistent plans were evident in the data for assessing and supporting these literacies for college readiness beyond the BCIS course and media electives. This lack of systemic, strategic planning mirrors findings in the literature that instructional efforts have not yet caught up with massive societal shifts (Bennett et al., 2008; Duncan-Howell, 2012; Murray & Perez, 2014; Selwyn, 2015). Especially for students who may need additional postsecondary transitional support for traditional literacies (e.g. reading,

writing, and math) in the form of developmental education courses, this lack of systemic, strategic instruction in digital literacies perpetuates inequities.

By examining the data collected from seven ECHS graduates who successfully persisted to postsecondary environments and three ECHS professionals through a new literacies lens, I described patterns related to the concept of DCR and how it was or was not supported formally or informally in the curriculum. Overall, these patterns confirmed the inconsistencies related to high demands for digital preparedness with minimal, sporadic instructional support. Despite instructional inconsistencies, the participants, as highly prepared and academically strong college students, articulated an ability to navigate demands for advanced digital skills, abilities, and behaviors, such as participating in online peer-assessment of video projects and collaborating on group projects using digital tools. While the participants represented groups traditionally underserved in higher education, they had a unique support system in the form of the ECHS environment. They reported that the ECHS experience provided opportunities to learn which transferred into postsecondary educational environments including those mediated by digital technologies.

This study employed three design elements that supported unique and new contributions to the body of evidence: 1) participants shared a common experience of graduating from an ECHS setting, 2) semi-structured interviews were conducted using participant-created digital products, and 3) participants were purposefully chosen to be examples of successful postsecondary educational trajectories. In contrast to traditional high school frameworks, the participants shared a comprehensively supported, college-focused high school experience that afforded them the opportunity to get an associate

degree while enrolled as a postsecondary student. As part of a conscious effort to support digital literacies, the ECHS curriculum included a mandatory digital literacies course. Instead of simply reporting on how they were consumers of digital technologies, I examined how participants reported experiences from a perspective as creators of digital products to address what Duncan-Howell (2012) discussed as prior research design gaps. Also, as representatives of successful academic trajectories for traditionally underserved populations, the participant voices addressed gaps in the body of knowledge for what Gee (2014) cautioned might be over-reported ‘typical’ voices. These three design elements addressed specific research gaps to inform findings related to clarifying the concept of DCR and to inform strategic planning.

In the following section, I provide a discussion based on analytic generalizations of patterns grounded in repetition of data from multiple sources and across multiple cases. According to Yin (2014), analytic generalizations are a discussion of substantive topics tied to analysis of multiple sources of data. I organized the discussion of analytic generalizations by my dual study purpose of clarifying the concept of DCR (demands, assumptions, and realities) and how it is or is not supported in secondary/postsecondary curricula (opportunities to learn and the ECHS environment).

### **Toward Clarifying the Concept of Digital College Readiness**

How is digital preparedness for college conceptualized? What is being digitally demanded of postsecondary students? What assumptions and realities are associated with these demands? To account for general college readiness (such as completing advanced secondary courses and accumulating high GPAs), I selected to study participants who had experienced an ECHS educational framework focused on college preparation curriculum

and comprehensive support. Because the participants shared this general college readiness environment at the secondary level, I could address my first research question of what specific digital demands ECHS graduates encountered as they transitioned into four-year postsecondary educational environments. Teasing out digital academic expectations also opened possibilities for addressing the sub-questions about underlying assumptions and realities related to those demands.

Beginning with Sam's definition at the very beginning of this manuscript, the concept of what digital preparedness means for college students was the focal point of this naturalistic study. Participant voices were woven into an emerging conceptualization of college-level digital proficiency in terms of how to use digital technology to function in postsecondary environments (See Table 2 and 3 on pages 118-119). Additionally, as Simone observed, being ready for college environments meant being able to "advance in coursework using digital pathways." My study corroborated prior research in confirming successful preparation for college-level digital tasks requires more than a discreet set of skills (Ferro, et al., 2011), and extends new literacies conversations of continuous development of literacies within ever-changing digital contexts (Leu, 2000; Wilber 2008).

Based on the findings, digital college readiness means postsecondary students possess advanced levels of digital skills, abilities, and behaviors developed from foundational digital literacies that support access to and success within digitally mediated academic contexts. The many participant views overlapped and coalesced around common components of how they demonstrated preparedness to participate in college-level digital discourses including: 1) using digital tools daily to navigate college

environments, 2) understanding course content in digital contexts, 3) applying digital literacies to achieve their academic and personal goals, and 4) enacting self-directed learning to improve their digital preparedness.

**Using digital tools daily to navigate college environments.** Although the concept of DCR remained broad and fluid depending on the context, ECHS graduates and professionals acknowledged its existence as a daily part of schooling. The pattern of “everything is digital” spoke to the widely-held knowledge that digital contexts are ubiquitous in society. This pattern also revealed insight that although contexts move toward ever-present digital contexts, digital literacies instruction to build college readiness does not always keep pace. Within the body of literature citing a growing recognition that foundational ways of knowing are changing in tandem with changing digital technologies, this heightened awareness of digital discourses continues to be critical in identifying ways to adjust pedagogies and educational frameworks to support all students. As Hicks and Turner (2013) point out, digital literacies are not a luxury, but rather essential literacies for both students and educators. Additionally, Relles and Tierney (2013) highlighted the responsibility of educators and educational leaders to recognize the interdependence of traditional and digital literacies. My findings contributed to existing ideas that digital literacies, as an essential component of postsecondary contexts, will be used daily across disciplines to complete academic and personal goals.

**Understanding course content in digital contexts.** Within a concept of digital preparation dependent on numerous and changing contexts, participants struggled to understand what was being required of them. Some expressed frustration related to

developing the expertise to complete assigned academic tasks in digital environments without clear instructional guidelines. Some described challenging situations related to discipline-specific digital literacies that were beyond basic levels of digital literacies. Despite facing unfamiliar situations involving digital technology, the ECHS graduates demonstrated a productive struggle related to navigating digital preparation demands in different ways. As a concept that encompassed adjustments for changing contexts, I discovered that postsecondary students who perceived that they were successfully prepared to meet college-level digital demands demonstrated confidence, adaptability, persistence, and self-regulated learning.

Across the cases, the participants expressed positive views of being prepared for digitally mediated contexts explicitly connected to being an important aspect in supporting college and career success. Especially in relation to the pattern of technology as a “lifesaver,” the participants expressed how digital space has made completion of course assignments easier – more manageable. By reporting an affiliation with digital contexts, the participants corroborated prior research (Wilber, 2008). Again, while all participants expressed that digital technologies were making life as a college student easier, they also pointed to ways that ever-changing digital contexts posed barriers for those who did not have the same levels of preparedness to adapt.

**Applying digital literacies to achieve academic and personal goals.** Consistent with findings by Katz (2007), the participants in this study demonstrated confidence in their ability to navigate a digitally immersive college experience as evidenced in the patterns “I knew this already” and technology as a “lifesaver.” The patterns suggested a consensus that they were willing and able to participate in discourses mediated by digital

contexts; however, the participation was predicated on foundational digital literacies instruction in addition to general college readiness supports. For example, all participants referenced the BCIS course taken at the ECHS as a required digital literacies curriculum component. Although the BCIS course moved to the community college curriculum, the persistent presence of this foundational digital literacies course in an educational context specifically designed to support college readiness speaks to a refutation of the concept of digital natives having an inherent capacity to participate in academic discourses specifically mediated by digital contexts. Therefore, it could be argued that digitally preparing for college involves explicit, foundational instruction in digital literacies (such as a BCIS or digital literacies course) to build equitable levels of literacies, especially for students of color and low SES (Goode, 2010; Naidoo & Raju, 2012), toward preparedness to complete college-level tasks involving digital technologies.

Additionally, like findings in the Katz (2007) study, participants demonstrated a disconnect between what they felt they were prepared to do digitally and the perceived level of preparedness while attempting to complete an academic task. To some extent, the participants reported that they were prepared, but not prepared, connected with the literature in that consensus has yet to be reached on educational uses of digital literacies tied to digital college readiness (Kumar & Vigil, 2011). Leu (2000) suggested that digital literacies are a moving target existing in rapidly changing time-bound contexts. This complicates efforts on the part of educators and leaders to first define the concept and plan effective instructional frameworks. Within this complex societal context, Schmidt, et al. (2015) argued that digital literacies cannot be assumed especially for students who are traditionally underserved. The findings of this study extend the body of evidence in

underscoring the importance of rejecting the assumption of universal DCR for all students (Bennett, et al., 2008; Duncan-Howell, 2012), especially for non-traditional students (Guzzetti & Foley, 2014) and students who may be underprepared in one or more areas resulting in developmental education course placement (Relles & Tierney, 2013). Especially in specific instances when participants sought out literacy sponsors to build discipline-specific digital expertise, this study provided new evidence highlighting the need to support explicit instruction for discipline-related digital contexts.

**Enacting self-directed learning to improve digital preparedness.** Because my participants were creators of digital products, they contributed nuanced experiential evidence about the concept of being digitally prepared for college. These multiple views uncovered aspects of digitally preparing for college missing in previous literature focused on quantitative measures of the use, or consumption, of digital technology (Gormley & McDermott, 2014; Jones, et al., 2009; and Vigdor, et al., 2014). Although Curwood's (2013) case involved one student's ability to create an affinity space related to discipline-specific content, the study did not directly address how all students would be supported to bring their individual expertise and passions to bear in classroom environments in the form of self-directed learning and development. In the Curwood (2013) case, reaching the level of creation in digital space afforded the opportunity for one student to create curriculum in the form of an affinity, or in other words, become a literacy sponsor.

Six of the seven participants in this study (Alayna, Brenda, Evan, Lamont, Olivia, and Sam) explained instances when they became literacy sponsors by assisting peers to complete academic assignments utilizing digital tools. This self-directed, peer-to-peer literacy sponsorship included: using their individual expertise to lead groups, providing

peer tutoring, or training colleagues. The significance of this self-directed literacy sponsorship is that the participants demonstrated multiple and differentiated independent levels of digital literacy for course-specific, required tasks utilizing digital space and they were willing to support peers.

**Summary of clarifying the concept of digital college readiness.** In summary, the participants reported conceptualizations of DCR as a level of proficiency in digital contexts that enabled them to experience a productive struggle. Across the cases of participants who shared a common college-focused learning environment and foundational digital literacy instruction, they demonstrated successful participation in digitally mediated college contexts as confident, adaptable, persistent, and self-regulated learners. My findings add to the body of evidence that current students are comfortable creators in digital learning contexts (Duncan-Howell, 2012; Kumar & Vigil, 2011), but may need “a lifeline” to instructional supports. The findings indicated that foundational digital literacies instruction (such as the BCIS course) are necessary to ensure equitable access to learning mediated by digital contexts. By ensuring foundational digital literacies instruction, students would be more likely to reach independent levels as creators of digital products and, possibly, be literacy sponsors.

### **Opportunities to Learn Related to Development of Digital College Readiness**

Three of the patterns spoke to the second research question related to opportunities to learn that participants reported occurring during their high school, community college, and four-year postsecondary tenures. Additionally, one pattern addressed how the context of the ECHS experience supported student digital preparation for college. They believed formal and informal learning to build digital proficiencies

included: the costs of DCR, instructional supports, and discipline-specific digital literacies.

**The costs of digital college readiness.** At the heart of this study, lies the fact that the participants shared a common ECHS experience that was purposefully focused on preparing students for postsecondary educational success, even during their tenure at the high school level. The participants spoke about the intersection of money and opportunities to develop DCR as relatively unique condition of being selected to attend the ECHS as a factor of systemic efforts to support underserved populations to access postsecondary education.

Without prompting about the financial aspects for getting prepared for college digitally, the participants expressed concern that some students would not have the same foundation and would possibly not be able to persist. Financial support is implicit in the ECHS experience in the form of free tutoring, assessment, textbooks, and college tuition. In current postsecondary contexts, Murray and Perez (2014) found a shocking condition of over 70% of college students graduating digitally illiterate in the United States. They based their definition of digital literacy on a model where the learner reaches a level of proficiency including “reflective self-awareness and purposeful intent” (Murray & Perez, p. 87). The participants in this study demonstrated qualities of being aware of gaps in their learning and being able to seek out literacy sponsors within discipline-specific and readily available online resources.

Based on Lucas’s (2001) analysis that persistence is a series of yes/no decisions as students move (or do not move) through a stratified curriculum, levels of education such as grade levels, the participants demonstrated agency to make “yes” decisions. In an

intentional move to be prepared for college, the participants chose to attend the ECHS when they were still in eighth grade. Based on guidelines related to the ECHS Initiative to support traditionally underserved populations, the participants gained entry to the school and belonged to two cohorts of students comprised of diverse populations approximating the demographics of the district-at-large. Three participants who reported lower SES backgrounds demonstrated agency, not only to move to the next stratified level, but to accept a more academically rigorous level of learning for the purpose of early accumulation of college-level credits. Lucas's (2001) theory of effectively maintained inequality (EMI) posits that upward mobility in the stratified curriculum depends on social background factors, most notably socioeconomic factors.

Using Lucas's (2001) EMI theory as a lens to understand correlations between levels of college readiness and first-year retention, DeAngelo and Franke (2016) found that college readiness helped mitigate challenging social background factors, such as low socioeconomic status. By examining the perceptions of the participants in this study, I uncovered multiple incidents in which financial considerations had an impact on students' opportunities to learn. Most notably, many participants made connections between the costs specifically incurred related to use of digital technology. They added to each other's voices in expressing that they benefitted from the uniquely supportive ECHS environment and their concern for students who may not have been afforded the same types of supports in traditional high schools. Interestingly, since the participants have graduated from this specific ECHS environment, the district has begun to offer the ECHS framework at the other traditional high schools in the district. Based on the postsecondary

success of the students who comprised the first and second cohort of the inaugural district ECHS, the adoption of the framework in the other high schools is not surprising.

**Instructional supports.** Especially as an effort to minimize the number of students who will need to enroll in developmental education courses as they transition to the postsecondary level, participants' reports mirrored research that the ECHS framework supports students to transition and persist in postsecondary settings (Berger, et al., 2010; Edmunds, et al., 2011; Edmunds, et al., 2013). Across the cases, they cited the benefits of having the ECHS experience such as: smaller learning community, individualized instruction in the form of tutoring, feelings of belonging to a family-type group, collaborative learning, earning cost-free college credits. Moreover, ECHS professionals also expressed very positive views of the teaching and learning environment. Some noted that they would have been successful in traditional high school settings; however, the ECHS experience gave them an advantage in postsecondary environments and into career opportunities. This perceived advantage was woven into their description of how they felt traditionally and digitally prepared for college.

Because some students are being left behind in building digital literacies as explicated in discussions of the continuing digital divide, it is important to understand how successful student navigated the demands for participation in academic discourses mediated by digital contexts. The pattern related to “the teacher just wasn’t there” revealed that the participants were able to complete some digital tasks without explicit instruction. Dede (2010) pointed out, 21st century skills include a consistent connection between humans and digital tools in daily life, but current instructional practices position digital tools as augmentative. Mr. Jaramillo echoed the idea of a close connection in his

description of conscious affordances instructors made at the ECHS to facilitate human interactions via digital devices and platforms. In contrast to the highly supported secondary environment, the ECHS graduates conveyed a “catch as catch can” experience in their four-year postsecondary environments wherein students are obliged to use whatever supports are available in their individual contexts.

Although they described situations in which they were without instructional support, the participants remained positive on the whole about participation in academic digital contexts. Because no other research to date has reported findings on the ECHS environment and DCR, the participant stories are especially valuable in understanding where personal strengths augment instructional supports in contributing to persistence. The participants shared an array of personal attributes that contributed to overall ability to successfully navigate digital demands in higher education including adaptability and self-directed learning behaviors. Strategically planning for digital literacies instructional support at all levels and across content areas (such as offering foundational-level and discipline-specific digital literacies courses) can create learning opportunities for students to leverage personal strengths to address current systemic injustices which continue to marginalize the digital “have-nots.”

Moreover, there is a need to assess digital literacies as students progress through K-16 learning contexts to support digital preparation for college. As Holschuh (2014) pointed out, current students in states where Common Core State Standards have been adopted will not have been exposed to newly adopted digital literacies standards as part of CCSS. This also means that there is no guarantee that student experiences in states

without CCSS adoption will have exposure to learning guided by newly adopted digital literacies standards.

During the time in which this study was conducted, Educational Testing Services (ETS) has dropped development and distribution of the iSkills test. A notice on the current ETS site indicates that the final administration of the test will occur before December 2016, citing the reason, “Usage of the assessment has declined to the point where we are unable to support the test from a psychometric standpoint.” Despite research indicating ICTs as a new literacy, the ability of even well-established testing companies to keep pace with the changing contexts poses challenges. Because of the constantly shifting digital contexts, purposeful instructional support continues to be necessary to ensure students can fully participate in academic discourses mediated by digital contexts.

**Discipline-specific digital literacies.** Without exception, the participants reported their opportunities to learn experiences related to their respective disciplines. Each participant offered a perspective within a variety of academic majors including: accounting, business, education, fine arts, marketing, and psychology. The most compelling evidence unearthed in this pattern was the unanimous acknowledgement that basic digital literacies (such as basic functions of Word and Excel) were not sufficient for complex, discipline-specific tasks.

Taken in connection with the fact that these participants were at the end of successful postsecondary learning trajectories, my findings support an argument for earlier intervention to support discipline-specific digital literacies across courses in secondary education environments. In focusing on students who would be the most

vulnerable for not persisting in secondary environments, Relles and Tierney (2013) argued for a “spectrum of technology advocacy” at the institutional level in supporting student connections between writing and digital literacies to address new forms of inequities. Additionally, Drew (2012) argued that establishing digital text as the central text of learning is at the core of preparation for success in digitally mediated discourses at the college level. My findings contribute to arguments related to discipline-specific digital literacies and extend the conversation to include traditional (such as reading, writing, and mathematics) and digital literacies necessary for full participation in college and into career settings.

### **Implications**

In many ways, my study uncovered evidence that students need to be afforded participatory educational experiences involving productive struggle to develop college-level digital skills, abilities, and behaviors. As the story of my thinking highlighted in the introductory chapter, instances of struggling caught my attention as an educator and researcher. What I found through this qualitative study was that the consistent struggle to keep up with technology advances has become an embedded part of the digital preparation, much like traditional college readiness. The balance between unproductive struggle (failing an assignment or dropping out of school) and productive struggle (completing assignments and persistence) is the key implication for practice, policy, and research related to DCR.

The concept of productive struggle connects to a current social constructivist idea of affinity spaces, or loosely connected physical and digital learning environments related to a shared interest (Gee, 2017). Gee (2017) advocated that schools require new “affinity

space architect[s]" (p. 30) to envision frameworks that harness the interest current students have in participatory learning to organize new and deeper opportunities to learn. Ultimately, educational paradigms need to shift to accommodate evolving social contexts to facilitate construction of relevant knowledge. By allowing students to participate in both the teaching and the learning process, a balance between the struggle and attainment can be reached.

My findings offered multiple viewpoints of this balance at the student and professional level to clarify understandings about the concept of DCR to inform evidence-based decisions on promising approaches. Drawing from original findings related to the ECHS experience and DCR, this study uncovered implications for practice, policy, and future research.

### **Implications for Practice**

At the foundation of this study, findings related to postsecondary students' DCR development were related to individual trajectories of successful, or productive struggles in constantly changing digital contexts. At the foundational level, evidence from purposefully selecting cases that simultaneously represented underserved populations and successful postsecondary trajectories contributed to the body of evidence that the common ECHS framework is an effective environment for supporting general college readiness (Berger, et al., 2010; Edmonds, et al., 2011; Edmonds, et al., 2013). The participants perceived that the common, rigorous college focus during concurrent high school and community college enrollment facilitated their transitions to four-year postsecondary environments. This intense focus on college readiness aligns with what

DeAngelo and Frank (2016) found to be effective in helping all students reach a threshold of equitable access to higher education.

Moreover, professional viewpoints presented in the contextualization of the ECHS case reflected implications grounded in data that speak to a need for education professionals to increase the amount of support students receive explicitly for digital literacies. In contrast to Fluck and Dowden's (2011) findings that pre-service teachers did not think it was their responsibility, the highly experienced ECHS teachers embraced responsibility for multiple, non-specified roles related to supporting students in digital contexts. Mr. Jaramillo (and by report, Mr. S.) and Mr. Moreno advocated for integrated, interdisciplinary approaches.

Especially for instructors who routinely assign learning tasks which require students to perform in digital contexts, a conscious effort is needed to explicitly teach the skills necessary for completion of the task. Mr. Moreno provided an example of pedagogy aligned with digital natives which assesses student prior knowledge of basic digital literacies (such as use of Microsoft Word) in a low-stakes environment and makes affordances to build on individual strengths. At a minimum, explicit instruction could be in the form of quick modeling or pointing out tutorials online. For complex assignments, instructors should be willing to arrange for whole class and individual support as needed.

Additionally, ECHS graduates overall concurred that the smaller, academic focus of the ECHS environment was successful in helping them access and complete college-level work. Participants reported that the ECHS experience helped establish a baseline of college readiness that arguably contributed to their sense of agency to persist to the four-year postsecondary level. The ECHS professionals added their voices to the consensus of

the smaller learning environment created effective learning environments. My findings corroborated research that pointed to the ECHS framework as supporting preparation for college within rigorous, supportive educational environments (Edmunds, et al., 2013).

At the counselor level, a reflective stance about what is being done digitally in the curriculum would facilitate more intentional attention paid to systemic alignment of digital skills, abilities, and behaviors instruction. One solution to working within evolving frameworks is to include students in the assessment and instructional processes. Lucas (2001) argued that student agency is a key factor in determining if they will move to the next stratified level of the curriculum. Many of the participants evidenced an ability to self-assess their digital preparedness and seek out literacy sponsors to fill in gaps in their learning at the postsecondary level. This agency to self-assess and seek out necessary support reinforces my definition of DCR as demonstrating confidence, adaptability, persistence, and self-regulated learning.

In a discussion of students being supported to participate in their college placement, Knievel (2016) proposed directed self-placement, a reflective process to help students evaluate their preparedness. Knievel (2016) posited that “helping students connect their past literacy experiences with the kinds of writing and reading behaviors they will require in order to be successful in college” was a more effective system for placement (p. 18). While the concept of DSP seems to mirror the experience and ability levels of the participants in this study, more evidence would be needed related to the experience of students who may be underprepared for college in one or more areas to consider if self-assessment and placement could be more widely used.

Because the participants represent successful examples, their voices contribute to concepts about DCR that could push back against what Selwyn (2015) argued was a lack of effort to promote the social good by leveling hierarchical situations related to digital discourses. According to Brandt (2001), literacy sponsorship inherently involves a hierarchical flow of literacy from one person to another. From the pattern of the intersection of money and DCR, the participants reported having access to literacy sponsors, but acknowledged that some students might not have had equitable access. Additionally, they pointed to specific instances in which learning was tied to corporate entities, such as textbook publishers and software companies. However, they also demonstrated their willingness to act as literacy sponsors for peers or colleagues. Again, allowing for student participation in the process of developing digital skills, abilities, and behaviors appears to be a promising practice.

Especially in situations where schools lack financial resources, student literacy sponsors may provide an essential pathway to ameliorate inequities. Barrett, et al. (2014) found that schools service different populations differently. Perhaps one of the ways to begin addressing inequitable resource situations is to value the strengths that the students bring to the classroom to support other students.

In considering how students could be afforded pathways to accessing peers as digital literacy sponsors, instructors and institutions need to reevaluate the structure of teacher/student interactions. Gee (2017) advocated for “teachers everywhere” in discussing the structure of affinity spaces as a way to position students in fluid roles with instructors as collaborators in the instructional process. Curwood’s (2013) study provided an exceptional case of students excelling as curriculum collaborators to support learning

well beyond the classroom. As Lamont observed in his interview, students often hold negative connotations of going to office hours because they associate it with a failure to reach an instructional goal. By designing learning environments that proactively engage students in the process, instructors can exponentially tap into student strengths to contribute to meaningful and motivated learning experiences.

Instructional practices that aim at measuring creation vs. consumption of digital products could support higher levels of learning. The participants in this study offered descriptions of experiences based on creating digital products. This viewpoint allowed for a more accurate analysis of digital proficiencies in real-world contexts involving a range of learning outcome goals within shifting digital technology environments. My study filled in gaps of understanding in extending quantitative measures of digital technology use (Duncan-Howell, 2012).

Finally, in considering digital requirements, especially for low SES students, instructors need to consistently check for considerations of access to digital environments when selecting assignment criteria. For example, instructors should offer free software, apps, and online tool options as alternatives where possible to fulfill academic tasks instead of requiring proprietary software to avoid creating inequitable opportunities to learn. Purposeful adoption of simple, yet far-reaching, instructional habits can create immediate impact in learning environments for students who may be underprepared to transition to postsecondary levels.

### **Implications for Policy**

In tandem with what should be happening at the classroom level, institutions need to provide support in the form of student assessments, instructor professional

development and cross-discipline program planning. Especially for students who place into developmental level courses, institutions should consider how both traditional and digital literacies are supported to provide a range of instructional support (Relles & Tierney, 2013).

An increased focus on policies aimed at assessing student digital preparedness as they enter postsecondary educational environments would inform more strategic instructional supports. Based on participant experiences, assessment within discipline-specific programs could support targeted development of digital expertise that would transfer to the workplace. In addition to involving students in the curriculum design processes, institutions should plan for student participation in assessment. My study corroborates Knievel's (2016) study related to directed self-placement. Operating within a void of clear learning trajectories related to development of digital skills, abilities, and behaviors, the participants demonstrated a capacity to self-assess and seek out literacy sponsors which could translate to design of institutional support policies to harness student buy-in for program placement.

Shifting policies that inform pedagogical approaches to include digital literacies would necessitate instructor professional development to realistically begin a coordinated effort in increasing instructional support campus-wide. Additionally, coordination among program leaders would open opportunities for strategic digital literacies support to help close digital learning gaps and increase the chances of successful career transitions for all students. By assessing students early in their program, supporting instructor professional development and implementing strategic planning, institutions could address issues of digital inequity in gaining access to this new digital discourse (Cotten & Jelenewicz,

2006; Goode, 2010; Naidoo & Raju, 2012; Relles & Tierney, 2013) to improve long-term success for traditionally underserved populations.

### **Implications for Future Research**

It is important to note that since the participants in this study attended the only district ECHS as the first and second cohort the other high schools in the district have begun to offer an ECHS track. One possibility for extending the findings in this study would be to design a multi-site study that includes both successful and unsuccessful participants of the new ECHS framework housed within traditional high school settings. In addition to using multi-site designs, research involving instructional interventions across educational settings is needed to test the efficacy of foundational digital literacy pedagogical approaches.

Additionally, mixed-methods approaches would provide data to support a discussion of causal relations to support new theoretical models of DCR. The development of valid and reliable pre/post-test instruments is needed. The use of pre/post-test instruments to collect data in connection with interventions would facilitate robust findings to test promising practices. Because participants reported a need for more advanced digital literacies in discipline-specific contexts, the need for mixed-methods or program evaluation research at the college level within and across disciplines would be helpful in measuring discipline-related digital proficiencies. Establishing measures of discipline-related digital proficiencies can inform program planning to ensure students are graduating with necessary digital proficiencies in their field.

Finally, longitudinal studies would help clarify concepts of DCR and instructional supports. Especially for first-generation college students who come from low SES

background, longitudinal studies would help clarify more global interventions necessary to support digital preparation for college. Especially for teacher educator research, more longitudinal research that follows the novice teacher into the first years of teaching with technology would provide insights into the specific challenges and possible solutions for improving teacher education programs. One class focused on educational technology is failing to prepare instructors for the immersive teaching experience. As Mr. Jaramillo pointed out, the classroom teacher responsibilities are multifaceted when it comes to digital space. Teachers need to be prepared to work collaboratively with their students to help them problem solve, persevere through challenges, build capacities to self-assess, and know how to seek support when needed.

### **Summary of Discussion and Implications**

In our current PK-16 educational system, there is a prevalent story that students as “digital natives” do not need explicit instruction to develop their digital skills. This assumption has marginalized people and denied access to equitable opportunities to fully participate in college-level discourses (Gee, 2008) occurring in the reality of demanding and ever-changing digital contexts. My study provided seven distinct stories of so-called “digital natives” who reported specific formal and informal literacy sponsors to contradict this assumption that students inherently possess the skills and abilities needed to digitally prepare for college. Their individual stories contribute to a larger, more complex narrative that instructional support is necessary to balance unproductive and productive struggles toward independent levels of full participation in ever-changing digital contexts. Researchers need to continue to problematize assumptions about digital proficiencies pervasive in educational environments to raise awareness of the urgency to

move toward strategic, comprehensive curriculum to support all learners in achieving independent levels of participation in postsecondary digital contexts. Especially critical for the students who may be underprepared for college in one or more literacies, participatory opportunities to learn digital literacies is an area where student familiarity and comfort with ubiquitous digital technologies can be leveraged to support general college success.

**APPENDIX SECTION**  
**APPENDIX A: IRB APPROVAL LETTER**



February 2, 2017

Rachelle Furness  
Texas State University  
601 University Drive.  
San Marcos, TX 78666

Dear Ms. Furness:

In future correspondence please refer to 2017398

Your IRB application 2017398 titled "College-Level Digital Demands, Assumptions, and Realities: A Multi-Case Study of Early College High School Graduate Perceptions," was reviewed and approved by the Texas State University IRB. It has been determined that risks to subjects are: (1) minimized and reasonable; and that (2) research procedures are consistent with a sound research design and do not expose the subjects to unnecessary risk. Reviewers determined that: (1) benefits to subjects are considered along with the importance of the topic and that outcomes are reasonable; (2) selection of subjects is equitable; and (3) the purposes of the research and the research setting is amenable to subjects' welfare and producing desired outcomes; that indications of coercion or prejudice are absent, and that participation is clearly voluntary.

1. In addition, the IRB found that you need to orient participants as follows: (1) signed informed consent is not required as participation will imply consent; (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data; (3) Appropriate safeguards are included to protect the rights and welfare of the subjects.

**This project is therefore approved at the Exempt Review Level**

2. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Research Integrity and Compliance. Please report any changes to this approved protocol to this office.

Sincerely,

Monica Gonzales IRB Regulatory Manager Office of Research Integrity and Compliance

CC: Dr. Eric Paulson

OFFICE OF THE ASSOCIATE VICE PRESIDENT FOR RESEARCH 601 University Drive | JCK #489 | San Marcos, Texas 78666-4616 Phone: 512.245.2314 | fax: 512.245.3847 | WWW.TXSTATE.EDU

*This letter is an electronic communication from Texas State University-San Marcos, a member of The Texas State University System.*

## APPENDIX B: IRB MODIFICATION APPROVAL LETTER



*The rising STAR of Texas*

February 16, 2017

Rachelle Furness Texas State University 601 University Dr. San Marcos, TX 78666

Dear Ms. Furness:

In future correspondence please refer to 2017398

Your application 2017398 titled, "College-Level Digital Demands, Assumptions, and Realities: A Multi- Case Study of Early College High School Graduates' Perceptions," was reviewed by the Texas State University IRB and approved. It has been determined the modification adding interviews with current ECHS professionals and changing the interview compensation maintains: (1) research procedures consistent with a sound research design and do not expose the subjects to unnecessary risk. (2) benefits to subjects are unchanged along with the importance of the topic and outcomes; (3) selection of subjects are still equitable; and (4) the purposes of the research and the research setting is amenable to subjects' welfare and producing desired outcomes; that indications of coercion or prejudice are absent, and that participation is clearly voluntary.

1. In addition, the IRB found that you need to continue orienting participants as follows: (1) consent is required; (2) Provision is made for collecting, using and storing data in a manner that protects the safety and privacy of the subjects and the confidentiality of the data; (3) Appropriate safeguards are included to protect the rights and welfare of the subjects.

### This project is therefore approved at the Exempt Review Level

2. Please note that the institution is not responsible for any actions regarding this protocol before approval. If you expand the project at a later date to use other instruments, please re-apply. Copies of your request for human subjects review, your application, and this approval, are maintained in the Office of Research Integrity and Compliance. Please report any changes to this approved protocol to this office. A Continuing Review protocol will be sent to you in the future to determine the status of the project.

Sincerely,

Monica Gonzales IRB Regulatory Manager Office of Research Integrity and Compliance Texas State University

CC: Dr. Eric Paulson

OFFICE OF THE ASSOCIATE VICE PRESIDENT FOR RESEARCH 601 University Drive | JCK #489 | San Marcos, Texas 78666-4616 Phone: 512.245.2314 | fax: 512.245.3847 | WWW.TXSTATE.EDU

A handwritten signature in black ink that reads "Monica Gonzales".

*This letter is an electronic communication from Texas State University-San Marcos, a member of The Texas State University System.*

## APPENDIX C: SURVEY INSTRUMENT

### Digital College Readiness

#### Q1.1

**Study Title:** Digital College Readiness Demands, Assumptions, and Realities: A Multi-Case Study of Early College High School Graduate Perceptions

**Principal Investigator:** Rachelle (Hooper) Furness **Faculty Advisor:** Eric J. Paulson

**PURPOSE AND BACKGROUND** Rachelle (Hooper) Furness, a doctoral student at Texas State University, is conducting a research study to build a stronger understanding of Early College High School graduates' perceptions of their experiences navigating digital demands in secondary and postsecondary environments, particularly in terms of whether or how they felt prepared to meet those demands. You are being asked to complete this survey because you are a recent graduate of an Early College High School. The survey will take approximately 30 minutes or less to complete. You have the option of skipping any survey items. By completing the survey, you are consenting to participate in the study. You must be at least 18 years old to take this survey. If you meet certain criteria and are willing to participate, you may also be asked to participate in interviews to discuss your experiences in meeting digital literacies demands. The interviews may take up to two hours of your time and may require travel to the campus or access to video conferencing platforms (such as Skype or Google Hangouts).

**RISKS/DISCOMFORT** This study involves no foreseeable serious risks. You will be asked answer all questions; however, if there are any items that make you uncomfortable or that you would prefer to skip, please leave the answer blank. Your responses are will be kept confidential.

**BENEFITS** There are no direct benefits to you from participating in this study; however, the information that you provide could contribute knowledge in the field and benefit future students.

**EXTENT OF CONFIDENTIALITY** Reasonable efforts will be made to keep the personal information in your research record private and confidential. Any identifiable information obtained in connection with this study will remain confidential and will be disclosed only with your permission or as required by law. The principal investigator and the Texas State University Office of Research Compliance (ORC) may access the data. The ORC monitors research studies to protect the rights and welfare of research participants. Your name will not be used in any written reports or publications which result from this research. Data will be kept for three years (per federal regulations) after the study is completed and then destroyed.

**PAYMENT/COMPENSATION** Each respondent submitting a complete survey will be entered in a drawing for a gift card in the amount of \$100.00. The chances to win the gift card will depend on the number of completed surveys received. If selected for an interview, you will be entered in a drawing for a gift card in the amount of \$100.00 upon

completing the interview. The chances to win the gift card will depend on the number of interviews completed.

**PARTICIPATION IS VOLUNTARY** You may choose not to be in this study. You may also choose to skip any questions that you do not wish to answer. If you volunteer to be in this study, you may withdraw at any time without any consequences.

**QUESTIONS** If you have any questions or concerns, feel free to contact Rachelle Furness

Rachelle (Hooper) Furness, Doctoral student, Curriculum & Instruction 210.501.6434

rfgurness@txstate.edu

or her faculty advisor:

Eric J. Paulson, Professor, Curriculum & Instruction

512.245.2815 eric.paulson@txstate.edu

This project 2017398 was approved by the Texas State IRB on February 2, 2017.

Pertinent questions or concerns about the research, research participants' rights, and/or research-related injuries to participants should be directed to the IRB chair, Dr. Jon Lasser 512-245-3413 – (lasser@txstate.edu) or to Monica Gonzales, IRB Regulatory Manager 512-245-2334 - (meg201@txstate.edu).

**DOCUMENTATION OF CONSENT** I have read this form and decided that I will participate in the project described above. Its general purposes, the particulars of involvement and possible risks have been explained to my satisfaction. I understand I can withdraw at any time.

Q2.1 What is your current age?

- 18 (1)
- 19 (2)
- 20 (3)
- 21 (4)
- 22 (5)

Q2.2 Would you describe yourself as...

- Female (1)
- Male (2)
- In another way (3)

Q2.3 What is the highest level of education that your mother attained?

- Did not complete high school (1)
- High school diploma/GED (2)
- Some college credit (3)
- Associate degree (4)
- Bachelor's degree (5)
- Some graduate credit (6)
- Master's degree (7)
- Doctoral degree (8)

Q2.4 What is the highest level of education that your father attained?

- Did not complete high school (1)
- High school diploma/GED (2)
- Some college credit (3)
- Associate degree (4)
- Bachelor's degree (5)
- Some graduate credit (6)
- Master's degree (7)
- Doctoral degree (8)

Q2.5 Which race/ethnicity best describes you? Select all that apply.

- American Indian or Native Alaskan (1)
- Asian or Pacific Islander (2)
- Black or of African descent (3)
- Spanish/Hispanic/Latinx descent (4)
- White or European descent (5)

Q2.6 What was the total annual income of the HOUSEHOLD in which you lived during high school?

- \$0 to \$29,999 (1)
- \$30,000 to \$59,999 (2)
- \$60,000 to \$89,999 (3)
- \$90,000 to \$119,999 (4)
- \$120,000 to \$149,999 (5)
- \$150,000 to \$179,999 (6)
- \$180,000 or more (7)

Q2.7 Is English your first language?

- Yes (1)
- No (2)

Q3.1 What was your overall Early College High School GPA?

- 4.1 or above (1)
- 3.1 - 3.5 (2)
- 2.6 – 3.0 (3)
- 2.1 – 2.5 (4)
- 2.0 or below (5)

Q3.2 What choice of major were you pursuing while attending the ECHS?

- Applied Sciences (Agriculture, Computer Science, Engineering) (1)
- Arts (Visual & Performing) (2)
- Business (Administration, Accounting, Finance, Marketing) (3)
- Education (Elementary, Secondary, Special) (4)
- Humanities (Communication, Geography, History, Languages, Literature, Philosophy) (5)
- Health Professions (Nursing, Medical, Health Sciences) (6)
- Interdisciplinary/General Studies (7)
- Social Sciences (Economics, Law, Political Science, Psychology, Sociology) (8)
- Sciences (Biology, Chemistry, Earth, Math, Physics) (9)

Q3.3 Approximately how many college credits did you receive upon graduating from the ECHS?

- 0 - 9 (up to 3 courses of credit) (1)
- 12 – 18 (up to 6 courses of credit) (2)
- 21 – 27 (up to 9 courses of credit) (3)
- 30 – 36 (up to 12 courses of credit) (4)
- 39 – 45 (up to 15 courses of credit) (5)
- 48 – 54 (up to 18 courses of credit) (6)
- I graduated with an Associate degree. (7)

Q3.4 Did you attend a four-year college or university after you graduated from the ECHS?

- Yes, and I earned college credit. (1)
- Yes, and I received a degree. (2)
- No (3)

Condition: No Is Selected. Skip To:                   What is the highest....

Q3.5 What was/is your four-year college or university GPA?

- 4.1 or above (1)
- 3.1 - 3.5 (2)
- 2.6 – 3.0 (3)
- 2.1 – 2.5 (4)
- 2.0 or below (5)

Q3.6 What is/was your area of study at the four-year college or university?

- Applied Sciences (Agriculture, Computer Science, Engineering) (1)
- Arts (Visual & Performing) (2)
- Business (Administration, Accounting, Finance, Marketing) (3)
- Education (Elementary, Secondary, Special) (4)
- Humanities (Communication, Geography, History, Languages, Literature, Philosophy) (5)
- Health Professions (Nursing, Medical, Health Sciences) (6)
- Interdisciplinary/General Studies (7)
- Social Sciences (Economics, Law, Political Science, Psychology, Sociology) (8)
- Sciences (Biology, Chemistry, Earth, Math, Physics) (9)

Q3.7 What is the highest level of school you have completed or highest degree you have received?

- Did not finish high school (1)
- High school diploma (2)
- Some college credit (3)
- Associate degree (4)
- Bachelor's degree (5)
- Some graduate credit (6)

Q4.1 Think back to the time in eighth grade when you first decided to attend an Early College High School. Explain a few of the main reasons you had that helped you decide to apply for this kind of school.

Q4.2 Think back to the time when you were experiencing the selection process for admittance to an Early College High School. Describe your interview experience and explain why you believe you were selected.

Q4.3 Think back to the four years you spent in an Early College High School environment. Do you believe your experience of attending an Early College High School was different than a traditional high school in preparing you for college? Why or why not?

Q4.4 Think back to the academic assignments you were required to complete in an Early College High School. Do you believe the academic requirements helped you prepare for college-level work? Why or why not?

Q4.5 Think back to times that you felt you needed extra help to get your academic tasks completed. What types of support were available to you to help you manage your academic workload?

Q4.6 In your experience, do you believe the faculty and staff of the Early College High School supported you to prepare for college level coursework? Why or why not?

Q4.7 The number of students enrolled in the Early College High School were significantly less than the traditional high schools in the same district. Do you believe the smaller learning community helped you prepare for college? Why or why not?

Q4.8 As part of the selection process for enrolling in an Early College High School, you were identified as having strong academic skills. Do you think your strengths would have enabled you to have been equally successful in preparing for college by attending a traditional high school? Why or why not?

Q5.1 Describe unique skills, ideas, attributes, and abilities you were able to use in the Early College High School setting that helped you prepare for college-level course work.

Q5.2 Did teachers and administrators allow you to direct your own learning in the Early College High School environment to be better prepared for college? Why or why not?

Q5.3 Did your Early College High School experience help you develop as an individual? Why or why not?

Q5.4 Did your Early College High School experience set you apart from your peers when you began attending a four-year college or university? Why or why not?

Q6.1 How often were you assigned academic tasks that required you to use digital tools and/or platforms as part of your grade?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.2 How often did your instructors model all of the necessary digital skills to complete assigned academic tasks?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.3 How often did your academic tasks require you to collaborate with peers in digital spaces (discussions, writing assignments, projects, etc.)?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.4 How often were classes set up in digital platforms (e.g. wikis, webpages, blogs, or learning management systems such as Blackboard, Canvas, or TRACS)?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.5 How often were you able to use personal mobile devices (e.g. phones, watches, tablets, laptops) in class?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.6 How often were you required to use digital resources (such as the Internet, an eBook or an app) to conduct research?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.7 How often were specific Internet search strategies taught in class?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.8 How often were netiquette (proper online behavior) skills taught during class time?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.9 How often were you required to develop electronic collections of your work (in platforms such as Google, ePortfolio, WordPress)?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.10 How often did instructors allow students to teach the whole class a digital skill or ability?

	Never (1)	Some of the time (2)	About half the time (3)	Most of the time (4)	Always (5)
ECHS (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community College (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-Year Postsecondary (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.11 From your point of view, how much overall digital skills and abilities did/do you have when compared to your peers?

	Much less than (1)	Less than (2)	About the same (3)	More than (4)	Much more than (5)
Your digital abilities (1)	<input type="radio"/>				

Q6.12 To what degree do you feel your digital skills and abilities contributed to your college success?

	Not at all (1)	Small contribution (2)	Moderate contribution (3)	Important contribution (4)	Extremely important contribution (5)
Contribution to college sucess (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q6.13 Based on your experience with the prevalence of technology in society, how important do you feel your digital skills and abilities will be in your future career?

	Extremely important (1)	Very important (2)	Moderately important (3)	Slightly important (4)	Not at all important (5)
Importance to career (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7.1 Consider the term, college readiness, as it relates to your overall level of preparedness to enroll in and complete college-level coursework. For example, if you are able to effectively plan your time to complete assignments from multiple courses that are due on the same day, you demonstrate a level of preparedness in the area of time management to complete college-level coursework. With the thought of college readiness in mind, what does digital college readiness mean to you?

Q7.2 Is there anything else you would like to tell me about attending an Early College High School related to whether or not that experience had an impact on your preparation for success at the college level?

Q8.1 Would you be willing to participate in an interview to collect more specific data on your digital college readiness?

- Sure! (1)
- No thanks. (2)

Condition: No thanks. Is Selected. Skip To: End of Block.

Q8.2 Do you have access to a college-level digital project that you created (such as a research presentation, multimedia presentation, website, blog, content-relevant game, graphic design, video or audio performance, digital story, infographic, or other) that you would be willing to present and discuss during the interview?

- Yes, I have several! (1)
- Yes, I have at least one. (2)
- No, I do not have access to any of my digital projects. (3)

## **APPENDIX D: INTERVIEW PROTOCOL**

### **ECHS GRADUATES**

1. For each survey respondent that indicates they would be willing to participate in the interview process, determine if respondent meets preferred criteria.
2. If respondent meets most or all preferred criteria, contact the respondent by email to schedule an interview.
  - a. Offer face-to-face or online options for interview location.
  - b. Offer a variety of meeting times/days
3. Request that the respondent sends
  - a. A copy of the digital artifact in advance of the interview
  - b. A copy of the course syllabus indicating the assignment that prompted the creation of the digital artifact
4. Incentives
  - a. Determine survey winner and contact
  - b. Have gift cards ready to distribute when interviews are scheduled

Interview questions (Merriam & Tisdell, 2016, p. 118-121)

1. Where are you in your college studies at the moment?
2. Tell me, in detail, about your digital project.
3. What were the assigned requirements for the project?
4. How did you feel about your ability to complete the project?
5. How did you learn how to do what you did to complete the digital project?
6. Tell me about a time when you felt unprepared to complete an assignment with a digital component.
7. If I were to walk into your typical college classroom, what digital presence would be evident?
8. Some people would say that you grew up in a digital age, so you do not need to be taught digital literacies in school. Knowing the demands that you experienced in college or at work, what would you say to those people?
9. Ideally, what instructional support do students need in high school or college to build digital college readiness?

### **ECHS PROFESSIONALS**

1. Contact current classroom teachers to request interviews. Ask the current classroom teachers for recommendations for current community college instructors who work with ECHS students, administrators, and counselor.
2. If the person agrees to participate, request to schedule an interview.
  - a. Offer face-to-face or online options for interview location.
  - b. Offer a variety of meeting times/days
3. Obtain informed consent
  - a. Face-to-face interview – have the participant sign the hard copy
  - b. Online interview – have the participant electronically sign the document
4. Have gift cards ready to distribute when interview is completed.

**Interview questions**

1. What is different about the ECHS framework/educational context?
2. Do you feel it is important for students to be digitally prepared for college? Is this the responsibility of ECHS professionals?
3. How does the ECHS framework prepare graduates for college readiness?
4. How does the ECHS framework prepare graduates for digital college readiness?
5. What standards were considered in planning for digital college readiness?

## REFERENCES

- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9), 1175-1184.
- Barone, D. M. (2011). Case study research. In N. K. Duke, & M. H. Mallette (Eds.). *Literacy research methodologies* (pp. 7-27). New York, NY: The Guilford Press.
- Barrett, J. A., Moore, G. W., & Slate, J. R. (2014). Elementary students in Texas: Inequitable access to computers. *Journal of Education Research*, 8(3), 107-121.
- Bennett, S., Maton, K., & Kervin, L. (2008). The ‘digital natives’ debate: A critical review of the evidence. *British Journal of Educational Technology*, 39, 775-786.
- Berger, A. (Project Director). (2013). Early college, early success: Early College High School Initiative impact study [Report]. American Institutes for Research.  
Retrieved from  
[http://www.air.org/sites/default/files/downloads/report/ECHSI\\_Impact\\_Study\\_Report\\_Final1\\_0.pdf](http://www.air.org/sites/default/files/downloads/report/ECHSI_Impact_Study_Report_Final1_0.pdf)
- Berger, A., Adelman, N., & Cole, S. (2010). The Early College High School Initiative: An overview of five evaluation years. *Peabody Journal of Education*, 85, 333-347.
- Brandt, D. (2001). *Literacy in American Lives* [Electronic Resource]. Cambridge, NY: Cambridge University Press.
- Bronfenbrenner, U. (1974). Ecological models of human development. In *International Encyclopedia of Education*, 3 (2nd Ed.) (pp. 37-43). New York, NY: Freeman.
- Carroll, J. B. (1977). A revisionist model of school learning. *Review of Education*, 3(3), 155. doi:10.1080/0098559770030302

- Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Los Angeles, CA: Sage.
- Chase, Z., & Laufenburg, D. (2011). Embracing the squishiness of digital literacy. *Journal of Adolescent & Adult Literacy*, 54, 535-537. Doi: 10.1598/JAAL.54.7.7
- Cohron, M, (2015). The continuing digital divide in the United States. *The Serials Librarian*, 69, 77-86. Doi:10.1080/0361526X.2015.1036195
- Coiro, J., Knobel, M., Lankshear, C., & Leu, D. J. (2008). Central issues in new literacies and new literacies research. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of Research on New Literacies* (pp. 1-21). New York, NY: Lawrence Erlbaum Associates.
- Conley, David, T. (2007). *Redefining college readiness* (Report). Eugene, OR: Educational Policy Improvement Center.
- Cotten, S. R., & Jelenewicz, S. M. (2006). A disappearing digital divide among college students?: Peeling away the layers of the digital divide. *Social Science Computer Review*, 24, 497-506. doi:10.1177/0894439306286852
- Creswell, J. W. (2013). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. Los Angeles, CA: Sage.
- Curwood, J. S. (2013). *The Hunger Games*: Literature, literacy, and online affinity spaces. *Language Arts*, 90, 417-427.
- DeAngelo, L., & Franke, R. (2016). Social mobility and reproduction for whom? College readiness and first-year retention. *American Educational Research Journal*, 53(6), 1588-1625.
- Dede, C. (2010). Comparing frameworks for 21st century skills. In James A. Ballanca (Ed.). *21st century skills: Rethinking how students learn*, 20, 51-76.

- Drew, S. C. (2012). Open up the ceiling on the Common Core State Standards: Preparing students for 21st-Century literacy-now. *Journal of Adolescent & Adult Literacy*, 56(4), 321-330. doi:10.1002/JAAL.00145
- Duncan-Howell, J. (2012). Digital mismatch: Expectations and realities of digital competency amongst pre-service education students. *Australasian Journal of Education Technology*, 28, 827-840.
- Edmunds, J., Bernstein, L., Unlu, F. Glennie, E., & Arshavsky, N. (2011). The impact of the Early College High School model on core 9th and 10th grade student outcomes [Report]. *Society for Research on Educational Effectiveness*, 1-12.
- Edmunds, J., Willse, J., Arshavsky, N., & Dallas, A. (2013). Mandated engagement: The impact of Early College High Schools. *Teachers College Record*, 115, 1-31.
- Educational Testing Services. (2017). iSkills assessment: Pricing and ordering [website]. Retrieved from [https://www.ets.org/iskills/pricing\\_ordering/](https://www.ets.org/iskills/pricing_ordering/)
- Erlandson, D. A., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). Doing naturalistic inquiry: A guide to methods. Newbury Park, CA: Sage.
- Ferro, E., Helbig, N. C., & Gil-Garcia, J. R. (2011). The role of IT literacy in defining digital divide policy needs. *Government Information Quarterly*, 28(1), 3-10.
- Fluck, A., & Dowden, T. (2011). On the cusp of change: Examining pre-service teachers' beliefs about ICT and envisioning the digital classroom of the future. *Journal of Computer Assisted Learning*, 29(1), 43-52.
- Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and evaluate research in education*. Boston, MA: McGraw-Hill Higher Education.

Furness, R. K. (2016). Digital literacy agency development: Student perceptions of assumptions, demands and realties of the process in American PK-16 contexts (Unpublished doctoral comprehensive exam). Texas State University, San Marcos.

Garcia, A., Mirra, N., Morrell, E., Martinez, A., & Scorza, D. (2015). The Council of Youth Research: Critical literacy and civic agency in the digital age. *Reading & Writing Quarterly*, 31, 151-167.

Gee, J. P. (2017). Affinity spaces and 21st century learning. *Educational Technology*, 57(2), 27-31.

Gee, J. P. (2014). An introduction to discourse analysis: Theory and method (4th E.). New York, NY: Routledge.

Gee, J. P. (2008). *Social linguistics and literacies: Ideology in discourses* (3rd Ed.). New York, NY: Routledge.

Glaser, B. G., & Strauss, A. L. (2008). *The discovery of grounded theory: Strategies for qualitative research*. New Brunswick, NJ: Aldine Transaction.

Gonzales, A. (2016). The contemporary US digital divide: From initial access to technology maintenance. *Information, Communication & Society*, 19(2), 234-248.  
doi:10.1080/1369118X.2015.1050438

Goode, J. (2010). Mind the gap: The digital dimension of college access. *The Journal of Higher Education*, 81, 583-618.

Gormley, K., & McDermott, P. (2014). "We don't go on the computers anymore!": How urban children lose in learning digital literacies. *The Educational Forum*, 78, 248-262.

- Greene, J. A., Yu, S. B., & Copeland, D. Z. (2014). Measuring critical components of digital literacy and their relationships with learning. *Computers & Education*, 7655-69.
- Guzzetti, B. J., & Foley, L. M. (2014). Literacy agents online e-discussion forums for advancing adults' literacy practices. *Journal of Adolescent & Adult Literacy*, 57, 472-482.
- Halberg, L. R. (2006). The "core category" of grounded theory: Making constant comparisons. *International Journal of Qualitative Studies on Health & Well-Being*, 1(3), 141-148. doi:10.1080/17482620600858399
- Hicks, T., & Turner, K. H. (2013). No longer a luxury: Digital literacy can't wait. *English Journal*, 58–65.
- Hoffman, D. L., Novak, T. P., & Schlosser, A. E. (2000). The evolution of the digital divide: How gaps in internet access may impact electronic commerce. *Journal of Computer-Mediated Communication*, 5(3). doi: 10.1111/j.1083-6101.2000.tb00341.x
- Hoffman, J. V., Wilson, M. B., Martinez, R. A., & Sailors, M. (2011). Content analysis: The past, present, and future. In N. K. Duke, & M. H. Mallette (Eds.). *Literacy research methodologies* (pp. 7-27). New York, NY: The Guilford Press.
- Holschuh, J. P. (2014). The Common Core goes to college: The potential for disciplinary literacy approaches in developmental literacy classes. *Journal of College Reading & Learning*, 45(1), 85-95. doi:10.1080/10790195.2014.950876

- Jones, S., Johnson-Yale, C., Millermaier, S., & Pérez, F. S. (2009). U.S. college students' Internet use: Race, gender and digital divides. *Journal of Computer-Mediated Communication*, 14(2), 244-264. doi:10.1111/j.1083-6101.2009.01439.x
- Katz, I. R. (2007, September). Testing information literacy in digital environments: ETS's iSkills assessment. *Information Technology and Libraries*. 3-12.
- Knievel, M. (2016). Directed self-placement and digital literacy: Helping at-risk students negotiate the transition to college communication. *College & University*, 91(1), 12-21.
- Knobel, M., & Lankshear, C. (2006). Profiles and perspectives: Discussing new literacies. *Language Arts*, 84(1), 78-86.
- Krippendorff, K. H. (2013). Content analysis: An introduction to its methodology. Cited in S. B. Merriam, & E. J. Tisdell. (2016). *Qualitative Research: A Guide to Design and Implementation*. San Fransico, CA
- Kuiper, E. & Volman, M. (2008). The Web as a source of information in K-12 education. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of Research on New Literacies* (pp. 241-266). New York, NY: Lawrence Erlbaum Associates.
- Kumar, S., & Vigil, K. (2011). The Net Generation as preservice teachers: Transferring familiarity with new technologies to educational environments. *Journal of Digital Learning in Teacher Education*, 27, 144-153.
- Lankshear, C., & Knobel, M. (2013). *A new literacies reader: Educational perspectives*. New York, NY: Peter Lang.
- Leu, D. J., Jr. (2000). Literacy and technology: Deictic consequences for literacy education in an information age. In M. L. Kamil, P. Mosenthal, P. D. Pearson, &

- R. Barr (Eds.), *Handbook of reading research*, (Vol. 3, pp. 743-770) Mahwah, NJ: Erlbaum.
- Leu, D. J., Jr., Kinzer, C. K., Coiro, J. L., & Cammack, D.W. (2004). Toward a theory of new literacies emerging from the internet and other information and communication technologies. *Reading Online*, 43-79.
- Lucas, S. R. (2001). Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology*, 106(6), 1642-1690.
- Lucas, S. R., & Beresford, L. (2010). Naming and classifying: Theory, evidence, and equity in education. *Review of Research in Education*, 34(1), 25-84.
- Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in Teaching and Learning in Information and Computer Sciences*, 5(4), 249-267.
- Merriam, S. B., & Tisdell, E. J. (2016). Qualitative Research: A Guide to Design and Implementation (4th ed.). San Francisco, CA: Jossey-Bass.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed.). Los Angeles, CA: Sage.
- Murray, M. C., Perez, J. (2014). Unraveling the digital literacy paradox: How higher education fails at the fourth literacy. *Issues in Informing Science and Information Technology*, 11. 85-100.
- Naidoo, S. N., & Raju, J. J. (2012). Impact of the digital divide on information literacy training in a higher education context. *South African Journal of Libraries & Information Science*, 78(1), 34-44.

- Ortega, L. (2013). Digital practices and literacy identities: Pre-service teachers negotiating contradictory discourses of innovation. *Contemporary Issues in Technology and Teacher Education*, 13, 285-324.
- Relles, S. R., & Tierney, W. G. (2013). Understanding the writing habits of tomorrow's students: Technology and college readiness. *Journal of Higher Education*, 84, 477-505.
- Ricoy, C., Feliz, T., & Couto, M. J. (2013). The digital divide among university freshmen. *Turkish Online Journal of Educational Technology*, 12(2), 262-268.
- Schmidt, W. H., Burroughs, N. A., Zoido, P., & Houang, R. T. (2015). The role of schooling in perpetuating educational inequality: An international perspective. *Educational Researcher*, 44, 371-383.
- Schunk, D. H. (2012). *Learning theories: An educational perspective* (6th Ed.). Boston, MA: Pearson.
- Selwyn, N. (2015). The discursive construction of education in the digital age. In R. H. Jones, A. Chik, & C. A. Hafner (Eds.), *Discourse and digital practices: Doing discourse analysis in the digital age* (pp. 226-240). New York, NY: Routledge.
- Sparks, J. R., Katz, I. R., & Beile, P. M. (2016). Assessing digital information literacy in higher education: a review of existing frameworks and assessments with recommendations for next-generation assessment. *ETS Research Reports Series*, 2016(2), 1-33. doi:10.1002/ets2.12118
- Stake, R. (1995). The art of case study research. Cited in J. W. Creswell. (2013). *Qualitative Inquiry and Research Design: Choosing among Five Approaches* (3rd ed.). Los Angeles, CA: Sage.

- Stake, R. (2000). Case studies. In N. Denzin & Y. Lincoln (Eds.). *Handbook of qualitative research* (2nd ed., pp. 435-454). Thousand Oaks, CA: Sage.
- Stake, R. E. (2006). *Multiple case study analysis*. New York, NY: Guildford Press.
- Steinkuehler, C. A. (2008). Cognition and literacy in massively multiplayer online games. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of Research on New Literacies* (pp. 611-634). New York, NY: Lawrence Erlbaum Associates.
- Street, B. (2003). What's "new" in new literacies studies? Critical approaches to literacy in theory and in practice. *Current Issues in Comparative Education*, 5 (2), 77-91.
- Van Den Haak, M. J., de Jong, M. D. T., & Schellens, P. J. (2003). Retrospective vs. concurrent think-aloud protocols: Testing the usability of an online library catalogue. *Behavior & Information Technology*, 22(5), 339-351.
- Vigdor, J. L., Ladd, H. F., & Martinez, E. (2014). Scaling the digital divide: Home computer technology and student achievement. *Economic Inquiry*, 52(3). 1103-1119.
- Wilber, D. J. (2008). College students and new literacy practices. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of Research on New Literacies* (pp. 241-266). New York, NY: Lawrence Erlbaum Associates.
- Yin, R. K. (2014). *Case study research: Designs and methods* (5th ed.). Los Angeles, CA: Sage.