

UNIVERSITY OF CALIFORNIA,
IRVINE

Voices on the Margins
Inclusive Education at the Intersection of Language, Literacy, and Technology

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Education

by

Yenda Prado

Dissertation Committee:
Professor Mark Warschauer, Chair
Professor Elizabeth Peña
Professor Penelope Collins
Associate Professor Stacy Branham
Professor Steve Graham

2022

DEDICATION

To my beloved son, Attilio Andrés. You are my universe and the catalyst for this work.

For my students – past, present, and future. To you, I owe everything.

To my faithful mother, Nelida, for being the first to fight for me, and my extended family and friends for setting a strong foundation of love.

Finally, to my teachers and mentors for believing and challenging me to shoot for the stars.

belief

*We cannot live only for ourselves.
A thousand fibers connect us with our fellow men.*
Herman Melville

hope

You can cut all the flowers but you cannot keep spring from coming.
Pablo Neruda

intuition

*I know there is strength in the differences between us.
I know there is comfort, where we overlap.*
Ani DiFranco

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ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to my committee chair, Dr. Mark Warschauer, for dreaming with me the possibilities for this work. This dissertation would not have been possible without your creativity, mentorship, and support.

I would like to thank my committee members, Dr. Elizabeth Peña and Dr. Stacy Branham, whose interdisciplinary work in the space of disability and language, and interdependence and inclusion, respectively, demonstrated to me the need for intersectional approaches to the study of technology for social inclusion. I would also like to thank my committee member, Dr. Penelope Collins, for engaging with me as a fellow reading specialist and cultivating my interests in language and literacy. Finally, I would like to thank committee member Dr. Steve Graham, whose research has transformed how we support the literacy practices of students with disabilities, for informing and supporting my work.

In addition, a thank you to all the students, parents, teachers, and staff at Future Visions Academy – who introduced me to the possibilities of fully inclusive schools and whose commitment to interdependent community inspire me on a daily basis. A great deal of gratitude also goes to Kaitlyn Koo and Ricardo Hernandez – this work would not have been possible without your dedicated assistance and meticulous attention to detail.

Financial support for this work was provided by the University of California, Irvine through the Orange County Education Advancement Network and a Graduate Division Dissertation Fellowship.

VITA

Yenda Prado

2001	B.A. in Psychology with Honors, Stanford University
2001-2002	AmeriCorps, San Francisco, CA
2002-2003	Research Coordinator, Department of Psychology, Stanford University
2002-2004	Literacy Coordinator, Project Read, Menlo Park, CA
2005	Ed.M. in Education, Harvard University
2004-2005	Research Assistant, National Center for the Study of Adult Learning and Literacy, Harvard University
2006-2009	Literacy Program Director & Instructor, Grail Family Services, San Jose CA
2010-2014	Academic Director & Head Teacher, Language Scholastics, Irvine CA
2014	Graduate Field Supervisor, TESOL Master's Program, Pepperdine University
2015-2016	Lecturer, School of Education, University of California, Irvine
2016-2018	Graduate Student Researcher, Digital Scaffolding for English Language Arts, University of California, Irvine
2018-2019	Graduate Student Researcher, Collaborative Network of Educators for <i>Computational Thinking for All</i> Research, University of California, Irvine
2019-2021	Community Research Fellow, Orange County Education Advancement Network
2021	Chan Zuckerberg Initiative Research Fellow, PBS KIDS, Arlington VA
2022	Ph.D. in Education, University of California, Irvine

FIELD OF STUDY

Digital technologies to support literacy and inclusion of diverse learners with disabilities

PUBLICATIONS

Voices on the Margins: Inclusive Education at the Intersection of Language, Literacy, and Technology. Cambridge, MA: MIT Press, (forthcoming).

Growing up in Multilingual Communities. In *Language Development: Individual Differences in a Social Context*, eds. J. Law, S. Reilly, & C. McKean. Cambridge UK: Cambridge University Press (in press).

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Digital Storytelling for Academic Literacy: Culturally Responsive Multimodal Composition Course Design. In *Learning Critical Thinking Skills beyond the 21st Century for Multidisciplinary Courses: A Human Right Perspective in Education*, ed. Z. Babaci-Wilhite, 172-191. San Diego, CA: Cognella, 2020.

“Visual-Syntactic Text Format: Improving Adolescent Literacy.” *Scientific Studies of Reading*: doi.org/10.1080/10888438.2018.1561700, 2019.

“Dual-Language Engagement: Concerted Cultivation of Spanish use among Students, Teachers, and Parents.” *Bilingual Research Journal* (invited review).

PRESENTATIONS

“Concerted Cultivation of Spanish use at a Dual Language Immersion School.” Paper presentation at International Society for the Study of Child Language, Philadelphia, PA, July 2021.

“Virtual Inclusion: Supporting Exceptional Students’ Participation in Remote Learning Environments.” Panel discussion presentation at American Education Research Association, Orlando, FL, April 2021.

“Organizing to Support Learning Pods across Diverse Family Contexts.” Symposium presentation at American Education Research Association, Orlando, FL, April 2021.

“Inclusive Computational Thinking Instruction using Scratch.” Paper presentation at International Society of Technology in Education, Anaheim, CA, November 2020.

“Boundary Crossers: The Jointly Negotiated Work of Undergraduate Research Assistants in Research-Practice Partnerships.” Poster presentation at American Education Research Association, San Francisco, CA <http://tinyurl.com/y4aqbqsc> (conference canceled), April 2020.

“Promoting Exceptional Learners’ Agency as Readers and Writers.” Work in progress presentation at UC Special Education, Disabilities, and Developmental Risk, University of California, Los Angeles, CA, February 2020.

“Teaching Computational Thinking to Exceptional Learners: Lessons from two Diverse Classrooms.” Poster presentation at UC Special Education, Disabilities, and Developmental Risk, University of California, Los Angeles, CA, February 2020.

“Visual Syntactic Text Formatting: Influences on Teacher Practices, Student Achievement, and Student Engagement.” Paper presentation at American Education Research Association, Toronto, Canada, April 2019.

“Promoting Positive Literacy Attitudes in Struggling Readers with Digital Text Scaffolding.” Paper presentation at International Society for Technology in Education, Chicago, IL, June 2018.

“Intentional Instruction: Teachers’ Purposeful use of Technology for English Language Arts.” Paper presentation at International Society for Technology in Education, Chicago, IL, June 2018.

“From Attitudes to Action: Promoting Positive Literacy Beliefs and Practices through Digital Scaffolding.” Paper presentation at American Education Research Association, New York, NY, April 2018.

HONORS AND AWARDS

2017	National Science Foundation, GRFP Honorable Mention
2018	Ford Foundation, Predoctoral Fellowship Honorable Mention
2021	UCI Office of Inclusive Excellence, Latino Excellence and Achievement Award
2021	Dr. Keith Curry Doctoral Foundation, Curry Doctoral Award
2021	UCI Graduate Division, Dissertation Support Fellowship

ACADEMIC SERVICE

2016-2020	Mentor, Undergraduate Independent Study Program, University of California, Irvine
2017-2020	Family Engagement Chair, Associated Graduate Students, University of California, Irvine
2017-2020	Graduate Student Representative, Faculty Senate Graduate Council, University of California, Irvine
2016-2021	Mentor, Diverse Education Community and Doctoral Experience, University of California, Irvine
2018-2021	Founding Member, Family Engagement Taskforce, UC Office of the President

ABSTRACT OF THE DISSERTATION

Voices on the Margins
Inclusive Education at the Intersection of Language, Literacy, and Technology
by
Yenda Prado
Doctor of Philosophy in Education
University of California, Irvine, 2022
Professor Mark Warschauer, Chair

Background. Students with disabilities, particularly those from marginalized backgrounds, remain one of the last groups not fully included in K-12 education in the United States.¹ Concurrently, digital technologies provide a powerful means for amplifying the agency and inclusion of diverse children with disabilities, thus enhancing their educational engagement.² Yet little research exists examining inclusive uses of technology among diverse students with disabilities in schools.³

Accordingly, as schools begin shifting toward inclusive models of education, understanding technology's role in this process will be critical to the success of inclusion efforts aimed at creating educational access and equity. Within this context, examining digital technology use to support learners' inclusion and engagement with language and literacy practices is becoming more salient.⁴ However, this research has not been conducted in inclusive classroom environments fully integrating students with and without disabilities.⁵

This dissertation adds to this developing field by examining the ways digital technologies support inclusion and language and literacy practices at Future Visions Academy, a full-inclusion public charter school in the Western United States. This dissertation centers on marginalized voices of families of color – a departure from prior research on disability, literacy, and technology centering on majority white, higher-resourced, families. Analyses focus on how

these families' experiences – in relation to language, literacy, and technology practices at school and home – shaped students' inclusion.

Method. An embedded case-study design incorporating qualitative approaches was used to analyze interview, focus group, and classroom observation data.⁶ Data sources included 49 weekly classroom observations, 26 family interviews, 14 staff interviews, and fieldnotes collected during the 2019-2020 and 2020-2021 school years. Data was analyzed using first and second cycle coding to identify themes and categories pertaining to inclusive practices, literacy activities, and digital technology use.⁷ Results were then used to conduct a directed content analysis of the data.⁸ Participant validation and triangulation were used to minimize researcher bias and support data reliability, truthfulness, and validity.⁹

Findings. Three themes were illuminated: (1) FVA's social organization allowed a fully inclusive environment for diverse children with disabilities to thrive, (2) digital technologies were used at FVA to help students express their agency and voice, while developing language and literacy skills, and (3) digital technologies were used at FVA to foster stronger networks and connections among all school stakeholders.

Findings reveal that, through their digital technology use, students were able to give voice to their thoughts and perspectives and share a fuller picture of themselves as creators. Moreover, students' experiences with digital technologies have a profound mediating impact on teachers' understanding of students' voices and competencies. Examples – such as students' use of Chromebook laptop speech-to-text functions for writing and iPad AAC devices for linguistic expression during classroom discussions – demonstrated digital technology affordances to amplify, empower, and include student voice.

Significance. Reform minded proponents of inclusion have moved towards school-wide models of inclusion in which all students are seen as permanent members of the general education classroom.¹⁰ This has resulted in the inception of schools like Future Visions Academy. A commitment to this view of inclusion positions students with disabilities as normative, valued, and included members of the school community. This vision of inclusion requires a substantive paradigm shift by policy makers and school leadership, and teachers and parents, in how principles of inclusion have historically played out in public schools. Using Future Visions Academy as a case study, this dissertation sheds light on inclusive best practices that enable this vision of inclusion to be materialized at the intersection of language, literacy, and technology.

1 Introduction

As social scientists it is easy to get lost in the day-to-day phenomena and miss the broader picture of how, and why, the things we study matter. This was supposed to be a dissertation about technology, but as the pandemic forced us to engage in new and digitally intimate ways – it also became a study about connection and the ways that we choose to use technology to mediate that connection. As we reflect on our uses of digital technologies, both before and during the pandemic, we can't help but extrapolate to the broader impact our social uses of technology have had on people's engagement/inclusion in this historical moment in time.

Nor can we ignore how interdependence, a frame emphasizing collaborative interaction, plays out in the broader scheme of our everyday lives; nor how the need for interconnected engagement and problem-solving, always relevant, becomes particularly magnified in times of crisis. The events of the past year have brought to bear the importance of working together, and the disastrous effects of not doing so. Our handling of crises, including how we choose to engage – or not engage – with digital tools at our disposal, bear direct consequence on our ability to mitigate impact. Global problems require an interdependent framing in the generation of global solution – and communities that recognize this do best in times of crisis.

What the past year has taught us, more than anything, is that the problems of the future will continue to be of a global, digitally interconnected, nature. This means that solutions must come forth from a place of interconnection. Our increasingly digitized lives will center more and more

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on the ways that we can use technology to engage in both problem-solving, and communication. More than ever, we have seen through this crisis the power of technology to bring people together – whether it be to share a meal together virtually, say a final FaceTime goodbye, or teach a Zoom class of fourth graders how to use a protractor. Through various digital technologies, we have come together to celebrate and mourn – both the quotidian and the extraordinary moments of our lives. If there was ever a time to understand the power of digital technologies to amplify, or minimize, our interconnection, that time is now.

As states across the US respond to the COVID-19 crisis, the transition of educational programs to digital learning environments, coupled with the need to design for learning facilitated by digital technologies, has created a context entirely distinct from what came before. Acknowledging this reality, we should not shy away from examining how the use of digital technologies can be used to cultivate and maintain inclusive school communities that make learning maximally accessible for diverse students with disabilities.

Alongside extraordinary difficulties, the global COVID-19 crisis has presented an opportunity of sorts: a forced re-envisioning of the role of digital technologies in elementary education. Of particular concern in this context are students most likely to face significant barriers to engaging in meaningful learning through digital formats: young learners, students with learning challenges and special needs, students who are linguistically and culturally diverse, and students living in poverty. By centering the needs of these learners in the adaptation of digital technologies for inclusive learning, this dissertation aims to support educators and policy makers in the pursuit of maximizing the integration and engagement of *all* students across diverse learning contexts.

Inclusion, Language, Literacy, and Technology

Educators, policy makers, and communities are increasingly invested in advocating for inclusion in all aspects of life. Organizations, such as the National Council on Disability (NCD), are investing in inclusive practices critical to the development of equitable education systems fundamental to our increasingly diverse nation. This inclusion movement is historically grounded in the passing of *Brown v. Board of Education* which made segregated school environments unconstitutional and opened the doors for advocacy efforts leading to the passage of the Individuals with Disabilities Education Act.¹

Despite these advancements, the segregation of students with disabilities from their normative peers persists. In California, for example, 46% of all students with Individualized Education Plans spend approximately 20% of their instructional time in segregated classrooms.² In response, the NCD has pushed for full desegregation of children with disabilities in their 2018 report, *Segregation of Students with Disabilities*. Additionally, they have called on the U.S. Department of Education to support research identifying practices that improve educational outcomes for students with disabilities educated in inclusive environments.

Accordingly, as states begin shifting toward inclusive models of education, understanding technology's role in this process will be critical to the success of inclusion efforts aimed at creating educational access and equity. Research to date indicates that students with disabilities presenting with diverse instructional, developmental, and linguistic needs benefit from inclusive instructional supports, including those mediated by technology, that scaffold learners' learning and engagement. Inclusive uses of technologies, particularly those informed by universal design principles, appear to afford the kinds of visual, auditory, and tactile scaffolds that all learners,

including those with exceptional needs, can use by multiple means and ways to access and engage with content.³

Within this context, there is an emerging body of research specifically targeting inclusive uses of technologies to scaffold exceptional learners' language and literacy. Inclusive supports for literacy are those that create access to reading and writing curriculum and bolster the development of reading and writing fluency and comprehension for all learners.⁴ As such, examining uses of digital technologies to support learners' inclusion and engagement with language and literacy practices are becoming more salient.⁵

However, this research has not been conducted in full-inclusion environments in which students with and without disabilities are educated together in the general classroom setting with supports pushed-in, rather than students pulled out.⁶ As such, a majority of research in the areas of disability, language, literacy, and technology has been conducted with students either partially included in the general education setting or in a special day class placement.⁷ Furthermore, this research has primarily focused on clinical uses of assistive technologies to support individual learner functioning; rather than on broader uses of digital technologies to support inclusion and access for all learners together.⁸

Purpose of Dissertation

Voices on the Margins is about how Future Visions Academy (pseudonym, hereafter FVA), an extraordinary full-inclusion public charter school in the Western United States, engages with these questions. In this dissertation we seek to add to this developing field by examining the ways digital technologies support inclusion and language and literacy practices for culturally and linguistically diverse children with and without disabilities. Based on a wide range of qualitative

data collected during our case study of FVA, three main themes are illuminated: (1) the kinds of social organization that allow a fully inclusive environment for exceptional children to thrive, (2) the ways that digital media were used in the program to help students express their voice and agency, while developing language and literacy skills, and (3) the ways that digital media were used to foster stronger networks and connections among school stakeholders.

The impact of this work includes an improved understanding of technology's role in operationalizing a full-inclusion model and the ways integrating digital technologies into language and literacy practices supports student agency, inclusion, and engagement. As such, this dissertation is also about how insights gleaned from our work with FVA can lead to broader understandings of how educators can use an interdependence framing to tackle societal goals such as inclusion on a broader scale. The hope is to achieve this through discussion of social inclusion and technology, a review of extant literature related topics, and examination of culturally and developmentally diverse children's engagement across sociocultural context.

Voices on the Margins centers on an ethnographic embedded case study of FVA consisting of participant observations across school settings; interviews with a culturally and linguistically diverse group of teachers, staff, parents, and children; and collection and analysis of a variety of school-, teacher-, and student produced documents. It is situated in sociocultural theory of education, learning, and literacy⁹; associated new literacy studies;¹⁰ disability studies;¹¹ and a novel theoretical perspective of interdependence – a frame emphasizing collaborative access as complementary to independence – that argues the true *social* value of assistive and mainstream uses of technologies center on their mediational power to promote interdependence among users.¹² In these approaches, literacies are viewed as plural across a range of socially situated practices that are engaged with across differing sociocultural contexts.

Finally, we seek to understand how learning takes place through multilayered development, examining both the unfolding of events and the development of school community members over time. In doing so, *Voices on the Margins* takes a child-centered, assets-based, approach to the ways that students engage with technology in the context of creating community--but with a specific focus on issues related to disability and inclusion. As such, this case study investigates the wide range of overlapping and plural literacy practices that students engage in at FVA. In this view, student engagement and learning are explored as being mediated, social, and developmental.¹³ To understand the school and its personnel, we examine the mediational role of digital technologies within the broader ecology of supporting students' inclusion, engagement, and language and literacy practices.

Position and Argument

This chapter presents an overview of the primary narrative, positioning in literature, and previewing/threading of subsequent chapters, with the goal of situating, complementing, and differentiating our work from existing literature. We preview the foundational works upon which we situate our examination of inclusion at the intersection of language, literacy, and technology throughout the remainder of the book. These works are positioned in relation to the fact that, to our knowledge, few ethnographic works present in-depth case studies of teacher, student, and parent day-to-day inclusive practice at the intersection of language, literacy, and technology at diverse schools utilizing a full inclusion model of instruction.

Prior academic works examining the use of digital media by children with disabilities include Meryl Alper's (2017), *Giving Voice: Mobile Communication, Disability and Inequality* and *Digital Youth with Disabilities*, as well as Sue Cranmer's *Disabled Children and Digital*

Technologies: Learning in the Context of Inclusive Education. Similarly, to this dissertation, both take an intersectional approach to examining issues of disability, technology, and inclusion. However, what differentiates this work is a focus on children's language and literacy development, vis a vis the mediating impact of mainstream and assistive uses of digital technologies, in a fully inclusive school integrating students with and without disabilities. Another differentiating factor is that much of the emerging literature is set in out-of-U.S. contexts, making this research a complementary U.S.-based addition to international contributions.¹⁴

Moreover, *Voices on the Margins* is intentionally intersectional in response to the tendency for research addressing technology, inclusion, language and literacy, or disability, to do so in silos (i.e., with a principle focus on one, sometimes two, of these topics). Examples include ethnographic investigations of culturally diverse children's use of digital media, but without a focus on disability and inclusive practice, such as Sonia Livingstone and Julian Sefton-Green's (2016), *The Class: Living and Learning in the Digital Age* and Antero Garcia's (2017), *Good Reception: Teens, Teachers, and Mobile Media in a Los Angeles High School*. Alternatively, works that look at disability and inclusive practice, but not necessarily the mediating impacts of digital technology use, include Roger Slee's (2017) *The Inclusive Education Workbook: Teaching, Learning, and Research in the Irregular*, Peggy Anderson's (2012) *Case Studies for Inclusive Schools*, and Gary Thomas and Mark Vaughan's (2004) *Inclusive Education: Readings and Reflections*. As such, this dissertation is meant to situate, and extend, the utility of such works in understanding the multiple socio-technical contextual factors that preclude or support linguistically and developmentally diverse children's inclusion and language and literacy development.

While *Voices on the Margins* does not center on clinical or specialist uses of assistive technologies, as is sometimes the norm for works examining the dual topics of disability and technology, we do discuss assistive uses of digital technologies for social engagement and inclusion within a well-known body of assistive technology literature. These foundational works include Sumita Ghosh's (2017) *Technology for Inclusion: Special Education, Rehabilitation, for All*, Beltrán's et al.'s (2013) *Inclusive Language Education and Digital Technology*, and Mike Blamires' (1999), *Enabling Technology for Inclusion*.

This work intends to continue the tradition occupied by the aforementioned works, by taking an in-depth assets-based approach to examining the ways that children engage with technology in the context of creating community--but with a specific focus on issues related to disability and inclusion. In these ways, *Voices on the Margins* both fits, and extends, these empirical bodies of literature pertaining to inclusive practice at the intersection of language, literacy, and technology.

Approach to Disability Language and Inclusion

Voices on the Margins adopts a social model of disability affording a more nuanced way to interrogate contextual impacts on disabled children's lives. As such, we look to seminal works, such as Alper's (2017) *Giving Voice* and Cranmer's (2020) *Disabled Children and Digital Technologies*, and disability communities' positioned use of language, in our framing of the language of disability and inclusion.

As a disabled person, I (first author) use identity-first language to situate my disability as an inextricable part of who I am – it being common among marginalized folk to take terms typically deemed pejorative and re-appropriate them as a source of identity and strength (e.g., my Twitter handle “special education student turned to scholar”). As such, in broad discussion of disability

we may interchangeably use identity-first (“disabled students”) or person-first (“students with disabilities”) language, in recognition of the fact that language preferences vary across individuals in the disability advocacy and research communities.

I also differentiate between our use of “inclusion” (i.e., inclusion model) and “inclusive” (i.e., inclusive practices), with the former referring to structures of access and participation and the latter referring to integrative actions. This discussion is a U.S. counterpoint and complement to Cranmer’s discussion of inclusive practice within the international context. Furthermore, we define inclusive instructional practices as those that address the needs of students holding a variety of abilities and needs. In this context, inclusive classrooms are those that, in implementing inclusive instructional practices, support an integrated environment in which all students’ contributions are equitably supported and valued. Non-inclusive classrooms are those that privilege specific ranges of ability and need deemed normative through the exclusion or segregation of students who fall outside the prescribed norm.

Approach to Investigating Digital Technologies

In complement to the adoption of a social model of disability, *Voices on the Margins* takes a social use approach to the study of digital technology use at FVA. This approach is in contrast to determinist approaches centered on the premise that technologies place positive or negative impacts on society. These perspectives privilege the role of technology and tend to obscure the mediating impact of individual characteristics on technology use, including class, gender, race, and disability.¹⁵

In contrast, views that center the social uses of technology privilege the role of society in mediating technology use.¹⁶ This is an important distinction that affords a study of technology

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within context, as well as a more balanced approach to reviewing technology use vis-a-vis wider systems of influence.¹⁷ This approach is consistent with sociocultural perspectives that view human development and learning as social, collaborative, and interdependent; mediated by a variety of tools best understood in their unity rather than as separable components. Thus, we frame our approach in terms of how digital technologies help change the broader ecology of learning, rather than how they exert an independent impact. Specifically, *Voices on the Margins* outlines the impact of sociocultural dynamics at play in students', teachers', and parents' meaning-making across in-person, remote, and technology-mediated contexts.

Approaches that consider “the social shaping of technology” reflect the influence of social group designation and consider the sociocultural factors that inform technology use.¹⁸ These approaches are supportive to an analysis of inclusive uses of digital technologies within a purposely inclusive elementary school integrating linguistically and culturally diverse students with and without disabilities in the same classroom setting. In taking a social use approach to investigating technologies, we hope to demonstrate how new uses and forms of digital technologies provide a powerful means for amplifying the voice and agency of children with disabilities, thus enhancing their educational and social inclusion.

It is important to note that *Voices on the Margins* does not focus attention on interventions specifically, nor the clinical uses of specialist assistive technologies; but rather on the social and assistive uses of digital technologies and applications for learning and social inclusion.

Technologies studied include laptop and tablet computers such as Chromebooks and iPads, mobile devices including cellular phones, software including word processing programs and speech to text functions, such as those found in Google Suite, and communication applications such as the *Proloquo2GO*, a symbol-based communication app for iOS.

As such, the hope for *Voices on the Margins* is that insights gleaned from findings can complement and build upon inclusive best-practices in the uses of digital technologies to engage students with and without disabilities.

Approach to Intersectionality and Diversity

Voice on the Margins puts forth an effort to see technology use as mediated through socio-cultural context including the impact of culture and disability. Similar to Livingstone and Sefton-Green's *The Class* and Alper's *Giving Voice*, this work engages in a richly descriptive ethnographic study of linguistically and developmentally diverse children's engagement across sociocultural context. This includes the impact of sociocultural dynamics at play in students', teachers', and parents' meaning-making across technology-mediated contexts.

Chapter 4, *Future Visions Academy: An Inclusive School*, presents the origin story of Future Visions Academy as a county public charter school – co-developed by multiple stakeholders, including parent advocates, to serve the needs of diverse students with and without disabilities across the entire county. As such, Future Visions Academy's is representative of the linguistically, culturally, and socioeconomically diverse cities that make up the entire county with 40% English Learner designation, 62% Free/reduced lunch, and 64% Hispanic. Approximately 40% of the students in the classes studied had IEPs with varied disability designations.

This case study centers on marginalized voices of families of color – a departure from prior research on disability, technology, and education centering on majority white, higher-resourced, families. Intentionally, family interviewees with racially, linguistically, culturally, and developmentally diverse children that reflect the demographics of the school and community

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(e.g., high and low-income immigrant families from rural and urban Mexico, working and middle-class mixed race and 2nd generation families, as well as families whose children had a variety of disabilities or, in some cases, no disabilities) were recruited. Analysis focuses on how these families' diverse life experiences, combined with the school practices, shaped the education and development of their children and how they draw on their funds of knowledge to address challenges.

Narrative Organization

As discussed above, this Introduction chapter frontloaded the aims of the dissertation. In the subsequent chapter, *Interdependence: An Inclusive Framework for Exploring Disability*, I make clear why, and how, I use an inter-dependence frame, threading theorization across subsequent chapters to support concluding arguments presented in *Looking to the Future*. Findings from classroom observations and family and staff interviews regarding uses of digital technologies to support language and literacy engagement and empower student voice are presented in *Future Visions Academy: An Inclusive School, Practices in Language, Literacy, and Technology*, and *Digital Technologies for Amplifying Student Voice*. Data afforded a novel perspective on technology and learning across diverse intersecting disability and learning contexts.

Here I outline subsequent chapters in detail; illustrating how technology's role in facilitating the shift toward inclusive models of education is critical to the success of efforts aimed at creating educational access and equity.

Interdependence: An Inclusive Framework for Exploring Disability, fully explicates the theoretical perspective presented in *Voices on the Margins* and builds an argument for using *interdependence* as a frame for 1) assessing the moves that participants make to support

inclusion; 2) interpreting current aims in the intersectional study of inclusion and language, literacy, and technology; and 3) interrogating the notion that independence is the only, or even the most important, goal of assistive uses of digital technologies. I discuss interdependence in relation to sociocultural theory, new literacies, and disabilities studies, arguing that a true *social* value of technologies -- both those designated as assistive or mainstream -- is their mediational power to promote interdependence between users. This argumentation is in complement with Cranmer's conceptualization of digital inclusion and is reiterated in the subsequent chapters describing the meaning making and actions that took place among students, parents, teachers, and staff at FVA where an essential value of using digital technologies lay in their power to bring the school together in community.

Methodology for Investigating Inclusion presents an overview of the site selection and research methodology that form the basis of the analysis of findings for this dissertation. I discuss the rationale for using an embedded case-study design, researcher positionality, selection of FVA as a case study site, and ethnographic methodologies to analyze interview, focus group, and classroom observation data.¹⁹ Within this discussion, I detail my use of three levels of analysis at the school, classroom, and focal family level, as well as participant selection criteria for selecting a diverse range of focal families for family interviews varying across grade level, gender, socioeconomic background, abilities and areas of need, and experiences with literacy and digital technologies. I then describe the sources of data collected during the 2019-2020 school year that allowed me to address my research inquiry. Finally, I discuss how the case study design incorporated qualitative²⁰ approaches to analyze interview, classroom observation, and document data including both first and second cycle coding to identify themes and categories across the

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data pertaining to inclusive practices, language and literacy activity, and uses of digital technologies in the classroom.²¹

Future Visions Academy: An Inclusive School presents a year-long embedded case study at FVA, a full-inclusion public charter school in the Western United States. The chapter presents a detailed discussion of the particular ways in which FVA strove to ensure that the social organization of the school facilitated a fully inclusive environment for students to thrive. As discussed in approach to intersectionality and diversity, I detail the origins of FVA as the only fully-inclusive public charter school in its county – co-developed by multiple stakeholders, including parent advocates, to serve the needs of diverse students with and without disabilities. Within this context, I discuss how this case study centers on marginalized voices of families of color and elaborate our intentional recruitment of family participants that reflect the demographics of the school and community. Analyses focus on how these families' diverse life experiences, combined with the school practices, shaped the education and development of their children and how they draw on their funds of knowledge to address challenges. Observations of classroom learning and interviews with students, parents, teachers, and staff, are all used to document inclusive practices across the school.

Practices in Language, Literacy, and Technology discusses how FVA families and staff used digital technologies across school and home environments to engage learners in language and literacy practices. This includes an examination of language, literacy, and technology practices (LLT), defined here as an integrated formative approach to examining literacy practice within the context of technology use, across home and school contexts to support engagement. The chapter includes student, staff, and parent observations and perceptions of LLT practices at FVA, while exploring the uses of digital technologies as a mediating support for disabled students' language

and literacy needs. Moreover, we discuss the impact of technology use on supporting language and literacy practices between students across contexts – including how specific digital tools are used within the FVA school community to support development of discrete components of literacy, such as decoding, reading, comprehension, as well as writing production and revision.

Digital Technologies for Amplifying Student Voice analyzes the ways in which FVA’s uses of digital technologies afforded alternative modes for students to express their voice and agency, while developing their language and literacy skills. Vignettes – such as the case of Tammy, a non-speaking 4th grader, excitedly learning to use the Proloquo2Go communication app downloaded on her iPad device – are used to illustrate the potential of digital technologies to embody and empower student voices. Additional vignettes include the case of 3rd grader Finn, for whom the sensory act of writing with pencil and paper proved excruciating. However, engaging in digital writing using Google docs, incorporating assistive features such as speech to text, on his Chromebook laptop device, allowed Finn to improve both the quality and content of his writing and positively mediate his writing experiences. The chapter details how experiences with digital technologies such as these, have a profound mediating impact in how the teachers and staff come to understand students’ voices and competencies. These stories, as with others in the chapter, present a compelling example of how, through their uses of digital technologies, students were able to give voice to their feelings and thoughts and share a fuller picture of themselves as creators with classmates and teachers. In these ways, the chapter presents how technologies afforded students alternative means of textual and linguistic representations, facilitating their agency, interdependent engagement, and inclusion in the classroom.

Looking to the Future synthesizes the precluding chapter content to offer suggestions, policy, and best practice in bringing a fuller vision of inclusive education to fruition. In this concluding

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chapter, I discuss the ways in which a comprehensive vision of inclusion requires a substantive paradigm shift by policy makers, district and school leadership, teachers, and parents, in understanding and mitigating how principles of inclusion have historically played out in public schools. Using FVA as a case study, this chapter identifies key factors needed to realize a fuller vision of inclusive education, as outlined in this book, across districts and schools in the U.S.

Finally, the chapter suggests a rethinking of the way that digital technology use can contribute to full inclusion of students with disabilities, arguing for a perspective of interdependence rather than independence.²² While the latter focuses narrowly on what technology can allow people to do by themselves, the former emphasizes the relations between people, technology, and the environment. Examples from the book are summarized to highlight how a framework of interdependence can support the development of policies, practices, and pedagogies that foster full inclusion of exceptional children in school and society.

2 Interdependence: An Inclusive Framework for Exploring Disability

In this chapter we present interdependence, a relational state in which people work together toward a shared goal, as an inherently inclusive, collaborative, framework for exploring disability.¹ Using this framework, we argue that the true social value of assistive and mainstream technologies lies in their potential to mediate engagement and collaboration; a departure from previous work centering technology as primarily 1:1.² We situate this discussion with a historical overview of how disability has been conceptualized over the past 40 years, starting with the formalization of the medical model of disability, and detailing the evolving approaches disabled individuals, practitioners, and the broader society have engaged with concepts of disability.³

These origins include an overview of how we discuss inclusion, and by extension inclusive uses of digital technologies, through the medical and social models of disability.⁴ This includes a discussion of the independence movement that sprang from the social model of disability and afforded a major step forward in amplifying agency within the disability community.⁵ Here we explain how the independence movement was intimately tied to the development and positioning of assistive technologies as critical tools for supporting independence.⁶

However, we also pivot to discuss how the independence movement's traditional aims of promoting autonomy- tied with the original goals of assistive 1:1 technologies – may be insufficient in promoting the full social inclusion of people with disabilities.⁷ We cite this

critique as partly leading to the proliferation and introduction of interdependence as an alternative framework for understanding disability and inclusive uses of mainstream and assistive technologies – first from a disabilities studies perspective, followed by application and amplification of the social uses of assistive technologies.⁸ This foregrounds our usage of an interdependence framing to explore disability in the context of inclusion as well as inclusive uses of assistive and mainstream digital technologies.

Inclusive Technology use Across Models of Disability

Technology Use in Relation to Medical Model of Disability Technologies are traditionally positioned and designed for 1:1 use, meaning they are meant to support individual users.⁹ For example, technologies designed with the needs of disabled users in mind are typically placed under the umbrella of 1:1 assistive technologies for minimally speaking individual users.¹⁰ Under this presupposition, clinicians might engage in 1:1 clinical practice to train individual users how to use the technology, for example, during 1:1 speech therapy, to remedy perceived deficits in the disabled user – in this case perceived inability to communicate in normative ways.¹¹ This positioning of technology is consistent with a medical model of disability.

The medical model of disability centers disability as a diagnosis to be managed or cured.¹² The viewpoint being that medical intervention is necessary to diminish or correct the impact of the disability on the disabled individual's quality of life. The medical model of disability positions the disabled person as a dependent and passive, rather than active, participant in their own care, with service providers positioned as the active agents in remediating the disability.¹³

In these circumstances, technology is seen as a clinician's tool to remediate a deficit of the individual user with the goal of increasing their ability to communicate with the outside world.

The inability to speak is positioned as a medical condition in need of rectification and the technology is positioned as the tool to do the rectifying.¹⁴ These assistive uses of technologies often occur with the user positioned as dependent on the technology and are conducted with minimal cross-training between teachers, parents, and other significant people in the disabled user's life.¹⁵

Technology in Relation to Social Models of Disability We first started with the medical model of disability which positions people with disabilities as having minimal agency and uses of technologies as being driven by practitioners with the goal of solving medical problems or behaviors. Essentially this model positioned people with disabilities as dependent and needing outside help. However, what we saw at Future Visions Academy (FVA) was entirely different.

What we witnessed at FVA included students and staff collaboratively using technology in social ways to engage with each other. For example, Conrad – a minimally speaking student who we discuss in more detail in Chapter 5 – used the LAMP communication program installed on his iPad device, in small group settings to engage with members of his group. What makes this interaction memorable is that all the students, not just Conrad, also learned how to use the device and were engaged in using it with Conrad. In this case, we have a group of individuals using a device, originally intended for individual use, collaboratively.

These social and collaborative uses of technology at FVA allude to a broader picture of how we can position technology use for inclusion. Exploring social uses of technologies enables an expansion in our understanding of what assistive uses of mainstream and assistive technologies can entail – as well as the role they may play in promoting inclusive models of education. This allows us to move beyond individual uses of technology informed by a medical model of

disability towards inclusive and collaborative uses of technology aligned with social models of disability.

Advocacy from the disability community led to the formation of social models of disability whose goal was to afford a differing perspective from the medical model of how people with disabilities actually live and organize their lives.¹⁶ The focus of social models of disability centers on placing agency for action, access, and support within disabled individuals themselves with the goal of collectively creating independence and self-advocacy within the disability community.¹⁷ The social model of disability places a greater emphasis on identification of external – rather than internal – barriers to access and inclusion – a significant premise being that people are disabled by barriers in their environment, rather than personal characteristics or impairments.¹⁸ A social view of disability would therefore center on using technologies to minimize environmental barriers to access; as differentiated from technology uses centered on medical model perspectives of remediating individual impairment.

Independence Movement as Social Imperative The shift towards social models of disability led in part to the independence movement which sought to promote the independence of individuals with disabilities as a social imperative for inclusion.¹⁹ This movement was important because it positioned people with disabilities as independent and capable of making their own decisions. Central to that was a re-imagining of the uses of assistive technologies to move beyond primarily medical purposes and promote independent access to previously inaccessible spaces – a critical moment in disability advocacy and scholarship.²⁰

The history of an independence movement in the disability community has its roots in the disability community's countering of the medical model of disability.²¹ As push-back to the

decision-making power the medical model bestows on practitioners, the disability community moved towards seeing the short-term curative objectives of the medical model as incompatible with the long term nature of disability.²² As such, the independence movement situates the problem not within the body but within the environment and situates problems encountered by the disability community as being caused by overdependence on service providers and caregivers.²³ To overcome issues of dependency, the independence movement advocated for supports and processes that enabled disabled individuals to make their own choices about their own care.²⁴

However, the independence movement has more recently faced the critique of falling short of emphasizing practices and supports that cultivate the social capital necessary for full community participation and inclusion.²⁵ Several within the disability advocacy and research community, including activists (i.e. Mingus, Chatterjee) and disabilities studies scholars (i.e. Condeluci, White) have more recently critiqued that independence is not enough, and that what is called for is a collaborative synergistic orientation within social models of disability. Moreover, the independent movement perspective may not account for collaborative uses of resources and tools, such as (assistive) technologies, and the power of technologies to create community and engage people with disabilities as agents, creators, active community makers.

Ultimately, interdependence as an inclusive frame for exploring disability was born in part as a response to this critique. Moreover, interdependence was born from the necessity to move beyond an independence lens to better understand, amplify, and be supportive of the collaborative strategies and moves disabled people make in navigating their lives. Towards this effect, Mingus shares:

*With disability justice, we want to move away from the “myth of independence,” that everyone can and should be able to do everything on their own. I am not fighting for independence, as much of the disability rights movement rallies behind. I am fighting for an interdependence that embraces need and tells the truth: no one does it on their own and the myth of independence is just that, a myth.*²⁶ – Mia Mingus, February 12, 2011, How our Communities can Move Beyond Access to Wholeness

As such, independence as a social imperative could lead to situations where inclusion is undermined by competitive individualism.²⁷ The prioritization of an independence framing positions interdependence, an inherently inclusive framework for organizing behavior, at odds with Western focus on autonomy and individual advancement. In Cranmer’s words: “The challenge then is to consider how schools can change to become more inclusive. Yet, current policy on inclusion is undermined by competitive individualism within wider society and an ethos of marketization and neoliberalism.”²⁸

In her discussion of public policy surrounding the inclusion, or lack thereof, of disabled children, Cranmer sets forth the argument that public policy enables a society to understand its values.²⁹ In the case of Western nations, ample evidence exists indicating that independence – marked by individualism, is a primary social value.³⁰ This is in contrast to Eastern nations, as well as several socially oriented Western nations, that adopt a more collective – interdependent – approach as a primary social value.³¹ As a result, in cultures where independence is valued as the primary marker of a functional society, danger lies in individualism being championed and valued over inclusion.³² This is a danger because – while independence is an important and crucial aspect of enabling wellbeing within the disability community – it is not, in and of itself, enough to fully support a move towards inclusion.³³

The positioning of independence as a social and moral imperative in the United States centers on a focus on individual or personal freedoms as the prioritized goal for civic engagement.³⁴

Thus, in cultural environments where individualism is championed and valued over the kinds of interdependent behaviors that lead to inclusion, how do we move inclusive policy forward? In this dissertation, we will grapple with this question in analysis and discussion of findings at FVA, as well as ways we might move towards cultivating interdependence across multiple sectors of life and society.

We use this interdependence framing to interrogate the notion of independence as the primary imperative for inclusive uses of mainstream and assistive technologies. In doing so, we aim to position interdependence as a frame to better understand the ways technologies can be used collaboratively to promote inclusion. We use an interdependence framing to better understand inclusive practices that promote engagement and access. Thus, our use of interdependence is two-fold: it serves as a relational framing for understanding inclusive practices and inclusive uses of technologies. Interdependence presents the idea that technologies can be used to support community building and social inclusion. An interdependent framing allows us to shift from thinking of technology's primary use as a 1:1 interface to technology as a way for people to collaboratively engage.

Interdependence: An Inherently Inclusive Framework

We present interdependence as an inherently inclusive framework that is congruent with shifts in the disability communities towards community-centered approaches to the study and understanding of disability. We position interdependence as a natural extension of the independence movement complimentary to social models of disability. Specifically, an interdependence framing endorses the extension of independent living skills learned to a variety of social and community contexts without replacing independent living goals.³⁵

Condeluci first envisioned interdependence as an extension beyond independence as a primary goal for persons with disabilities. Motivation for the development of an interdependence paradigm centered on the assertion that people with higher levels of social capital in their communities lead more successful lives.³⁶ Therefore, services and supports for disabled individuals should focus on building social capital given that disabled people systematically have less access to social capital, are less likely to be integrated in civic and social community endeavors, and are more likely to be isolated.³⁷ As such, relationship building is the focus of interdependence – with the goal of brokering the kinds of social capital that promote community engagement and inclusion.³⁸ In this conception, the purpose of adopting an interdependent perspective was for disabled individuals, and service providers, to apply independent living skills acquired through supports and services across diverse social interactions and community contexts.³⁹

In her semi-autobiographical monologue, “Interdependency (excerpts from several talks),” disability activist Mia Mingus reveals how relationship building is key to interdependency, and ultimately, accessibility:

Interdependency is not just me “dependent on you.” It is not you, the benevolent oppressor, deciding to “help” me.

Interdependency is both “you and I” and “we.” It is solidarity, in the best sense of the word. It is inscribing community on our skin over and over and over again.

Because the truth is: we need each other. We need each other. And every time we turn away from each other, we turn away from ourselves.⁴⁰

For Mingus, interdependency means being in relationship with the persons that have the potential to provide support, assistance, or accessibility – whether it be asking a stranger to open a container or a physical therapist if they are able to work overtime. To be successful, this requires

that disabled people cultivate relationship building and maintenance skills – this goes hand in hand with the cultivation of social capital.⁴¹

Bennett et al. take from White and Mingus' views to adopt interdependence as a frame for assessing the moves that disabled individuals engage in with *each other*, as well as non-disabled individuals, in their collaborative uses of technologies. Specifically, they provide a roadmap for how an interdependence framing can be used to study and better understand the relations between individuals, interactions, and assistive (uses of) technologies. In short, Bennett et al. assert that an interdependence frame “(1) focuses on relations, (2) helps us make sense of multiple forms of assistance happening simultaneously, (3) draws out the often-underwritten contributions of people with disabilities, and (4) can help disassemble hierarchies that prefer ability.” In their conceptualization, seeing relations refers to “a coming together of people and things in a particular moment in time.”⁴² In articulating the political/relational model, as such, interdependence centers relations and can provide a heuristic for how accessible a situation is with regard to the contextual factors.

Adopting an interdependence frame also allows us to acknowledge and assess the relational nature of simultaneous actions, customs, and behaviors – which was essential to us in assessing the inclusive team-teaching approach that staff undertook at FVA, as well as the integration of parents into the community ecology of the school. This includes paying particular attention to instances where individuals both provide, and receive, support, including what Bennett et al. refer to as “multiple types of access support” – affording a structure for breaking down individual moves to better understand how each member of the FVA school community both provided and received assistance.⁴³

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Examples of how we use Bennett's conceptualization of interdependence to assess multiple forms of assistance (i.e., receiving and giving) at FVA are provided in Chapters 4, 5, and 6. Such examples include how students used communicative devices to independently express their thoughts, engage with and gain access to the greater FVA community, and contribute to their classrooms as well.

Interdependence provides an empowerment framework for acknowledging the work done by people with disabilities – a critical aspect we engage with in studying FVA's inclusive school practice. Interdependence as a mechanism for empowerment is built on the premise that all people and things in interaction with each other are mutually reliant.⁴⁴ This is counter to the narrative that disabled individuals are passive recipients, not agents in, acquiring or providing supports.⁴⁵ Thus, an interdependent framework can reveal the work done by, and for, members of disability communities.

Interdependence requires the view that, in any given context we are inter-reliant on each other in our actions and roles. To Mingus' point, it requires the view that we are all both recipients and agents of support. Whereas traditional views of disability have positioned disabled persons as only recipients. Moreover, the presence of technologies is not enough to claim access.⁴⁶ How people collaboratively engage with technologies, and the sociotechnical supports that buttress this engagement, defines access.

As we explore FVA's engagement with each other and with technologies, we will use this interdependence framing to better understand how, for example, students modeling for each other is a form of co-creation of accessibility in which they are literally creating access for each other. As such, interdependence provides a framework for examining how a myriad of people

come together to achieve a common goal – in the case of FVA, inclusion via collaborative uses of digital technologies that cultivate language and literacy engagement – thus ultimately increasing students’ access to social capital.

In this chapter, we elaborate on Bennett et al.’s application of interdependence to build an argument for using *interdependence* as a frame for 1) assessing the moves that participants make to support inclusion; 2) interpreting current aims in the intersectional study of inclusion and language, literacy, and technology; and 3) interrogating the notion that independence is the only, or even the most important, goal of assistive uses of digital technologies.⁴⁷

We discuss interdependence in relation to sociocultural theory, new literacies, and disabilities studies, arguing that a true *social* value of technologies -- both those designated as assistive or mainstream -- is their mediational power to promote interdependence between users. Our argumentation is in complement with Cranmer’s conceptualization of digital inclusion and is reiterated in the subsequent chapters describing the meaning making and actions that took place among students, parents, teachers, and staff at FVA where an essential value of using digital media lay in their power to bring the school together in community.⁴⁸

Interdependence as a Frame for Assessing Participant Moves to Support Inclusion

Precedence exists for using interdependence as a frame for understanding the moves people make in support of interpersonal interactions. Bennett et al. and Branham and Kane discuss using an interdependence framing to assess and understand the moves people with disabilities made in relation to their uses of assistive technologies.⁴⁹ In their defining work on interdependence, White et al. and Mingus position interdependence as a way to understand the moves people with disabilities made in relating to each other as well as non-disabled individuals; positioning the

interdependence stance as essential to surviving and thriving in a world not designed for disabled individuals.⁵⁰

We extend these applications to include interdependence as a frame for assessing the moves that participants make to support inclusion. In this work, we differentiate between use of “inclusion” (i.e., inclusion model) and “inclusive” (i.e., inclusive practices), with the former referring to structures of access and participation and the latter referring to integrative actions. We define inclusive practices as those that address the needs of individuals holding a variety of abilities and needs.⁵¹ In this context, inclusive classrooms are those that, in implementing inclusive instructional practices, support an integrated environment in which all students’ contributions are equitably supported and valued.⁵² Non-inclusive classrooms are those that privilege specific ranges of ability and need deemed normative through the exclusion or segregation of students who fall outside the prescribed norm.⁵³

Inclusion is social in nature and requires a participatory element. Inclusion is not only conceptual, it is actionable. This marries “inclusion as act” with “interdependence as engagement” – making inclusion as action compatible with interdependence as engagement. At FVA, we saw this in the effects of interdependent behavior on disabled people’s participatory inclusion. Thus, as we began to assess the moves that students, parents, teachers, and staff made at FVA, we began to notice common threads – notably that the most inclusive moments occurred at the times that the community adopted an interdependent approach to engagement- and not in isolated or individual instances of being able to “do things” independently. But rather, the culmination of students’ full inclusion was their interconnected support and engagement of each other. As such, interdependence as framing provided the most compelling frame for analyzing and better understanding these moves that the community made to support the inclusion of every

FVA community member. The approach in this dissertation will thus be to examine moves indicative of inclusion and apply the interdependent lens in an analysis of precisely why and how said moves support inclusion.

Interdependence as a Frame for Supporting the Intersectional Study of Inclusion

Interdependence as a theoretical framework for understanding interpersonal behavior is by nature intersectional in that it requires a willingness by participants to take unique perspectives, approaches, and assets into account in the accomplishment of shared goals. Moreover, interdependent thinking requires participants to understand the ways that multiple contingencies inter-relate. Adopting interdependence as an approach then, whether intentionally or not, requires an exercise in contextual understanding. It requires that we understand how differing, sometimes competing, contingencies impact and hold influence over each other – particularly towards the accomplishment of shared endeavors.

Intersectionality as theory also places great focus on contextual understanding – particularly as it relates to using such understanding in the accomplishment of shared and broader-reaching societal goals. Intersectionality provides a framework for understanding how facets of a person’s identity – for example, race, gender, disability, and class – influence discrimination and privilege.⁵⁴ A primary objective of the intersectional approach is to identify, and dismantle, systemic causes of oppression that afford advantage/disadvantage and disproportionately impact historically marginalized groups.⁵⁵

Kimberle Crenshaw was the first to conceptualize intersectionality as a qualitative framework for discussing structural identities in relation to systems of oppression and power. Broadening from its roots in first and second wave feminism – which largely focused on the experiences of

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White middle class women – through Black feminist theory (e.g. Nash), intersectionality has shifted beyond identity as an accounting of power.⁵⁶ This accounting acknowledges the differing experiences of people of color, poor, and immigrant individuals, as differing in their experiences of often inter-connecting systems of power and oppression.⁵⁷ A premise being that work promoting social equity cannot fully occur without first acknowledging, understanding, and dismantling systemic challenges impacting marginalized communities.⁵⁸

Feminism introduced intersectionality into the study of disability with the acknowledgement that systems of oppression relating to race, gender, class, also intersect with disability.⁵⁹

Intersectional research is now more focused on the interlocking impact of belonging to more than one historically marginalized group – for example second language learners with disabilities – and how multiple group membership can lead to multiple forms of advantage or discrimination.⁶⁰

Given FVA’s culturally and developmentally diverse population, a nuanced exploration of disability and inclusion must therefore take participants’ background and identities into account. Integrating an intersectional approach to the study of interdependence at FVA allows us to see how *“disability is imbricated with other categories of 'difference', such as race, gender, nationality, age, sexuality, poverty, etc., categories that previously seemed so clear-cut, but are in reality complex, interwoven and embedded in space and time.”*⁶¹

Thus, adopting an intersectional approach to the application of interdependence as a relational frame allows us to cultivate an understanding of the individual and collective contextual impacts on technology use, and how those inter-relate/impact the inclusion of students at FVA. It allows us to see how personal contingencies across multiple axes of difference inter-relate to amplify students’ inclusion. In addition, it allows us to see how participants’ multi-faceted backgrounds

informed interaction with technology, in service of language and literacy engagement, to support students' inclusion.

Relation to Social Theories of Behavior

In this section, we situate the theory of interdependence in relation to other socially-oriented theoretical approaches to understanding behavior. We do so to 1) demonstrate the flexibility and compatibility of using interdependence with a variety of socially-oriented frameworks; 2) further situate the theoretical underpinnings that precluded our adoption of an interdependence frame; and 3) provide context and heuristic for how a theory of interdependence fits within the theoretical landscapes often adopted in intersecting studies of disability, technology, and literacy.

Interdependence in Relation to Sociocultural Theory Sociocultural theory, like interdependence, provides a broad perspective for understanding the far-ranging set of social and cultural factors that influence human behavior.⁶² Like interdependence, sociocultural theory can be used across a broad range of circumstances in our lives to better understand how we communicate and relate to each other. A defining feature of sociocultural theory is its centering of context as critical to understanding of human behavior. This focus on context as motivation for behavior came about as a result of renewed interest in Vygotskian perspectives in education psychology (i.e. John-Steiner & Mahn) leading to an acknowledgement of the importance of context.⁶³ In this view, human activity cannot be separated from context; making the understanding of context a critical component of sociocultural perspectives.⁶⁴ As such, we believe that interdependence can be situated within the broader umbrella of sociocultural theory in its centering of *collaboration as context* in shaping human behavior.

Interdependence in Relation to New Literacies Studies New Literacies studies as a field of inquiry developed in response to the changing contexts in which digital technologies were beginning to inform traditional “paper and pencil” literacies.⁶⁵ New Literacies is principally concerned with understanding the practices and contexts associated with uses of 21st century tools, principally digital technologies, in the development of new forms of literacies.⁶⁶ New Literacies developed in response to shifting interest in the literacy community towards the influence of sociocultural and technical contexts on the evolution of literacy practices; rather than cognitive literacy theories focused on mental mechanisms associated with reading.⁶⁷ In this view, literacies are practices embedded in social and cultural context extending beyond a series of discrete skills to be learned.⁶⁸

An important shift in the study of literacy from a New Literacies perspective is that context imparts meaning to language and that the meaning of language can change depending on the context in which it is situated.⁶⁹ Understanding how social practices relate to digital technology use is key to understanding the role context plays in shaping literacy practices. Thus New Literacies as a field of inquiry centers on both the technical and philosophical shifts we have made in new, technologically-centered, ways of engaging with literacy in the 21st century.⁷⁰ Given these foci, New Literacies is a popular theoretical lens for studies of digital technology use in education.⁷¹ Moreover, applying a New Literacies lens to investigations of how people use digital technologies allows us to understand the contexts in which technologies enable, or constrain, literacy practices.⁷²

As such, taking a New Literacies approach to the study of technology use at FVA affords a better contextual understanding of how digital technologies influence the literacy practices of the school. This focus on context – in relation to digital technology use mediating collaborative

engagement and literacy practice – is complementary to our application of an interdependence framework. In the case of interdependence, the focus is on the contextual role of *collaboration* on engagement and connection; whereas in New Literacies, the focus is on the contextual role of *digital technology use* on literacy practice.

Interdependence in Relation to Disabilities Studies Disability Studies as a field began in the 1980's in Western countries, including the United States, United Kingdom, and Canada, as a response to the prevailing medical, or clinical, perspective of disability.⁷³ Disability studies are interdisciplinary in nature and examine disability in context across historical, cultural, social, and political spheres – with an increasing focus on supporting disabled individuals' civil rights and quality of life.⁷⁴ Disability studies centers the study of disability as a social construct congruent with social models of disability.⁷⁵ Social models of disability, as we have previously detailed, view disability as not to be cured or eradicated – but rather supported and understood within the context of systemic barriers that precipitate social exclusion.⁷⁶

Disability Studies seeks to move the focus away from rehabilitation towards better understanding collective social responses and moves that systemically support or hinder disabled individual's inclusion, self-advocacy, and care.⁷⁷ This focus on the collective social response is complementary to our use of an interdependent frame centering inclusive engagement and connection. The use of an interdependence frame to center disabled students' experiences at FVA as productive and positive is also compatible with Disability Studies' key aim of de-stigmatizing disability and expanding the notion of disability as difference rather than deficit. The focus of an interdependence frame on individuals as both agents and receivers of change

also complements the Disability Studies aim of supporting the expansion of positive social attitudes towards individuals with disabilities.

Looking forward: Supporting a Fuller Vision of Inclusion

The past century has brought humanity into an increasingly interconnected and globalized world where concepts of independence as a social imperative no longer hold the same power they once did in the industrial era.⁷⁸ In an increasingly interconnected world, individual actions have ripple effects on the greater ecosystem, and as we have seen with countries' policy responses to global emergencies (e.g., climate change, the pandemic) ignoring this reality comes with great cost.

Global events, such as the climate change crisis or COVID-19 pandemic, bring into focus how countries whose citizens understand that their actions, and interactions, are interconnected are better able to confront far-reaching crises collectively. Countries' responses to such global problems serve as a real-world examples of the power of interdependence and demonstrate how moving towards an interdependent frame of thinking is more important than ever – for our personal and collective growth, health, and survival.

In the upcoming chapters we will use interdependence as an inclusive framework for exploring disability to better understand FVA's inclusive school culture, practices in language, literacy, and technology, as well as how digital technologies can be used to amplify student voice. In doing so, we argue that the true social value of technologies lies in their power to mediate interdependent relations between users. Finally, an interdependent framing is used to discuss broader applications of suggestions, policy, and best practice in bringing a fuller vision of inclusive education to fruition.

The remainder of this dissertation introduces the FVA community and illustrates how – through collaborative practices – the school used digital technologies to cultivate inclusion. Key factors and practices needed to realize inclusion in relation to FVA’s social uses of digital technologies are subsequently identified in Chapters 4, 5, and 6. Meanwhile, analytic approaches used to realize this endeavor are outlined in the following chapter.

3 Method for Investigating Inclusion

This chapter presents an overview of the methods that form the basis for findings discussed in this dissertation. It begins with a discussion of the author's positionality and selection of FVA as a study site and continues with a description of the context surrounding data collection and analysis at FVA. I discuss the rationale for using case-study and ethnographic approaches to collect and analyze interview, focus group, and classroom observation data.¹ I detail how we used three levels of analysis at the school, classroom, and focal family level to select a diverse range of families and staff for interviews varying across grade level, socioeconomic background, abilities and areas of need, and experiences with literacy and technology. I then describe the sources of data collected during the 2019-2020 and 2020-2021 school years that allowed us to address our research inquiries. Finally, I detail our use of qualitative approaches to analyze the interview, classroom observation, and document data including both first and second cycle coding and content analysis.²

Positionality

In conducting our investigation, I was not a neutral observer, having specific beliefs about the potential and affordances of using digital technologies to support inclusion and language and literacy practices within school communities – thus informing my analysis and writing. For example, as a disabled person, I use identity-first language to situate my disability as an inextricable part of who I am – it being common among marginalized folk to take terms typically deemed pejorative and re-appropriate them as a source of identity and strength (e.g., my Twitter

handle “Special Education student turned Scholar”). As such, in broad discussion of disability within school practice we may interchangeably use identity-first (“disabled students”) or person-first (“students with disabilities”) language, in recognition of the fact that language preferences vary across individuals in the disability advocacy and research communities.

Moreover, I have personal experiences as a parent of a child with disabilities, which inform my orientation toward social perspectives of disability as having the potential to be more supportive of inclusive classroom practices than medical models of disability. Professionally, my background as a researcher is precluded by my training as a reading interventionist. In this capacity I provided reading intervention services and programs to families of color in lower resourced communities via a variety of educational non-profits, university, and school settings, thus informing my decision and approach to center participant recruitment for this study primarily on families of color. These experiences inform individually developed beliefs about children with disabilities and the potential of technologies to support student agency and voice. As such, I adopt a social model of disability, grounded in the critical view that identity is intersecting and multiple, to interrogate the social-contextual impacts of school practices on disabled children’s lives.³ As a social constructivist, I also adopt the perspective that knowledge is co-constructed and is interdependent on a variety of individual and group processes that position schooling as a cultural process.⁴

In addition to experiential and conceptual underpinnings, our approaches to the study of disability, schooling, and inclusion were influenced by our research team’s relationship and connection to the school. The impetus and origin of this 2-year ethnographic research project, upon which the results of this dissertation are based, originated with our previous relationship with FVA’s Executive Director. This relationship existed prior to, and during, the collaborative

research practice partnership work we engaged in at FVA. This research practice partnership work was initiated through a mutual university connection with the research team as employees of the university and the Executive Director as an alumna and community partner of the university. Beyond the implementation of this study, our collaboration with FVA resulted in the regular sharing of thoughts, ideas, and plans for supporting mutually held research practice partnership objectives, including dissemination of research findings through conferences as well as implementation of teacher professional development opportunities.

Selection of FVA as Study Site

This study was primarily concerned with exploring and understanding 1) inclusive best practices in support of LLT practice, 2) how digital technologies were used to scaffold student agency and engagement within the classroom, and 3) how students used digital technologies to amplify their voice as readers and writers. FVA classrooms are ideal environments to explore these questions due to their integrated and inclusive settings with diverse students, varied and constant uses of technologies, teachers and staff who were interested in inviting us into the classroom, and families invested in supporting LLT practices at home.

FVA's unique school culture and organization (see Context) afforded an ideal environment for analyzing the ways schools could use digital technologies to support student inclusion, while developing their language and literacy skills. Moreover, FVA's developmentally and culturally diverse mix of students, which included minimally speaking students learning to use digital communication devices, illustrate the potential of technology to embody and empower student agency and voice. FVA as a study site also provided an opportunity to observe the affordances of using digital technologies to support the literacy practices of students with sensory processing

needs, for example those requiring additional support in engaging in cognitively demanding tasks such as writing.

Finally, FVA was an excellent site in that it gave us an opportunity to observe both challenges in implementation specific to FVA's unique inclusive setting, such as those related to consistent integration and use of assistive communication device for minimally speaking students.

Observations at FVA also afforded a view into the kinds of challenges more commonly seen in lower-resourced schooling environments attempting to integrate digital technologies into classroom practice, including those related to uses of 1:1 laptops and mobile media for students.⁵

Context

FVA is a full inclusion public charter school located in the Western United States serving 150 students with a variety of disability designations from culturally and linguistically diverse families. FVA provides an interest-based learning environment promoting inclusion using curriculum adapted to meet students' unique needs as outlined in their Independent Education Plans (IEPs). At the time of this writing, each of FVA's five combo-grade classrooms was team-taught by a special education and general education teacher. Each classroom received the support of 2-3 paraprofessionals and therapists offering push-in services (e.g., speech and occupational therapies) to students according to the service accommodations outlined in their IEPs.

During the course of the 2019-2020 and 2020-2021 academic school years, our research team collaborated with FVA to cultivate a research-practice partnership committed to exploring how digital technologies could be used to include and engage students while supporting their language and literacy practices. This process culminated in the development of the current study, as well as the implementation of teacher professional development activities promoting inclusive

uses of digital technologies (e.g., digital storytelling) at FVA. This research practice partnership sought to serve as a model for other institutions invested in promoting exceptional learners' agency and inclusion through inclusive uses of digital technologies.

Originally, this was going to be a yearlong study focused on conducting classroom observations of in-person instruction, in-person interviews with families and staff, and in-person collection of physical and digital artifacts during the 2019-2020 school year. However, the closure of schools, including FVA, in the spring of 2020 due to the pandemic, precipitated a shift in the continuation of our field study. As such, our fieldwork was conducted primarily in person during the fall and winter months of 2019-2020 and shifted to remote fieldwork in spring 2020. At this time, we carried forth with remote communications and interviews via email and zoom and we observed asynchronous classroom practice via google classroom.

During the 2020-2021 school year, we shifted the focus of our research practice partnership to supporting the immediate emergency remote learning needs of the school. Our assistance included placement of university undergraduate students in three of our 4 combo-grade classrooms to offer remote learning support. To continue chronicling FVA's practices during the 2020-2021 school year, we engaged in monthly check-ins with the Executive Director and conducted follow-up interviews and member checks with families and staff in the spring of 2021, which served to support initial analysis of findings and secure additional information.

Study Design

Remaining true to our origins as a research practice partnership, we collaborated with FVA's Executive Director in the implementation of the project. This included incorporating her

feedback into the study design, data collection procedures, and participant sampling and recruiting for the study.

In consultation with the Executive Director, we decided on the use of an embedded case-study design and ethnographic methodologies to analyze interview and classroom observation data.⁶ In this design, we used three levels of analysis at the school (one case), combo class grade level (four cases), and focal family (six cases) level (see Table 1 below).

Table 1. Embedded Units of Analysis

Unit of Analysis	Case(s)
School	One (FVA)
Grade	Four (K, 1/2, 2/3, 4/5 grade combos)
Families	Six (children per grade: K: 3, 1/2: 3, 2/3: 3, 4/5: 2)

We chose the case-study approach because it is appropriate for exploratory, descriptive studies, in which the goal is to develop a better understanding of contexts and processes – in this case the ways in which the school used technologies to support inclusion. Choosing an embedded case-study approach allowed us to develop a better understanding of inclusive best-practices and ways in which students utilized technologies to support language and literacy practices within the full inclusion setting. Taking an ethnographic approach allowed us to explore, describe, and interpret participants’ shared, and distinct, practices and perspectives – in this case, the ways students experienced themselves, their peers, and the greater school community, at school and at home.

At the school level, we explored the practices the school community engaged in during whole-school events and recess/lunch breaks through an analysis of school observation data collected in person Fall 2019 and Winter 2020 (See Sources of Data). At the classroom level, we

explored students' and teachers' uses of digital technologies in the classroom through analysis of weekly in-person classroom observation data in Fall 2019 and Winter 2020, as well as remote asynchronous classroom instruction in Spring 2020. During this time, we also collected writing samples and artifacts in coordination with teachers and staff.

We also explored staff's perceptions of their inclusive classroom practices and use of digital technologies through analysis of staff interviews conducted remotely via zoom or in-person Spring 2020 and Spring 2021 (see Sources of Data). Finally, at the focal family level, we explored families' perceptions of inclusion as well as their uses of digital technologies in home and community settings through analysis of family interviews. Family interviews were conducted in person at FVA Winter 2020 and either remotely or in person Spring 2021 (see Sources of Data). All staff and family interviews were audio recorded, transcribed, and anonymized. All participants were de-identified using pseudonyms.

Research Questions Guiding research questions were used to explore inclusive language, literacy, and technology practices at FVA. We define guiding research questions as those which are *process* oriented and support the intellectual and practical goals of an inquiry or study. This contrasts with what Maxwell refers to as *variable* oriented questions more common to quantitative approaches.⁷ Our guiding research questions were as follows:

What do inclusive school and classroom practices look like in an inclusive school community?

How do students, staff, and parents engage in literacy activities in an inclusive school community?

How do students, staff, and parents use digital technologies in an inclusive school community?

How do LLT practices support (or hinder) students' inclusion as fully engaged members in their school community?

Maxwell discusses the utility of flexibly using research questions in qualitative research to explore meaning and process – stating that such questions should evolve over time and advance the goals of the research at hand. As such, our guiding research questions were revisited often and were used to inform the development of our observation and interview protocols, and subsequent data analysis, to align with our stated goals and theoretical framework outlined in Chapters 1 and 2.

Protocol Development The observation protocol used to collect data at the school and class level was adapted by our team from the Teaching Dimensions Observation Protocol (TDOP).⁸ The TDOP is a classroom observation protocol designed to provide nuanced descriptions of teaching practice rather than an evaluative judgment of the quality of teaching. The TDOP can be used by researchers and educators under a limited educational license, is designed to measure critical dimensions of teaching behavior, and is customizable to fit specific research and instructional needs.

I piloted the observation protocol in Spring 2019 prior to officially starting the research project in Fall 2019. Initial piloting is a useful tool for developing and testing protocol items, developing a better understanding of participants' perspectives and behaviors, and support refinements to the theoretical framework.⁹ During this pilot phase I used informal classroom observations to iteratively refine the protocol to better capture the kinds of behaviors seen at FVA that could provide insight into answering our guiding research questions for the project. The refined protocol was used to collect classroom and observation data during Fall 2019 and Winter 2020 (see Table 2 below).

Table 2. Selected Observation Protocol Items

Guiding Question	Category	Sample Codes
What do inclusive school and classroom practices look like in an inclusive school community?	Special Education Services	<p>Structured Academic Instruction (SAI): teacher or service provider provides specialized help individually or small group.</p> <p>Speech therapy: one-to-one, pair, or small group services aimed at supporting speech development</p> <p>Occupational therapy: one-to-one, pair, or small group services aimed at supporting gross and fine motor development</p> <p>Reading/writing intervention: one-to-one, pair, small group instruction aimed at supporting reading/writing development</p> <p>Social Skills/Behavioral Supports: one-to-one, pair, small group intervention aimed at supporting student social and behavioral goals</p>
	Co-Teaching Practices for Inclusion	<p>One Teach, One Assist: One teacher provides whole group instruction while other teacher provides individual assistance.</p> <p>Station (Center) Teaching: Learner groups rotate between teachers and/or staff as they move from station to station as a group.</p> <p>Parallel Teaching: Learners are split into two groups and provided either the same, or complementary, lessons in their smaller groups.</p> <p>Team Teaching: Teachers coordinate and plan together to provide instruction together to learners within the same classroom.</p>
How do students, staff, and parents engage in literacy activities in an inclusive school community?	Literacy Activities	<p>Listening to connected text: Students are engaged in listening to text read by teacher or audio.</p> <p>Reading comprehension: Students are engaged in talking or writing about the meaning of text.</p> <p>Writing: Students are composing a specific piece of extended writing.</p> <p>Language development: Teacher help students attend to studying language, including figurative language, idioms; and grammar.</p>

We used insights gained from school and classroom observations – along with informal conversations with students, parents, and staff – to inform the development of staff and family interview protocols (see Table 3). The development of interview questions centered on exploring emerging themes and ideas that were becoming apparent from classroom observations as well as tapping into noticed patterns and tensions. As with the classroom observation protocol, we did

Table 2. Selected Observation Protocol Items (Continued)

How do students, staff, and parents use digital technologies in an inclusive school community?	Instructional Technology	<p>Demonstration equipment: overhead projector, Elmo, digital slides, clickers, TV screen, smartboard/whiteboard, other</p> <p>Devices (teacher and/or student): Tablet (i.e., iPad), Desktop computer, Laptop computer (i.e., Chromebook), other</p> <p>Digital content: Visual media (e.g., movie, documentary, video clips), social media (e.g., YouTube), Education apps, games, websites, other</p>
	Assistive Technology	<p>Mobility aids: wheelchairs, scooters, walkers, canes, crutches, prosthetic devices, and orthotic devices.</p> <p>Software/hardware: communication apps (i.e., Proloquo2Go), voice recognition, screen readers, and screen enlargement apps.</p> <p>Digital features: closed captioning, speech to text/text to speech functions, hot spots, adjustable font</p> <p>Environmental Modifications: playground equipment, class supplies, ramps, grab bars, wider doorways to enable access.</p>
How do LLT practices support (or hinder) students' inclusion as fully engaged members in their school community?	Classroom Engagement	<p>Making connections: Students are given examples (either verbally through illustrative stories or graphically through movies or pictures) that clearly and explicitly link class material to popular culture, the news, and other common student experiences.</p> <p>Problem solving: Students are asked to actively solve a problem (e.g., work out a mathematical equation) through explicit (e.g., "Please solve for X") or written (e.g., worksheets) requests to solve a problem.</p> <p>Creating: Students are provided with tasks where the outcome is open-ended rather than fixed (e.g., students are asked to generate their own ideas rather than finding a specific solution).</p>

our best to ensure that interview questions aligned with the guiding questions for the project.

This approach resulted in the interviews being used as semi-structured conversational tools for exploring and allowing families and staff to share their stories and experiences at FVA, particularly in relation to how technology could be used to support the inclusion of students as readers and writers at the school.

Table 3. Selected Interview Protocol Items

Category	Type	Sample Questions
Family	Parent	What adjustments have you needed to make in how you engage with school moving from a more “typical” environment to a full inclusion environment? How has the push-in structure at FVA benefited/challenged your child? What kinds of things does your family like to read or write about at home? In your opinion, how does your child feel about reading and writing? With and without technology? Is there a preference?
	Student	What do you like about FVA? What makes FVA special to you? Can you tell me your favorite parts of the day? Let’s talk about computers. Do you use computers for reading and writing? What is your favorite thing to do on the computer?
Staff	Teacher/Para-professional	What makes FVA different, or similar, to other schools? What did you expect? What surprised you? What have been the benefits/challenges of integrating technology into the full inclusion model? How is this similar/different from your use of tech in “typical” classroom environments?
	Speech/Service Provider	What adjustments have you needed to make in your delivery of services in a full inclusion environment using a push-in structure? How do you consult and collaborate with team members to meet students’ IEP goals? In your opinion, how do your students feel about communicating with and without technology? Is there a preference? Why?
	Administrative	What brought you to FVA? Could you share your reasons for working at FVA? Could you share your hopes and dreams for students at FVA?

Participants

School Demographics Students at FVA are linguistically and developmentally diverse given the lottery system that the school uses to recruit families from across cities in the county. All families live within the county parameters of FVA’s charter and have at least one child enrolled in K-5 at FVA. Students include both those with and without IEPs, of which approximately 21% have an IEP. Students have IEPs to address needed supports and accommodations for a variety of disability diagnoses including learning/reading disabilities, Autism, Down Syndrome, Cerebral Palsy, language delays/impairments, and physical/mobility needs.

Table 4 below details school demographic information for FVA in comparison to the school demographics of the surrounding county. While FVA’s school population is representative of the socioeconomic and cultural diversity found in the surrounding county, they have higher enrollment of lower income students of color, second language learners, and students with disabilities compared to the surrounding county.

Table 4. FVA School Demographics

Demographic	Future Visions Academy	Surrounding County
Students	120	450,000
Gender	52% female, 48% male	52%, 48% male
Race/Ethnicity	81% minority enrollment (64.2% Latinx, 19.2% White, 13.3% multiracial, 1.7% Asian, 1.7% Hawaiian/Pacific Islander)	75% minority enrollment (49.1% Latinx, 25% White, 16.9% Asian, multiracial 4.3%, Filipino 2%, Black 1.3%, 0.3% Hawaiian/Pacific Islander)
Disability	21%	13%
English language learner	37%	22%
Free/reduced price meals	63%	50%

Families at FVA Within the broader school population, we identified focal families with whom to conduct interviews (see Sampling & Recruitment below). Selected families were representative of the socioeconomic and cultural backgrounds of the broader FVA school population. The families also presented with a range of perspectives about, and rationale for, enrolling at FVA.

Parent participants tended to be self-selecting, committed to the principles of full inclusion, and strong advocates and supporters of FVA’s instructional model. Many of the parents arrived at FVA because they were not happy with their children’s previous placements, usually in Special Day Classes, at their prior schools. These parents typically enrolled at FVA precisely to

afford their children an opportunity to be educated alongside their already mainstreamed peers. As such, many of the selected child participants came to FVA having had placements in Special Day Classes at their previous schools and were now in the process of acclimating to learning in an integrated general education setting.

Table 5 below details demographic information for FVA families who participated in interviews during the 2019-2020 and 2020-2021 academic school years. 80% of families self-identified as BIPOC, 67% of families had at least one child with a disability and identified as either working or middle class, and 50% of families spoke a language other than English at home.

Table 5. Family Interview Participants

Parent	Child	Ethnic Self ID	Disability	Economic Status	Home Language	Grade (Class)
Madeline	Star	European & East Asian	Down Syndrome	Upper Middle Class	English	2 (Ohlin)
Dina & Noah	James Daniel	Latinx & Pacific Islander	Down Syndrome	Working Class	English	3 (Wezner) K (Macias)
Hilda	Leonardo Luigi	Mexican	Learning Disability	Working Class	Spanish/ELL	1 (Ohlin) 4 (Gomez)
Mira	Maddox Maya Marco	Filipino	None	Middle Class	English/some Tagalog	K (Jarvis) 4 (Gomez) 2 (Wezner)
Sara	Leon Isla	Mexican	None	Middle Class	Spanish/ELL	K (Macias) 3 (Wezner)
Blake	Finn Chandler	European	Autism	Upper Middle Class	English	2 (Ohlin) K (Macias)

Staff at FVA FVA uses a team-teaching model (see Chapter 4). In this model, five general education teachers and two special education teachers collaboratively plan together to provide instruction to students in their shared classroom. Grades are organized in the following combo-

grade configurations: TK/K, K, 1/2, 2/3, and 4/5. All general education teachers have earned their elementary teaching certification and all special education teachers have additionally completed an Education Specialist Instruction credential in the area of Special Education.

The teachers are supported by a team of four full time and five part-time paraprofessionals typically consisting of two to three paraprofessionals in each class at any given time. In addition to providing one-to-one support for individual learners, paraprofessionals engage in station teaching in which groups of learners rotate between staff as they move from station to station. Additionally, part-time speech and occupational therapists rotate among the classrooms providing push-in services. FVA also contracts with outside agencies to provide physical therapy, nursing, counseling, psychology, and adaptive physical education as needed.

Table 6 below details demographic information for FVA teachers and staff who participated in in-person classroom observations, as well as remote and in-person interviews, during the 2019-2020 and 2020-2021 academic school years. Twenty-one total staff participated of which 42% were paraprofessionals, 36% were teachers, 11% percent were service providers, and 11% percent were administrative staff. 100% participated in school/classroom observations and 47% percent participated in interviews. 57% of teachers were experienced with at least 5 years of teaching and 42% were in their 1st or 2nd year of teaching. All of the paraprofessionals were new to their positions with all being in their 1st or 2nd year. With exception of the SLPA, all administrative, services, and support staff had at least 5 years of experience in education.

Table 6. Staff Participants (* observation only, ** observation & interview)

Name	Position	Class	Experience	Ethnic Self ID	Language
Ms. Jarvis*	General Ed Teacher	TK/Kinder	Experienced teacher	European	English
Ms. Macias*	General Ed Teacher	K	Experienced teacher	Latinx	English & Spanish
Ms. Ohlin*	General Ed Teacher	1/2	2 nd year teacher	European	English
Ms. Wezner**	General Ed Teacher	2/3	1 st year teacher	European	English
Ms. Gomez**	General Ed Teacher	4/5	Experienced teacher	Latinx	English & Spanish
Ms. Haberly*	Special Ed Teacher	K & 4/5	2 nd year teacher	European	English
Ms. Severin**	Special Ed Teacher	TK/K, 1/2, 2/3	Experienced teacher	European	English
Ms. Davis**	SLP	All classes	Experienced provider	Multiracial	English
Ms. Alexa*	SLPA	All Classes	1 st year provider	Latinx	English
Ms. Carina**	Paraprofessional	2/3 & 3/4	2 nd year paraprofessional	Latinx	English & Spanish
Mr. Gabriel**	Paraprofessional	K & TK/K	1 st year paraprofessional	Latinx	English & Spanish
Ms. Sandy**	Paraprofessional	2/3 & 3/4	1 st year paraprofessional	European	English
Ms. Yadira**	Paraprofessional	TK/K & 1/2	2 nd year paraprofessional	Latinx	English & Spanish
Ms. Holly*	Paraprofessional	TK/K & 2/3	1 st year paraprofessional	European	English
Mr. Kellan*	Paraprofessional	1/2 & 2/3	1 st year paraprofessional	European	English
Mr. Anthony*	Paraprofessional	K & 1/2	2 nd year paraprofessional	Latinx	English & Spanish
Ms. Belinda*	Paraprofessional	1/2	2 nd year paraprofessional	Latinx	English & Spanish
Mr. Bernardo*	Paraprofessional	TK/K	2 nd year paraprofessional	Latinx	English & Spanish
Ms. Petersen	Special Ed Teacher	TK/K, 1/2, 2/3	Experienced teacher	European	English

Ms. Blaire*	SLPA practicum trainee	All classes	1 st year provider	European	English
Dr. Tully**	Executive Director	All classes	Experienced teacher and administrator	European	English
Ms. Cindy*	Office Administration	All classes	Experienced administrator	Latinx	English & Spanish

Recruitment

Staff at FVA After securing approval from FVA’s school board and our university Institutional Review Board, we conducted an informational meeting at FVA at the start of the 2019-2020 academic school year to introduce the research team, discuss the study with the staff, and answer questions. FVA staff were recruited in person and via email by FVA directly prior to this informational meeting.

We then contacted staff who self-selected and agreed to participate via email to finalize participation, secure informed consent, and schedule classroom observations and interviews (see Sources of Data). None of the staff were paid for their participation in the study and their participation extended through the 2019-2020 and 2020-2021 academic school years. Staff participated in-person classroom observations conducted by me in Fall 2019, Winter 2020, and Spring 2021. Staff participated in interviews, in person at FVA or remotely via Zoom, Spring 2020 and Spring 2021 (See Sources of Data).

Families at FVA We consulted with the Executive Director and teachers to recruit families using maximum variation sampling.¹⁰ Our goal in using maximum variation sampling was to select as diverse a range of participants as possible across cultural, linguistic, disability, and socioeconomic dimensions. This sampling method allowed us to explore a range of perspectives

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across a variety of families from diverse backgrounds – affording a more robust view into students’ and parents’ perspectives.

We conducted informational meetings with families at FVA at the start of the 2019-2020 academic school year to introduce the research team, discuss the study, and answer questions about all aspects of the study. Prior to the meeting, FVA distributed an opt-out letter explaining the study with an opportunity to opt out of the study. Parents who did not wish for their child to be in the study – either as part of classroom observations or interviews – were asked to opt-out by returning the signed opt-out letter or contacting their child’s teacher or us. Two families at FVA returned opt-out letters in total.

We also coordinated with the Executive Director and teachers to visit each classroom at the start of the 2019-2020 academic school year to explain the study, secure assent, and answer students’ questions. Assenting and consented students were included in in-person school and classroom observation data collected by me Fall 2019 and Winter 2020. Any students who did not assent, or whose parents did not wish for them to participate, engaged in classroom activities but were not included in classroom observation data nor participated in interviews.

Families identified by us, in coordination with the Executive Director and staff, for interviews received a Parent Interview Recruitment and Consent Letter. These letters were sent home with children by their teachers. Parents indicating interest in participating in family interviews were then contacted by me to set an interview appointment. Focal students whose parents provide informed consent to be interviewed, were also asked to provide assent using a child assent protocol developed by us, in coordination with FVA staff, to meet the communicative needs of

each student. Consenting families were interviewed by me afterschool at FVA in Winter 2020 and remotely via Zoom in Spring 2021 (see Sources of Data).

Sources of Data

Data sources collected using the protocols described above included 1) detailed field notes, taken in 10-minute intervals, of 49 weekly 60-minute in-person passive classroom and school observations, conducted Fall 2019 through Winter 2020, as well as Spring 2021; 2) verbatim transcriptions of 14 initial and follow-up audio-recorded semi-structured staff interviews (4 teachers, 4 paraprofessionals, 1 speech-language pathologist, 1 administrator, 30 minutes each), conducted, remotely or in-person Spring 2020 and Spring 2021; 3) verbatim transcriptions of 26 audio-recorded semi-structured family interviews (7 parents, 12 children, 30 minutes each) conducted in-person Winter and Spring of 2020 and remotely Spring 2021; and 4) school-, teacher-, and student produced documents and artifacts including writing samples, video and photographs of digital technologies used in classrooms, as well as synchronous and asynchronous paper-based and digital instructional content. Collection of data for school observations, staff interviews, and family interviews is detailed below and in Tables 7, 8, and 9 respectively.

School and Classroom Observations Participating staff experienced me coming into their classrooms to conduct weekly in-person classroom observations during the fall and winter of the 2019-2020 school year, as well as the spring of the 2020-2021 school year once students returned to in-person learning (see Table 7). Sixty-minute classroom observations were scheduled in coordination with participating teachers in-person and via email. During classroom observations

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I passively observed interactions between students and teachers, students, and students, and students and supporting staff. On occasion, students would approach me to ask a question or say hi. I would briefly say hello and immediately redirect them to their assigned class/group activity.

Table 7. Classroom and School Observations

Location	Teachers	Supporting Staff	Number, Date & Type
TK/Kinder	Ms. Jarvis Ms. Severin	Paras: Ms. Yadira, Mr. Gabriel, Ms. Holly, Mr. Bernardo Speech: Ms. Davis, Ms. Alexa	Literacy Centers (10/28/19, 11/18/19), Speech Language Goals/Literacy Centers (1/9/20, 1/23/20, 2/13/20)
Kinder	Ms. Macias Ms. Haberly	Paras: Mr. Anthony, Mr. Gabriel, Mr. Bernardo Speech: Ms. Davis, Ms. Alexa	Phonics/Silent Reading (10/21/19), Math Centers (10/28/19), Speech Language Goals/Literacy Centers (1/9/20, 1/30/20, 2/6/20, 2/13/20), Speech Language Goals/Literacy Centers (2/19/20)
1/2 Combo Class	Ms. Ohlin Ms. Severin	Paras: Ms. Yadira, Mr. Kellan, Mr. Anthony, Ms. Belinda Speech: Ms. Davis, Ms. Alexa	Math Centers (10/28/19), Literacy Centers (11/4/19, 11/11/19), Speech Language Goals/Social Skills Whole Group (2/13/20), Speech Language Goals/Literacy Centers (2/26/20)
2/3 Combo Class	Ms. Wezner Ms. Severin	Paras: Ms. Carina, Ms. Sandy, Mr. Kellan, Ms. Holly Speech: Ms. Davis, Ms. Alexa	Storytime (10/21/19), Math Centers (11/4/19), Independent & Whole Group Writing (11/18/19, 5/26/21), Reading Whole Group (12/2/19, 5/26/21), Speech Language Goals/Phonics Whole Group (1/9/20), Speech Language Goals/Literacy Centers (1/23/20, 5/26/21), Speech Language Goals/Social Skills Whole Group (2/26/20),
4/5 Combo Class	Ms. Gomez Ms. Haberly	Paras: Ms. Carina, Ms. Sandy, Ms. Holly Speech: Ms. Davis, Ms. Alexa	Independent Writing (10/21/19), Science Whole Group (11/4/19), Independent Writing (11/18/19), Writing Whole Group (12/2/19), Speech Language Goals/Social Skills Whole Group (1/9/20, 1/30/20, 2/13/20), Speech Language Goals/Grammar Whole Group (2/6/20)
Whole School	All Staff	All Staff	Team Collaboration Meeting (10/11/19), Flag Day & Class Rotations (10/14/19), Staff Lounge (10/21/19, 11/18/19, 1/23/20), Digital Storytelling PD (10/24/19-10/25/19), Front Office/Staff Lounge (10/28/19, 10/30/19, 5/26/21), Holiday Assembly (12/19/19), Recess (2/13/20, 5/26/21)

During these observations I collected preliminary information and took notes on student, teacher, and supporting staff interactions in 10-minute intervals using the observation protocol described above, paying particular attention to when, why, how, with whom, students and teachers engaged in literacy activities with and without technology, as well as when – and how – they were included and engaged in classroom activities. During shifts in classroom activity, for example during centers, I would rotate across the classroom to acquire a better view of the observed activities. On occasion, the class would leave the classroom to conduct an outdoor activity, at which time I would shadow them and continue taking field notes until the 60-minute observation period concluded.

At the conclusion of each observation, I wrote post-observation analytic memos noting any over-arching observations, analysis, and thoughts specific to incidents or activities of particular interest that may have occurred during the session. These memos, along with the observational data recorded in 10-minute intervals, provided the school and classroom observation data to be analyzed for the study (see Analysis section below).

During the course of my visits to FVA to conduct classroom observations, the teachers and staff would recommend additional activities, class times, and school events for me to observe. So, in addition to regularly scheduled classroom observations, I also observed whole school activities – such as FVA’s Winter Wonderland celebration – as well as recess and lunch breaks. I was also invited to spend time in the staff lounge. While in the staff lounge, I had the opportunity to chat with staff about their experiences at FVA, building a more complete picture of life at the school.

The transition to remote learning in the Spring of 2020 was a sudden one. I received an email from the Executive Director March, stating that in person class instruction, and therefore classroom observations, would need to be ceased. At this time, we agreed that the best way forward was to take a pause while FVA sorted out how it was going to move forward with remote learning for the remainder of the year. In April 2020, I had a follow-up meeting with the Executive Director via Zoom and we decided that I would reach out to participating teachers to ask to be granted access to their asynchronous Google Classroom platforms.

Two teachers, Ms. Wezner and Ms. Gomez, agreed to grant me remote access to their Google Classroom platforms and I reviewed asynchronous content for the 2/3 and 3/4 combo grade classrooms in Spring of 2020. Ms. Wezner also invited me into her classroom for additional classroom observation during Spring 2021 upon the return of in-person instruction at FVA. While no formal data collection occurred in the Fall and Winter quarters of the 2020-2021 academic school year, I initiated and supervised the provision of pandemic remote learning support, facilitated by undergraduates from our partner university, as part of our extended research practice partnership work.¹¹

Staff Interviews The unanticipated move to emergency remote learning in March of 2020 resulted in initial staff interviews being conducted by me during Spring and Summer 2020, and again the following year Spring 2021 upon the school's return to in-person instruction. Initial and follow-up semi-structured staff interviews were conducted remotely via zoom from our respective workplaces or in-person at FVA depending on staff preference (see Table 8). All interviews were audio-recorded, anonymized, and transcribed.

Interviews were scheduled in coordination with participating staff via email. During interviews, I actively listened for repeating and diverging themes in participant responses to questions outlined in the interview protocol described above and asked follow-up questions accordingly. This process also included asking participants to comment on points of interest and tension brought up by other interviewees as themes began to surface. I always concluded each interview by asking participants to share additional commentary of their choosing and responded to any questions they had or felt I should ask.

Table 8. Staff Interviews

Staff	Position (Class)	Location (Date)
Ms. Wezner	General Education Teacher (2/3 combo)	Remote (4/20/20), In Person (4/23/21)
Ms. Gomez	General Education Teacher (4/5 combo)	Remote (5/21/20)
Ms. Severin	Special Education Teacher (TK/K, 1/2, 2/3 combo)	Remote (5/6/20)
Ms. Petersen*	Special Education Teacher (TK/K, 1/2, 2/3 combo)	In Person (4/30/21)
Ms. Davis	Speech Language Pathologist (All classes)	Remote (5/4/20)
Ms. Carina	Paraprofessional (2/3 & 3/4 combo)	Remote (4/27/20)
Mr. Gabriel	Paraprofessional (K & TK/K combo)	Remote (4/20/20), Remote (5/20/21)
Ms. Sandy	Paraprofessional (2/3 & 3/4 combo)	Remote (4/22/20)
Ms. Yadira	Paraprofessional (TK/K & 1/2 combo)	Remote (4/20/22), In Person (4/23/21)
Dr. Tully	Executive Director (All classes)	Remote (6/2/20), Remote (6/3/21)

Since interviews were audio-recorded, I focused my attention on actively engaging with participants, resulting in rich conversational interview content. For all interviews, I wrote notes, both during the interview and after, as unstructured memos in a project notebook reserved solely for this purpose. Informal memos were used to document surfacing themes, points for further inquiry, and follow-up questions and to do items.

The decision to conduct follow-up staff interviews in the Spring of 2021 was made after initial interviews were completed and was informed by several factors. First, many of the staff were in their first year of either teaching or working as a paraprofessional and the team was curious to see how their practices and perspectives would change over time. Secondly, it became evident that the approach to incorporating digital technologies into instruction was impacted by competing priorities related to FVA being in the piloting phase of implementing the full inclusion program (see Chapters 4-6). Finally, the shift to remote learning prompted additional inquiry into how digital technologies were used to support language and literacy practices in relation to the shift to remote learning.

Family Interviews Initial family interviews were conducted Winter 2020 and again the following year during Spring 2021. Initial and follow-up semi-structured staff interviews were conducted, remotely via zoom from our respective homes or in-person at FVA or in the family's home depending on family preference (see Table 9). All interviews were audio-recorded, anonymized, and transcribed.

Family interviews were scheduled in coordination with participating families in-person after school or by phone. As with staff interviews, during family interviews, I actively listened for repeating and diverging themes and asked follow-up questions accordingly. I always concluded each interview by asking participants to share additional commentary or questions of their choosing and responded to any questions they either had of the research project or felt I should ask participants.

The family interview process itself entailed interviewing the children first, with the parent usually sitting nearby – occasionally offering support or redirection depending on the child's age

and needs during the interview. After the child portion of the interviews, I would interview the parents. During the parent portion of the interview, the children would typically sit nearby, drawing using the art materials I provided or attending to games and apps on a parent’s borrowed mobile phone. On occasion, if the interview was held at home or near FVA’s school playground, the children would venture outside to play while waiting for their parent to complete their portion of the interview.

During family interviews, I focused my attention on actively engaging with participants, and included breaks and modifications to the protocol as needed. This flexible approach was meant to create a comfortable and engaging environment for the families, the result of which was rich conversational interview content. Unlike staff interviews, I opted early on to write notes after, and not during, the interviews to avoid the distraction they sometimes caused for the children. Notes were written in the form of informal memos and were used to document surfacing themes, points for further inquiry, and follow-up questions and to do items.

Table 9. Family Interviews

Parent	Child (Grade/Class)	Location (Date)
Madeline	Star (2 nd /Ohlin)	In Person (1/28/20)
Dina & Noah	James (3 rd /Wezner) Daniel (K/Macias)	In Person (2/6/20)
Hilda	Leonardo (1 st /Ohlin) Luigi (4 th /Gomez)	In Person (2/10/20)
Mira	Maddox (K/Jarvis) Maya (4 th /Gomez) Marco (2 nd /Wezner)	In Person (2/25/20), Remote (5/5/21)
Sara	Leon (K/Macias) Isla (3 rd /Wezner)	In Person (3/6/20), Remote (5/4/21)
Blake	Finn (2 nd /Ohlin) Chandler (K/Macias)	In Person (6/6/21)

The decision to conduct follow-up family interviews in the Spring of 2021 was made after initial interviews were completed and was influenced by factors similar to those informing our decision to conduct follow-up staff interviews. As with staff, we were curious to see how families' practices and perspectives regarding using digital technologies to support language and literacy practices might change, particularly in relation to the shift in remote learning.

Analysis

In our case study design, we incorporated qualitative approaches to analyze interview, classroom observation, and document data as follows:¹²

First and Second Cycle Coding¹³ We first randomly selected a sampling of data to identify themes and categories across the data using initial coding. We used this first cycle of coding to identify all resulting codes that could pertain to inclusive practices, language and literacy activity, and uses of digital technologies in the classroom. We then used a second of cycle of coding to refine, consolidate, and subsume these codes into categories and themes. These results were used to develop a codebook for analyzing the remainder of the data using content analysis.

Content Analysis¹⁴ We then used the codebook developed in Step 1 to conduct a directed content analysis of the data. Directed content analysis is a sweeping analytic strategy that will allow expeditious coding of broader segments of data in relation to the selected theoretical perspectives.

Analytic Description¹⁵ As we engaged with students, teachers, staff, and parents in the process of collecting observation and interview data, we also noted our resulting thoughts, reflections, analyses, and descriptions of setting and interaction through analytic memoing.

These analytic memos were triangulated with analysis from coding and content analysis to form a basis for descriptions of culture-sharing, meaning making, social groupings and interactions, and surfacing cross-case themes.

Ensuring Trustworthiness

We ensured trustworthiness using multiple methodological strategies to minimize researcher bias and address reliability and validity concerns as they related to our collection, implementation, and analysis of data. First, we used a constant comparative method of analysis to discuss the results of first and second cycle coding with the research team and the executive director at the school to mitigate researcher bias and reliability concerns related to the development, revision, and application of a coding scheme to data.¹⁶

Next, we used a modified application of the Weber (1990) protocol to mitigate coding reliability concerns. The Weber protocol consists of defining units of analysis, categories and codes to create a coding scheme; applying the coding scheme to a data sample; and assessing and revising the coding for accuracy.¹⁷

We addressed truthfulness and validity of findings using respondent validation, in which we invited study participants to comment on whether identified themes and concepts accurately reflect their experiences.¹⁸ We also addressed truthfulness and validity by continuing to recruit and conduct interviews, as well as observations, until we reached saturation, which we noted once we kept seeing a repetition of topics, themes, patterns, and behaviors.¹⁹ Finally, we used triangulation using multiple data sources and analytic methods to approximate more comprehensive findings.²⁰

4 Future Visions Academy: An Inclusive School

In this chapter, we discuss the particular ways in which FVA strove to ensure that the social organization of the school facilitated a fully inclusive environment for students to thrive. FVA is a county public charter school founded in 2018 as a model of inclusive education and instructional equity. Co-developed by multiple stakeholders, including parent advocates, FVA serves the needs of culturally and linguistically diverse students with and without disabilities across the entire county. As discussed in Chapter 3, FVA represents the linguistically, culturally, and socioeconomically diversity of the cities that make up the county with 37% English Learner designation, 63% qualifying for free/reduced price meals, and 81% identifying as BIPOC. Approximately 21% of the students in the classes we studied had IEPs with varied disability designations.

As such, FVA strove to be unique among other schools in the County with diverse-by-design classrooms that bring students with and without disabilities together in an interest-based learning environment with a focus on students' socioemotional growth and care. Aligned with intentional practices observed at the school, FVA recognizes the diversity of their campus in its description of the school's mission, as outlined here in an excerpt from the FVA Parent Handbook, which parents review and sign as a condition of their child's enrollment in the school:

FVA is grounded in an inclusive vision of education, and a schoolwide learning community cultivated intentionally to promote friendship, empathy, and the joy of new discovery. Students at FVA are active learners who engage in group problem-solving, critical thinking, creativity, communication and collaboration. All members of the FVA community – students, staff, and families – honor and celebrate the diverse range of socioeconomic and cultural backgrounds, abilities, languages, perspectives, and interests

students bring to the learning setting. FVA aims to maximize every child's learning potential within an atmosphere of caring and belonging. The FVA instructional philosophy rests upon the concepts of hands-on learning, meaningful instructional activities, systematic instruction, and a collaborative group of professionals working together to make the learning environment exciting for students.

Given FVA's origins, mission, and demographics, our study of inclusive practice at FVA centered on marginalized voices of families of color – a departure from prior research on disability, technology, and education centering on majority white, higher-resourced, families. As such, we intentionally recruited family participants with racially, linguistically, culturally, and developmentally diverse children that reflected the demographics of the school and community (e.g., high and low-income immigrant families from rural and urban Mexico, working and middle-class mixed race and 2nd generation families, as well as families whose children had a variety of disabilities or, in some cases, no disabilities (see Chapter 3). Our analyses focused on how these families' diverse life experiences, combined with school practices, shaped the education and development of their children and how they draw on their funds of knowledge and shared cultural wealth to address challenges.

FVA is a tight-knit school community bonded over a shared need to support families and teachers in meeting their students' exceptional needs. As such, the social organization of the school centered on learning practices that prioritize the cultivation of peer-to-peer socialization and inclusion of students with and without disability across shared school spaces, as shared by Dina, mother to 3rd grader James and 1st grader Daniel:

It matters to me that inclusion is part of their daily focus and that the entire staff – from the front office to the teachers to even the volunteers – really, really have an example of what that looks like. It's not something that they just talk about. They have play structured around it. They have activities in the classroom that support inclusion.

With this focus in mind, FVA strove to ensure that the social organization of the school facilitated a fully inclusive environment for students to thrive. This organization included the use

of collaborative team-teaching configurations to facilitate learning; combo-grade level groupings to encourage peer modeling between older and younger students; and active parent volunteerism and participation. Critical to the team-teaching structure was the integration of services providers (e.g., speech language and occupational therapists) into the classroom in the provision of push-in services – a distinct deviation from services typically delivered as segregated pull-out sessions. Notably, paraprofessionals were fully integrated into the operation of the school’s full-inclusion model and went beyond a traditionally auxiliary role in the classroom to serve as cultural brokers between teachers and families; as well as create and lead social skills content centered on cultivating inclusive communication practices within the school.

As outlined in Chapter 3, observations of classroom learning and school-wide practices – as well as interviews with students, parents, teachers, and staff – were all used to document inclusive practices within the school community. These observations led us to identify four principles that guided the ways in which FVA ensured that the social organization of the school facilitated a fully inclusive environment: *Creativity and Innovation*, *Autonomy and Choice*, *Culture of Kindness*, and an *Intersectional Vision of Inclusion*. In this chapter, we discuss in greater detail the specific principles of inclusion at FVA that were identified as foundational to supporting FVA’s conceptualization of inclusion.

Creativity and Innovation: We Innovate Processes that Work for our Needs and Goals

Key to FVA’s success was its customized implementation of collaborative practices. Four factors supporting creativity and innovation at FVA included use of a team-teaching model of inclusion with push-in services; philosophical differentiation of what inclusion specifically means at FVA;

Dr. Tully's unique background and instructional leadership as Founder and Executive Director of FVA; and intentional recruitment of staff and families with inclusive orientations.

FVA Team Teaching: Collaboration as Ecosystem Team collaboration at FVA is a constant and telltale sign of FVA's innovative approach to teaching and learning. Ecological in nature, collaboration is integrated into classroom lessons, activities, and interactions between immediate and extended members of the FVA community. In chatting with Ms. Carina, a paraprofessional, she indicated that constant communication made teaching at FVA a team effort. Continual communication across team members allowed Ms. Carina to feel connected to the work of inclusion, as well as informed about approaches the team took to support students:

When something new starts, I don't feel completely lost because we're all learning together. So, I think one of the biggest best surprises of [FVA's inclusion model] would be how everybody is pouring into each other like, 'Hey, we're all in this together.'

The symbiotic nature of Ms. Carina's description, "pouring into each other," alludes to the interdependent approach that FVA takes in implementing its inclusion model. This interdependent approach to team teaching is ecological and involves the paras and teachers sharing happenings continuously via walkie talkies, even as they float past each other, as Ms. Sandy describes:

Me and the paras, we're always communicating. We're always looking at each other like 'You need me to jump in?' Like talking about what's worked for us [in collaboration meetings] at the end of the day – that's what helps the most because we get to hear feedback from each other and hear what works... The way that Dr. Tully has it set up is that we're constantly moving. She wants us all to be able to be in any classroom working with any kid at any time. So that, not only that, we don't get comfortable, but also that the kids aren't just attached to one person, you know?

In this excerpt, Ms. Sandy, another paraprofessional, discusses the intentional role that Dr. Tully plays in shaping the nature of collaboration at FVA – including the goal of supporting complete interdependence at FVA by not restricting specific staff to specific classrooms – as is often the

case in special day classes.¹ Here Ms. Sandy cautions a consequence of 1:1 support staff assignments: students become overly dependent on individual staff, effectively limiting students' ability to be fully included and integrated across general education settings and staff.

The IEP Development Process Collaboration also permeated the IEP writing process at FVA. IEPs, individualized education plans integrating goals and services aimed at supporting education in the least restricted environment, are typically written by a Special Education teacher. This typical delegation can have a myopic or segregating effect on how curricula is taught.² At FVA, writing IEP goals was collaborative with the general education teacher playing a significant role in identifying goals for students that could be extended at the broader classroom grade level content for all students. Ms. Severin, a special education teacher, describes her deeply collaborative approach with general education teachers at FVA as follows:

I use my lens to say, "Okay, how do we create that access bridge for the kids?" And that's very personalized based on where the kids are at. And then what always happens is that we'll come up with, 'Okay, so here's the bridge, here's the access, here's what we're going to do.' And then we go, 'Okay, that's helpful for everybody.' So, then we just roll it out to the whole class [laughs]. So that's what collaboration looks like, and also planning how we're going to co-teach... I will sit down over lunch and take notes from [teachers] on what they see. So even though it's in my job description to write the IEP, I really can't write a quality IEP without their input. I'll bounce goals off them and I'll say 'Okay, so the student is here in math, what's coming up next year in the next grade? How do we write a goal that is not only relevant to the kid but that's relevant to the curriculum coming up?' Cause it's useless to write a goal that's not going to be taught in class.

A purpose of this deep collaboration between the general education and special education teachers is to develop student IEP goals that support integration of students with IEPs into general education settings; as well as integrate key content beneficial to *all* students into the general education curriculum.

Push-in Services: Unique to Full Inclusion Model Providers' push-in of services to students at FVA is another unique aspect of FVA's full inclusion model. Services at FVA are pushed into

the general classroom setting, in contrast to school programs which either place students with IEPs in special day classrooms or pull students out of general classroom settings to receive services, including speech therapy, occupational therapy, or specialized academic instruction. For Ms. Davis, FVA's speech language pathologist, FVA's unique service approach afforded students the benefit of peer-to-peer modeling:

I've enjoyed getting to know and build rapport with all the students. The students that aren't on my caseload get to see how we help students with SLI, and in turn become great peer models for the students on our caseload.

A notable benefit of pushing services in was the transformative effect it had on FVA students as peer models. In traditional pull-out services, particularly for speech, a challenge is that the adult provider is often the speech model for the child. This could have limiting effects on students' progression towards speech goals, including ability to generalize skills learned across multiple social settings.³ Engaging all students in the provision of speech services potentially affords service providers the opportunity to develop a better understanding of how classroom and peer dynamics can be used to support the meeting of individual students' IEP goals. At the same time, implementing a push-in model of service delivery is not without its challenges, as described here by Ms. Davis:

Planning therapy to meet everyone's need is challenging. You really have to be creative in working to address the student's IEP goals but still be engaging enough for the students that don't have a disability, since no pull-out is allowed. It's important to be open minded and flexible, writing goals to be measurable may need to be different than in a traditional setting, a must is finding time to collaborate with the staff.

Ms. Davis cites, both here and across several conversations, the tensions that existed between the push-in model of service delivery at FVA and the ways and means by which most service providers – herself included – are trained and mandated to deliver services and report progress towards goals in the IEP. These points of tension form a major source of challenge at the heart of

a lack of training and institutional support for service providers and schools attempting to implement a push-in model of service delivery.⁴

As such, a significant revision of policies addressing delivery of services is needed – outlining of a more inclusive definition of “what counts” as provision of service. This includes institutional revision and support in 1) the development of IEP goals conducive to push-in service provision, 2) extended collaboration between teachers and providers, and 3) a revision of how progress towards goals is defined, documented, and reported. Ultimately, challenges to these needs endanger the feasibility of push-in services and can become obstacles to implementing integrated models of inclusive programming.

Presumed Competence: A Paradigm Shift in being Inclusive In addition to a unique service implementation structure, how inclusion is defined and operationalized at FVA differs fundamentally from other schools we’ve observed. First, inclusion at FVA is positioned as a moral imperative. Inclusion is strongly felt as a prerequisite for all interactions and educational endeavors – the seeking of which should compel people to act in ways that are supportive of the full integration of persons with and without disability. This non-negotiable stance at FVA centers on presuming competence – that is, centering behaviors and intentions on the belief that all students can learn and engage as expressed by Ms. Gomez, FVA’s 3/4 grade combo teacher:

We welcome every single child and that there is very firm. No child will ever be removed from our classroom for services. So just knowing that – and how much even all the paras, the teachers, we all believe in the ability of every single student – is very refreshing. And you know, we always presume competence with everyone.

Ms. Gomez expresses the unequivocal stance at FVA: nobody gets removed and nobody gets left behind. Everyone is included. She also emphasizes the point that all staff adhere to this belief – an important distinction touching on the need for successful school programs to have a unified

school culture with intentional messaging.⁵ Moreover, Ms. Gomez touches on presumed competence as an important aspect of FVA's inclusion. The premise of centering inclusion on presumed competence is central to a social justice perspective of disability and is a prerequisite for creating opportunities for participation and inclusion within school communities.⁶

Ms. Gomez's commentary points to the bedrock foundation of how FVA defines and implements inclusion. A commitment to never removing a student from the general education classroom creates impetus and rationale for engaging in multiple forms of modification. Integrating students of diverse ability levels and needs requires substantial content differentiation and modification. Content modification thus becomes prerequisite for creating participatory access to the classroom curriculum.

Another fundamental component of presuming competence is the belief that educators must give students opportunities to succeed.⁷ Ms. Wezner, FVA's 2/3 combo grade general education teacher, explains the necessary relationship between opportunity and presumed competence, integral to how inclusion is operationalized at FVA:

I didn't do my special ed student teaching there. I was with a learning center model. Then coming [to FVA] after a whole semester of teaching in a learning center, I was like, 'I don't know how this is going to work.' For the first couple of weeks, I thought 'this place is my dream and I don't know how the kids are making progress here.' Then, after a month or so of getting in the groove, I was like, 'Oh my gosh.' There was this insane difference of how much the kids were growing. I was like, 'I cannot believe how much more all these kids are doing when they do have those general ed, typically developing, peers with them.' In our ESI classes, it was almost like no one had a place to look for a peer model... Just coming from other schools where I've seen what I thought was super inclusive and great models for inclusion, [FVA] is blowing that out of the water to the point where I'm like, 'That's not inclusion. What are you talking about?' And those kids that never get the chance to even try doing a general ed assignment. It's like having that shift of your mindset being, 'Oh, they can try this and we can see.' I think about it often with more severe disabilities in the class who participate in such a great way on a gen ed assignment, and then think 'they would never have that chance at a different school.'

Ms. Wezner echoes Ms. Gomez's sentiments on the importance of presuming competence and shifting one's mindset to believe that all students must be given a chance to participate. She reflects on the rarity of seeing students designated as having moderate to severe disabilities integrated into general classroom settings.⁸ She also cites the common perception that students designated as having moderate to severe disabilities are best served in segregated classroom environments – a belief prevalent among schools.⁹

This desire for a presumption of competence when teaching students with disabilities was reiterated by parents we interviewed, particularly those with children identified as having significant needs due to a disability designation such as Autism or Down Syndrome. For example, in describing her reasons for enrolling Star, a 2nd grader with Down Syndrome, at FVA, Madeline alludes to the aversion school districts have in allowing for general classroom placements of children identified as having significant needs due to a disability:

I was thinking about asking [Star's prior school] to change up her education goals cause I noticed that she was very bright. I took her to tutoring and they all said, 'you know what, Star doesn't belong in a moderate to severe classroom.' Everyone pretty much said that... I had never even heard of FVA and I was just thinking, 'Oh my gosh' because I heard horror stories about trying to advocate, you know, for kids to get into mainstream.

Madeline describes a common battle that parents of children with disabilities face in trying to get schools to integrate their children into the general education setting. For Madeline, Star's potential as a student should be what guides the choices surrounding her inclusion in a general education setting, however as she notes above, schools are reticent to do so, due in part to an inability to presume competence:

So, I think here [at FVA], from the get go, there was already that foundation built in that we're going to work together. Whereas, like I said, I've talked to people on the outside and it's always like they feel like the teacher is kinda is frustrated because they don't know. It's like, 'Okay, here's a kid. Help them and help your other 25 kids too.' So, they don't have, I don't think that support. So, I think that's the main difference here.

Like Ms. Wezner, Madeline believed that this lack of presumed competence was related to insufficient training and experience, coupled with inadequate support and resources – all of which were partly to blame for schools’ reticence to integrate disabled students into the general education classroom. In these discussions, it became clear just how difficult this shift in thinking was – with staff and parents themselves indicating the difficulties, frustrations, and doubts that come with advocating for presumed competence.

In many ways, the staff and family commentary we encountered pointed to the leap of faith that families and staff at FVA had to take in supporting a full inclusion model of schooling. This leap of faith included presuming competence and believing in students’ abilities to achieve levels of success that went beyond pre-prescribed notions of what disabled students can and can’t do.

Dr. Tully’s Background and Instructional Leadership FVA’s success as a full inclusion school would be incomplete without a discussion of Founder and Executive Director Dr. Tully’s background. Considering Dr. Tully’s background as an educator with more than 20 years of experience as a general education teacher, special education teacher, teacher educator – at both typical and inclusively modelled schools – was critical to understanding both the philosophy and execution of how inclusion was operationalized at FVA. During many discussions and interviews, Dr. Tully circled back to how her personal histories as a teacher, school leader, and parent, informed FVA’s origins and founding principles:

My [childhood school], it's an elementary school and a graduate school on site. It's part of the progressive education movement from John Dewey times. So, my elementary learning experiences were in this very integrated, intentionally open, classroom project-based environment. I grew up with a real justice commitment related to that.

I went into special ed because I was really interested in people that were different than what the norm said you should be. I went into special education to understand what's being normed and what's being called abnormal... So, I studied special education.

I just had a real interest in flipping the script in a justice-oriented way. I just always did. That was my early childhood. And I did that as a gen ed teacher. And I would really look for ways to highlight the strengths of kids that were marginalized as a teacher. Right? Like 'what is it about this person who has a reading disability that's going to be featured as awesome in front of all their friends? What are we going to do to move this around?'

I did that for about two years then when I came to the West Coast, I taught at [an inclusive model school]. So, then I got experience in the practices of inclusion that you see at FVA, like the structures and co-teaching and all that. I've been working with teachers for many, many years on universal design, differentiated instruction. Strength-based teaching all the kinds of mindsets and strategy approaches that we use at FVA. It's all built on my whole history of that.

Dr. Tully's commitment as an instructional leader is clearly apparent to staff at FVA, manifesting in the ways she supports teachers and paraprofessionals in the modification and delivery of instruction. Dr. Tully's beliefs in how instruction should be differentiated also informed the delivery of professional development for staff. As such, professional best practices, such as formative classroom observation with feedback and modeling, were quite common at FVA. This level of professional support contrasted with what several of the more experienced teachers at FVA had experienced in prior school placements – echoing a common concern within education that there is not enough time or support dedicated to teacher professional development.¹⁰ Ms. Gomez cites the need for comprehensive professional development in her description of Dr. Tully's support for her teaching at FVA:

Our principal is an instructional leader. There've been times throughout these two years that I've been at FVA where she will sit with me and help me lesson plan or she'll help me out with UDL, universal design. And when she gives us feedback from observations, it's just so helpful. You know, helping with modifications, how to include everyone in the classroom. That has been beyond beneficial. And unfortunately, I haven't really had that in my other 12 plus years of teaching.

A major aspect of Dr. Tully's instructional leadership included preparing teachers and staff for the challenges involved in adapting to teaching at a school that uses a full inclusion model. Again, this level of insight and support would not have been possible without Dr. Tully herself having prior experience implementing full inclusion programming as a teacher. As such, all staff,

except for Ms. Severin, were new to the full inclusion model and needed substantial support from Dr. Tully in this respect. Ms. Wezner shares a fundamental lesson in successfully adopting a “full inclusion mindset” that Dr. Tully gave her:

Dr. Tully said to me in the beginning: ‘you have to let go of closing that gap completely.’ Especially in the older grades, they’re going to make a ton of progress, but they’re not necessarily going to be at grade level by the end of the year if they were already so behind. I think in the beginning of the year, that was really beating down on me. Like, ‘how am I going to get this kid who’s barely counting to now be multiplying? How can I do that?’ And feeling so much pressure from myself to make that happen. Being able to just let go of that and be like, ‘progress is progress.’

Ms. Wezner touches here on a core point of tension in teaching: that student progress be synonymous with grade level standards. Adherence to, and measurement of, student performance via the meeting of grade level standards is the bedrock of most teacher professional development programs.¹¹ This positioning of student achievement is further extended into the world of standardized achievement as markers of student success and attainment.¹²

This tension between adherence and letting go is particularly strong in environments with diverse ability levels where many of the students are identified as being “below grade level.” The question at FVA is “by who’s standards?” A shift to “progress is progress” that allows for greater variation and flexibility in how we define student achievement is an essential leap for teachers and staff to make in the adoption of a fully inclusive framework for integrating all children within the general education classroom.

Intentional Recruitment and Onboarding of Staff and Families The intentional recruitment and onboarding of staff was another critical factor in FVA’s development of a full inclusion program. Dr. Tully’s strategy for recruiting staff was that they have at least one of the following: a social justice perspective and commitment to full inclusion (e.g., Ms. Gomez), training in both general and special education (e.g., Ms. Wezner), or prior experience teaching or providing

services at another full inclusion program (e.g., Ms. Severin). Dr. Tully was also particularly interested in hiring staff new to education who demonstrated openness, flexibility, and strong social emotional intelligence and communication skills during their interviews (e.g., the paraprofessionals).

Above all, Dr. Tully indicated that the most important quality she looked for while recruiting staff was a commitment to inclusion and a willingness to learn in a novel environment. She also indicated that, in some ways, it would have been more of a challenge to start with staff that had multiple years of experience in non-inclusive settings with incompatible mindsets and that she wanted staff that would be willing to “start fresh” in their professional development and learning:

We're organized intentionally as a learning organization for adults. So, the way that the staff works with students, but also with each other, is very intentional. It's all designed to give teachers agency, give support staff a loud voice, and reflect the values of honoring and respecting diverse perspectives among the staff as well as among the students.

So that's just really different than what I've seen in other places. The goal and purpose of the entire staff is to work as a team with a shared kind of effort for an inclusive school, as opposed to 'doing my part and then going home.'

I think one thing that I've been surprised by is the unfamiliarity with how radically different this approach is from what people have experienced. I grew up in diverse environments. I attended [and taught] school in diverse environments. It's been an interesting journey of recognizing that what I'm asking of people is outside of what they've seen.

Willingness to work as a team towards a shared vision of inclusion required staff to shed preconceived and pre-established notions of the nature of schooling. For many, this “starting over” constituted a radical departure from prior understandings of inclusion in schools. Mr. Gabriel shares his experiences at FVA as a paraprofessional as being replete with this transformative growth and learning:

It's been just an amazing experience. Life changing. Everything was new for me. I've never worked at a school setting, but I was able to learn a lot from my peers, teachers, especially sped teachers, you know. The paras that were already here prior to me,

because I came in a little bit after the school year started, taught me. They showed me how to do certain things, how to deal with, situations. And so, I was so excited to work because I was learning so much and I was making a difference, educating.

Mr. Gabriel points to the importance of collaborative support and mentorship between FVA staff as integral to his professional success at FVA. This deeply collaborative engagement was endemic to the inclusive culture of FVA. Mr. Gabriel's experiences are also an example of Dr. Tully's interest in recruiting staff with flexible attitudes and openness to FVA's philosophy of inclusion.

Commitment and collaboration towards accomplishing FVA's mission of inclusive learning also extended to the intentionally recruitment of families supportive of inclusive education. As discussed in Chapter 3, many of the families were intentionally and specifically looking for a diverse and inclusive environment that would fully integrate their children into the classroom setting. As part of enrollment, families needed to acknowledge a commitment to full inclusion model in writing and be active members of FVA school community. Our interviews with families, discussed in the subsections below, made apparent families' commitment to supporting the school's inclusive mission.

Autonomy and Choice: Multiple Options for Classroom Participation

Another distinguishing factor in FVA's full inclusion program was the focus on autonomy and choice. In the context of inclusion, we define autonomy as the freedom to make decisions and choice as access to multiple opportunities. The acquisition of autonomy and choice within the disability space are typically centered as desired outcomes for interventions and supports afforded by, and to, people with disabilities.¹³ Historically, autonomy and choice have been closely tied to the independence movement (see Chapter 2) and can be viewed as a source of

social capital that enables inclusive participation within, and between, disabled and non-disabled communities.

At FVA, autonomy and choice are seen as prerequisites for full inclusion and essential components of a fully participative school community. Autonomy and choice were made possible through the allowance of multiple forms of participation, as well as multiple forms of class content modification, to increase member engagement in FVA's classroom communities. Our positioning of classrooms as communities is ecological and supports an interdependent framing of relations and interactions at FVA.¹⁴

Supporting Autonomy and Choice through Teacher Agency and Collaboration The centering of autonomy and choice within FVA's classroom communities reveals a commitment to student and staff agency and preference. This commitment is in line with the philosophy and ethos of what it means to fully include students in schools. Towards this end, in-person classroom observations afforded a firsthand look at the strategies teachers and paraprofessionals undertook to support student autonomy and choice.

As example, during an ELA lesson with Ms. Wezner, a general education teacher, and Ms. Severin, the teacher pushing in special education services, a team-teaching approach was used to aid students in monitoring their own self-regulation. Self-regulation is a crucial skill for all students to develop for school success and has also been tied to students' ability to maintain autonomy and choice within the classroom.¹⁵

During this observation, Ms. Severin read Numeroff's illustrated storybook, *If you give a Mouse a Cookie*, to the class while Ms. Wezner monitors students' behavior from the back of the

classroom, marking it as *on-task* (+) or *off-task* (-) on a handheld whiteboard.¹⁶ Upon finishing the book, Ms. Wezner asked students to reflect on their self-regulation:

Ms. Wezner: *How do you think you did paying attention?*

Students: *So-so*

Ms. Wezner: *That's right. I was listening for positives and quiet. There was a lot of talking. The reason we are doing it without a [visual] reminder is so that we can give ourselves feedback.*

From the perspective of supporting autonomy and choice, several aspects make this interaction unique. First, we see a strong example of Ms. Wezner and Ms. Severin being afforded autonomy in their instructional approaches through their choice to engage in team teaching using a one teach/one assist model; in this case Ms. Severin, the special education teacher, conducting a reading lesson while Ms. Wezner, the general education teacher, collects behavioral data to later share with the class.

The reversal of general education and special education instructional roles and practices also makes this interaction novel. Historically special education teachers have been relegated to supportive or auxiliary roles, if they are included at all, in the general education classroom.¹⁷ The inclusion of special education teachers in primary lesson implementation and planning is indicative of the autonomy and choice that FVA staff have in implementing their team-teaching instruction. This supports the message, at the staff level, that *all* staff – including special education teachers and paraprofessionals, play an important role in the classroom community.

The second aspect that makes this interaction unique is that Ms. Wezner's transparent approach supports student autonomy and choice in its complete engagement of students in the process of monitoring their own behavior. The students are informed in real time of their performance and how they did with the self-regulation exercise. In other words, there is full transparency in terms of Ms. Wezner's processes and strategies for supporting students' growth

toward autonomy vis-à-vis the cultivation of their self-regulation strategies. We see these strategies being made visible when Ms. Wezner asks, “How do you think you did paying attention?” To which the students accurately respond “So-so.” Ms. Wezner then confirms their assessment when she says “That’s right. I was listening for positives and quiet. There was a lot of talking.”

Centering Autonomy and Choice in Peer-Directed Volunteerism and Leadership

Involving students in their own self-regulation and monitoring was not the only strategy for promoting choice and autonomy that staff used at FVA. Another strategy, exemplified by Ms. Gomez in her 4/5 grade combo class, was facilitation of peer-directed discussion during activity share-outs. In the following example, Ms. Gomez promotes student autonomy and choice by encouraging students themselves to select fellow classmates to share activity designs:

Ms. Gomez: *Erica, who are you calling on to share?*

Erica: *I call on Lisette.*

Lisa: [shares activity design idea]

Ms. Gomez: *Great! Lisette, who are you calling on?*

Lisette: *I call on Zach.*

Ms. Gomez could have chosen the students herself, it would have been quicker, but instead promoted students’ classroom participation and inclusion using practices that support student autonomy and choice. The success of this peer-directed discussion approach was evidenced by students’ engagement in calling upon their peers. That classroom members called on each other equitably, regardless of disability, was notable in that oftentimes children designated as having moderate to severe support needs are more infrequently called upon in typical school settings.¹⁸

At FVA, students are also afforded autonomy and choice through their roles as helpers and volunteers. For example, in one of my first observations of Ms. Gomez’s classroom, Jenny, a 4th grader, without prompting from Ms. Gomez, immediately opened the door for me. “*Come on*

in!” she said, her arm enthusiastically motioning me in. Later, another student, again without prompting, helped Ms. Sandy, a paraprofessional, turn an overturned table upright. Support for volunteerism allows students to be fully participative members of their shared classroom community. That the volunteering of this support was observed to be unprompted speaks to students’ generalization of modelled behavior as well as the inculcation of inclusive values at FVA.

Students’ inclusion was also supported through the voluntary designation of leadership opportunities. For example, being designated homework checker for the day. This is significant because active opportunities for leadership are not often given to students with disabilities – many of whom tend to be “acted upon” and seen as passive vessels for support.¹⁹ Thus, ascribing autonomy and choice through volunteerism and assigned community leadership roles positions students with disabilities as active participants within their classroom communities.

Supporting Autonomy and Choice in Student Expression Finally, FVA staff supported student autonomy and choice through allowance of multiple forms of expression. Multiple forms of expression include affording students various ways to articulate ideas – including through non-speaking forms. Non-speaking forms of communication include use of facial expression and physical signing or gestures, and can be supported through the use of assistive technologies, and visual aids (see Chapter 5).²⁰ We intentionally use the terms “non-speaking,” rather than “non-verbal,” to describe alternative forms of communication as still possibly including verbal utterances. While these terms are sometimes used synonymously to describe verbal communication, they are *not* interchangeable. “Non-verbal” as a descriptor of communication practice ignores the various non-speaking – but very verbal – ways that we communicate. These can include, for example, the variety of verbal utterances we use to mark joy, frustration, or

anger, such as laughter, sighs, and shouts. The term “non-speaking,” and by extension “minimally-speaking,” more precisely embody the notion that, while a person may not use verbally articulated words to communicate – they may still use verbalizations for expressive and communicative purposes.

At FVA, supporting non-speaking forms of communication encourages students’ autonomy and choice as equally participating members of their classroom communities. We saw this in Ms. Gomez’s class during a speech push-in lesson in which Ms. Davis, the speech therapist, supported the participation of Carissa, a minimally speaking student. When it was Carissa’s turn to engage with classmates during the lesson, she was allowed to write her responses on an individual whiteboard; which were then read aloud by the speech therapist to her classmates. The fact that Carissa was intentionally included in classroom discussion, and allowed alternate forms of expression, is significant because it respects her bodily autonomy and choice of self-expression; while also going against the grain of practices that center oral language production as the optimal, or only, acceptable form of communication during discussions.²¹

Other accepted forms of self-expression and participation at FVA included allowing students to pass if they did not want to share out or respond to requests. Flexibly allowances in student expression promote autonomy and choice by releasing students from needing to express themselves in prescribed ways and extends to a broadening of criteria for acceptable participation. As example, in another observation of Ms. Gomez’s class, students who did not have enough time to name their dinosaur during a science classification activity were allowed to anonymously share their work. When student work gets shared, regardless of completion status, multiple forms of participation are supported. In this example, allowing multiple ways for

students to demonstrate their skills and share their work supports the extension of students' knowledge base and multiple models of success.

Perspectives on Autonomy and Choice within Classroom Placements In our discussions of what inclusion means at FVA, families and staff repeatedly expressed that, for them, it meant helping students build autonomy and the life skills needed to make good choices, cultivate social capital, negotiate relationships, and engage in their communities. These objectives are aligned with social models of disability in which a principal purpose of rehabilitation programs is the promotion of independence.²² However, the full inclusion model at FVA went beyond that to center independence as a means to an end – the ultimate goal being learning to live interdependently with others.

Cultivating social capital, relational negotiations, and an ecological view of community centers on affording students the opportunity to be autonomous and make their own choices. This view aligns with our conceptualization of interdependence as a relational frame for understanding the ways inclusion occurs within communities. The centrality of giving students a chance to achieve their potential is echoed by Ms. Wezner as she explains how her experiences in a prior school placement inform her views on autonomy and choice:

Coming from a different perspective at a different school, we just have so many kids that a typical school would never think to include in a GenEd setting. I have a friend who teaches an SDC class in [district name] and she fully believes that the kids in her class could not be in a GenEd setting. And it's so crazy to me to think, 'I have kids just like that who are in my class and doing so great.' They just wouldn't have had that opportunity to even try in a different school. So, I think that has been a big shift in my thinking because when I first came [to FVA] I was like, 'this is crazy.'

Here Ms. Wezner points out the stark differences in the level of presumed competence, as well as the correspondingly low levels of autonomy, often afforded to students designated as having moderate to severe disability.²³ Her mention of teacher attitudes also alludes to the importance of

teacher mindset and institutional support in cultivating student autonomy and choice within the classroom. As such, a differentiating factor for students at FVA is the full assumption of competence, and resulting autonomy, afforded as an outcome of their integration into the general education classroom.

A growing desire for autonomy and choice for students with disabilities was reiterated by parents we interviewed, especially those with children identified as having significant needs due to a disability such as Autism or Down Syndrome. In describing the family's reasons for enrolling Daniel, a 1nd grader with Down Syndrome, at FVA, Dina points to a change in her understand of autonomy and choice, and how that relates to her perspective of her school districts' refusal in allowing Daniel into a general education classroom setting:

Earlier on I never questioned the segregation of the students. I just assumed that was the way it was and that there was no choice. When I had Daniel, a whole new perspective came based off of his development and progress. We craved for him to be in an inclusive setting, especially because he has an older brother, James, who's only two years older than he is, and was mimicking everything that his older brother did. So, my experiences with the school district that we were living between the ages of three and five were difficult. Even including him in an inclusive setting, at even a pre-K setting, I got an immediate 'NO.' So, because I wanted him to have schooling, I obviously stuck with that. But I knew that before kindergarten hit I would, if necessary, move to a different city to enroll him in a school that was inclusive...

Like Ms. Wezner, Dina came to believe in the right of her son Daniel, and students with disabilities in general, to have the choice to be educated in an integrated setting with access to typically developing peers. Dina came to see integration as necessary for the development of her son's autonomy and potential – the developmental benefits of which she witnessed firsthand in Daniel's engagement with his older brother James.

Culture of Kindness: We are a Community that Accepts, Supports, and Celebrates Each Other

At FVA, a culture of kindness was positioned as community social capital essential to students' engagement and integration. The modeling of kindness as a critical social skill, crucial to the cultivation of a unified school community, was one of the key outcomes FVA hoped to accomplish with its full inclusion model and philosophy.

Para Power! Making Social Skills Visible to Cultivate Kindness Paraprofessionals held a substantial role in modeling kindness at FVA. As example, during a structured math lesson using a team-teaching approach, I observed Ms. Carina, a paraprofessional in Ms. Gomez's 3/4 combo grade classroom, modeling what it means to be kind by sharing her noticing of behaviors and feelings with Santiago, a minimally speaking student with Down Syndrome. Santiago stubbed Ms. Carina's finger and Ms. Carina immediately made visible the impact of his actions: "*Ow! You hurt me, Santiago. That hurts. Please be gentle.*" Ms. Carina's reaction was important and intentional – modelling for Santiago, and the surrounding students who had taken notice, how to check-in with others and make requests for alternative actions. Ms. Carina modeling expression of feelings and requests points to the focus FVA places on consideration for others – a key feature in how the school define kindness. They are also positioned as key social skills crucial for building the community social capital that students need to successfully engage with others.

FVA sought to ensure that the modeling of social skills – particularly in relation to kindness – was presented as imperative to being fully inclusive. In another example of social skills modeling, Ms. Carina, supports cooperation between a small group of girls, consisting of Carissa, Margo, and Tammy, in an independent reading activity. Minimally speaking to varying

degrees, the girls are working on modified versions of the activity. Carissa and Margo are giggling and chatting with each other when Tammy says “*Shhh!*” Ms. Carina turns to the talkative pair and says “*That’s Tammy’s way of telling you to please be quiet. She is trying to work.*”

This interaction is significant for two reasons. First, Tammy advocates for herself in a manner that’s recognized and accepted by Ms. Carina. Moreover, Tammy is not asked to “*use her words*” as is often the case with providers tasked to support minimally speaking students.²⁴ The acceptance of Tammy’s verbal exclamation as legitimate communication positions her as an equally participative member in her group. The second reason this is significant is that Ms. Carina uses Tammy’s communication as an opportunity to make visible people’s feelings and model considerate behavior. These interpersonal interactions between students and staff exemplify modeling kindness to support student belonging and inclusion while cultivating students’ social skills.

“Let me help you, help me” Peer-to-Peer Modeling of Culture of Kindness At FVA we also noticed substantial peer-to-peer modeling of considerate behaviors that supported a culture of kindness. Peer-to-peer modeling is associated with positive socioemotional outcomes in social skills development, ability to make friends, and greater community integration.²⁵ We observed the affordances of peer-to-peer modeling firsthand during a whole class art activity in Ms. Gomez’s classroom. James and Tammy, both identified as having IEPs, were working independently at a shared table when Tammy suddenly grabbed the scissors from James, to which James responded: “*Give them back. If you want my scissors you need to ask for them.*” Tammy returned the scissors to James after a pause and they continued working. With his request for Tammy to engage in alternative behavior, James effectively uses his social skills to

model considerate behaviors and redirect Tammy towards more prosocial behavior. These kinds of student interactions were common at FVA and served to both build students' social capital within the classroom and support a culture of kindness.

Another example of peer-to-peer modeling occurred during a speech push-in activity facilitated by Ms. Alexa, a SLPA in Ms. Ohlin's 1/2 combo grade classroom. Ms. Alexa turned to Jake, a boy who presented as being Autistic. Jake had lost track of his place in the visual story the group was using for the activity, alternating between covering his face with his activity sheet and holding it upside down. Jonathan, another Autistic student sitting next to Jake, responded "*That's the wrong side,*" and helped Jake correctly orient his activity sheet. Annie, a neurotypical-presenting student, also leaned over and used a sheet of paper to visually guide Jake to where he should read. In this example, neurodiverse students model and engage in helpful prompting behaviors for their classmate – as they have seen staff do frequently at FVA.

Engaging in kind and helpful behavior is presented as what *everyone* should do for each other – regardless of disability status – and disrupts a common presumption that non-disabled students are the most capable of serving as behavioral models for disabled students.²⁶ Another notable aspect of this interaction was the normalization of neurodiverse behaviors – the students were not bothered by Jake's autistic stims for example – and as such displayed a high level of acceptance for human diversity than what might otherwise be seen in segregated school programs.²⁷ Examples such as these directly counter an argument sometimes made by skeptics of full inclusion programming that students with atypical behaviors create distraction within the general education setting.²⁸

Time and time again, we witnessed students' acceptance of the variability present in neurodiverse student behavior at FVA. This is in part a testament to the kindness as culture work that the staff at FVA have undertaken to promote acceptance and inclusion. As a final example, one day before school, 4th grader Luigi approached Jonathan, his classmate, who was sitting upset and alone on the floor. "What's wrong?" Luigi asked. "You wouldn't care" replied Jonathan. "I DO care!" replied Luigi, who firmly stood by Jonathan and patiently waiting for his response. Luigi's commitment to supporting Jonathan supported a view of FVA's intensive cultivation of kindness as integral and unifying to FVA's school culture. It is more often the case is that students with disabilities in distress are more likely to be ignored or avoided by classmates who may not have been exposed, or shown how to, engage in supportive behaviors.²⁹ These examples demonstrate the interdependent approach FVA students and staff take in negotiating social encounters with each other.

Perceptions of Culture of Kindness at FVA Creating moments of unity and loving kindness within the classroom and broader school community was an integral part of supporting FVA's culture of kindness. This commitment to kindness was philosophically seen as essential to fulfilling FVA's mission of inclusion. Mr. Gabriel describes students' evolution towards a *kindness as culture* mindset:

Kids who started going to school [at FVA], especially our special needs kids, they came in being shy and not really wanting to interact with different friends. And over time, we just were patient and we loved them and we took care of them, and we were just waiting for that sprout to happen. And when it did happen with a lot of kids, and even now looking back, so many kids have made so much progress. Not just sped students, but also our typical learners, just accept the loving and caring and leave that hard side aside.

Mr. Gabriel points to developing Kindness as being an *incremental process*. He illustrates how initially the students, most of whom came from segregated school environments, were not accustomed to a more diverse school community and did not know how to engage with what

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Fabien describes as “different friends.” Mr. Gabriel compares the concerted cultivation of kindness to the cultivation of a sprout – the resulting growth blooming as inclusion and acceptance of peers. “Leaving that hard side aside,” in this case, refers to what Mr. Gabriel earlier revealed to be difficult aspects of human nature: prejudice, fear, segregation.

The kids [with disabilities] obviously, we know that they tend to get picked on and so on and so forth. So, I think our community has created this barrier to walk all of that, and allow that love and sense of empathy and care in our family and our community. It was just a matter of time. They've been nurtured at a great school, so I know they're going to be successful. And I hope that they just always care for their friends and their families.

Here, Mr. Gabriel discusses the protective factors FVA’s inclusive community promotes as both a “barrier” to negative behaviors, like bullying, as well as a protective circle of “empathy and care.” Mr. Gabriel description of FVA’s protective factors aligns with research demonstrating the socioemotional health benefits, including an improved sense of belonging, that come with being part of a community.³⁰

Mira, mother to Kindergartener Maddox, 2nd grader Marco, and 4th grader Maya, echoed Mr. Gabriel’s perspective on loving kindness, particularly as it relates to the importance of developing a protective circle of empathy and care:

I want my kids to grow up knowing everyone is equal. I want them to know how to interact with all kinds of children. You have to learn to work with different people.

So, the benefit is they're making friends, they're learning how to work with all kinds of kids. When I was dropping the kids off from school, there was another child that [has a disability]. And she called my daughter and they ran to each other and they hugged and embrace 'good morning.' It warmed my heart so much to just to see that because we don't see that every day.

I want them to come out of FVA with a big heart – knowing how to accept other people, how to work with other people, especially because in the real world, that's what it's all about... I talk to them every morning about helping other people, having empathy for other people and giving yourself to others.

Mira, in describing the necessity of kindness as integral to learning how to comfortably engage with diverse people and engage outside oneself, reiterates a commitment to kindness as philosophically essential. She sees the skills her children learn at FVA, all of whom she identified as being neurotypical, as protective factors critical to successfully navigating life.

Ms. Carina echoes commentary regarding the development of prosocial skills as protective factors at FVA within the context of navigating change and friendship – connecting both to inclusiveness and kindness. Regarding change, Ms. Carina alludes to children as naturally inquisitive and willing to try new things – including FVA’s inclusive school model:

With all the inclusion, I was surprised how it didn't really [negatively] affect the kids. They're unfazed about it, you know? So, it was really cool to see that from the beginning they're like, 'Oh, these are my friends.' You know, 'we're all friends.' And they all hang out and it's just really cool.

Ms. Carina points out how quickly the children grew accustomed to new ways of “doing school.” This includes new ways of “doing friendship.” This is in contrast to the development of cliques, ingroups, and outgroups which tend to be a common schoolyard phenomenon.³¹ At FVA it was more often the case that students would invite other children at the margins into their play. These inclusive schoolyard behaviors, modelled from the start by FVA staff, align with findings from Paley’s (1992) playground culture studies, which place great value on play as “the most usable context” for children’s academic and social growth.³²

The culture of kindness at FVA also includes caring for the success and wellbeing of others. From this viewpoint, cultivating an inclusive school culture requires producing citizens that care for each other. Ms. Yadira, another paraprofessional, reiterates the premise that kindness and inclusion are necessarily intertwined and expresses a belief that inclusion naturally leads to kindness:

[Inclusion] makes everybody kind. It makes everybody understand things that we wouldn't if we weren't in that setting. I see students being kind to each other. I don't see them making fun of each other. And that helps us [the staff] be that person to adults as well.

In FVA's school community, a major product of kindness is thus an expanded ability to engage with people as they are. Inclusiveness, and the kindness that results from it, allows us to acquire a wider lens of acceptance and non-judgement. Ms. Yadira alludes to the "contagious" nature of inclusivity and kindness: once someone starts being inclusive and kind, it spreads to others, including adults being kind to each other.

Intersectional Vision of Inclusion: Inclusion is Integrated in Multiple Ways across Diverse Identities

Finally, adherence to FVA's mission was expressed as a commitment by families and staff as an intersectional vision of inclusion centered on integrating inclusive practice across sociocultural contexts. In an increasingly globalized society where individuals identify across multiple identities, including those that intersect with language, disability, and race, adopting an intersectional approach to the study and cultivation of inclusion is essential.³³ This includes merging discussions about language, literacy, and technology across disability and culture – which have often been treated as separate silos.³⁴ Dr. Tully iterated the necessity of adopting an intersectional perspective of inclusion in her description of FVA as an inclusive school community in the school handbook:

Our school community understands that the diverse experiences, cultures, languages, abilities, and skills students bring to the classroom are assets for learning. School-wide values of empathy and respect are promoted through cooperative learning experiences in our diverse and inclusive classrooms, and through attention to each student's social emotional learning and growth.

In this section, and the remainder of the dissertation, I connect the ways FVA families and staff strove to consider students' multiple identities vis-à-vis their needs in the implementation of

FVA's inclusion model. We found that staff and families' own multiple identities, and perspectives, inform their view, and approaches to, inclusion. As such, analyses focus on how these families' diverse experiences and perspectives, combined with FVA's inclusive school practices, shape the education experiences of students at FVA. This includes discussion of how families and staff drew on their funds of knowledge and shared cultural wealth to support linguistically and culturally diverse children at FVA.

Intersecting Needs across Language and Disability Examples of students' intersectional identities influencing delivery of services were particularly evident in the speech language therapy work that took place with multilingual and emerging bilingual children at FVA. The influence of children's intersectionality manifested as a tension between serving the IEP and the language development needs of the children at FVA.

To date, strategies for comprehensively serving students at the intersection of language and disability are few.³⁵ Adding to the complexity of serving children with IEPs who are also multilingual or emerging bilinguals is the fact that a majority of therapy providers are not bilingual – as was the case with the therapeutic service providers at FVA. This is a common phenomenon across the service provider industry, including the fields of speech language pathology, occupational therapy, and behavior interventionists, with profound ramifications for how best to support multilingual and emerging bilingual students requiring therapies and services.³⁶ This scarcity in the face of great need behooves intersectional considerations in the implementation of inclusive programming that center a noticing of the ways students' multiple identities inform provision of services.

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At FVA, we observed the impact of students' intersecting language and disability identities on provider decisions – specifically provision of services to support students identified as both multilingual and having speech language delays. As example, in Ms. Macias's Kinder class, Ms. Davis, FVA's speech pathologist, was observed providing speech push-in services to multilingual students during small group literacy centers. Ms. Davis was working with Cindy, one of three children in the class with IEPs who was also designated as emerging Spanish-English bilingual. Ms. Davis worked with Cindy on her /r/ sounds using the Little Mermaid storybook. While the focus of the lesson was /r/ sounds, Ms. Davis improvised to also address the /sh/ sound. Ms. Davis later told me that working on /sh/ was not part of Cindy's IEP, however, because the Little Mermaid storybook had many /sh/ sounds – as in the word “shell” – it afforded Ms. Davis an opportunity to support Cindy's emerging language needs as a Spanish-English bilingual. Ms. Davis understood that for many emerging Spanish-English bilinguals, the distinction between the English /sh/ and /ch/ is a tricky one. Accordingly, she used Cindy's language status to justify the service addition: “As a Spanish speaking ELL learner, she needs to practice /sh/.”

While this was an improvised service decision, it demonstrates Ms. Davis's awareness of her students' multiple identities and needs across disability and language. In Cindy's case, this meant addressing her emerging language needs as a Spanish-English bilingual in tandem to the needs associated with her language delay. It also speaks to the often unanswered need to support service providers in the intentional integration of strategies that support both language and disability needs – particularly for providers who are not themselves proficient in the heritage languages of the children they serve.³⁷ Moreover, this example demonstrates why adopting intersecting approaches in support of students' language and disability needs is so important: to

not do so makes effective service delivery difficult for the significant number of students who are identified as having needs related to both disability and language status.³⁸

Intersecting needs across language and disability were also evident in how FVA used multilingual language supports to include students. This was evident in the language choices that were incorporated during school-wide celebrations, performances, and events that brought FVA's linguistically diverse families and staff together. As example, FVA's winter celebration included multiple songs across languages, including American Sign Language (ASL) and Spanish and English across all class performances. Usage of ASL across contexts at FVA is significant because ASL is not always supported as a second or foreign language within school communities, despite its common usage to support students with disabilities.³⁹ At FVA this was not the case with ASL being frequently observed during school events and classroom instruction. Moreover, ASL usage was observed in both students with and without disabilities, as well as both general and special education teachers – not just service providers as is often the case. As such, ASL use at FVA also came to signify one of the intersecting ways in which disability and language informed communication and instruction at FVA.

Paraprofessionals as Cultural Brokers The positioning of paraprofessionals, who were mostly multicultural and multilingual, as cultural brokers within the school community was another way FVA used the affordances of intersectional identities to support the inclusion of diverse students with and without disabilities. We use the term *cultural broker* to signify persons who use their multiple identities to facilitate the bridging of cultures and communication.⁴⁰ We focus on paraprofessionals as cultural brokers at the classroom community level.

One such relationship that centered paraprofessionals as cultural brokers within the classroom

setting involved Ms. Wezner, a monolingual English-speaking general education teacher serving emerging Spanish-English bilingual students with and without disabilities in her 2/3 combo grade class, and Ms. Carina, a Spanish-English bilingual paraprofessional assigned to support the classroom. Ms. Wezner broadly described the immense support her two assigned paraprofessionals, Ms. Carina and Mr. Kellan, provided to the classroom environment before specifically outlining the ways Ms. Carina used her multilingual status to support students and parents:

Carina and Kellan are my go-to. They're my morning paras and they are so helpful. They can probably run my class without me because of how helpful they are. And I think especially with our demographic of so many Spanish speakers, I lean on Carina a ton for translating and helping families that I don't think feel as comfortable talking to me because I don't speak Spanish. She makes it more of a comforting feeling for them.

In addition to reiterating the critical role that all paraprofessionals play in managing and supporting classroom instruction at FVA, Ms. Wezner explicitly positions Ms. Carina as a cultural broker in several ways. First, Ms. Wezner supports Ms. Carina using her Spanish-English bilingual status to bridge the language barrier that is sometimes present between monolingual teachers and multilingual students and parents.⁴¹ As Ms. Wezner explains, language disconnect can result in alienation or feelings of discomfort between parents and schools.⁴² Ms. Carina serves as a cultural broker by bridging language gaps between teachers and parents to create connection and “comfort” for parents – facilitating their participation in Ms. Wezner’s classroom community.

Secondly, Ms. Carina acts as a cultural broker within the classroom by helping bridge the language gap between Ms. Wezner and her students through translation of academic content and support of language learning. Here, Ms. Wezner describes in greater detail how Ms. Carina uses

her Spanish-English bilingual language skills to supports the inclusion and instruction of multilingual students with and without disabilities:

She played a huge part in integrating more Spanish into our class. She would write our morning meeting message in Spanish and then I would read it in class to the kids, as best as I can, and they would all laugh... So, half or more are [multilingual]. So, then they translate after I read it. They translate it for me. We started doing that every Wednesday and it was such a fun thing in class. For the first time I let the kids step into 'I'm learning with you.' And they were like, 'What? How can you learn new things? You're our teacher.' So, I thought that was a really cool aspect of using our paras and using each other as resources.

Ms. Wezner's description of Ms. Carina's facilitative role in supporting student-driven language learning illustrates how paraprofessionals use their intersecting identities to broker connections between multilingual and disability communities. In Ms. Wezner's classroom, Ms. Carina facilitated language cultivation by supporting Ms. Wezner in making language invitations to students; and using student-driven language modeling to support classroom engagement – all of which affirm students' intersecting identities and cultural capital.⁴³

Family Perspectives on Intersectionality The multilingual families we interviewed also had specific perspectives regarding the intersecting relations between the needs of multilingual students and students with disabilities. This included discussion of how the needs of their multilingual children were being addressed vis-à-vis the focus of FVA's full inclusion model. In this subsection we focus on discussions we had with Hilda and Sara – two first generation Mexican mothers with diverse backgrounds and perspectives

Hilda, a working-class Spanish monolingual mother from a rural village in Mexico indicated that she primarily relied on her two multilingual children, Leonardo and Luigi to relay classroom information to her. For official school business, she relied on the front office staff as well as the paraprofessionals assigned to her children's classrooms for communications. Somewhat

indicative in the fact that she was willing to be interviewed, but not audio-recorded, Hilda was somewhat wary of the systems she had encountered thus far in the U.S. – with the U.S. education system being no exception. Her own experiences with formal education had been mediated by the economic needs of work. Hilda’s experiences with schooling carried over into her perspectives of FVA’s unique inclusion model and what it meant for her children to be enrolled at FVA:

La forma de enseñar es diferente. Tratan bien a los niños. Se enfocan en ellos. No los enseñan lo mismo porque su nivel es diferente. Es una escuela chiquita y les ponen más atención en sus necesidades... En una escuela mas grande, si no entienden se pasan... Aquí, si no entienden, tratan de explicar otra vez.

[The education is different. They treat the children well. They pay attention to them. The teaching is not the same because the (children’s) levels are different. It’s a small school where they attend to their needs... At a larger school, if you don’t understand, you get left behind... Here, if you don’t understand, they try again to explain.]

The good treatment of her children, which included school staff meeting children at their “level” and not being “left behind,” were important aspects of FVA’s inclusive school model for Hilda as a first-generation immigrant to the United States. This could be in contrast to prior schooling experiences where perhaps Hilda, or her children, may not have been as well supported. Hilda was hesitant to directly criticize and only hedged at these sentiments indirectly – a communicative approach in line with Hilda’s rural upbringing.

Hilda’s comments also illustrate her understanding of a defining goal of inclusive education to ensure comprehension across diverse ability levels using differentiated instruction. In Hilda’s view, the use of differentiated instruction to support children with disabilities at FVA also supported the needs of Hilda’s multilingual children. The inclusion, care, and support of diverse students as a community value at FVA also echoed by Sara, a college-educated Spanish monolingual mother from an urban city in Mexico:

Me habían dicho que era inclusiva, pero no visualizaba hasta ya estar aquí, qué tan inclusiva es no? Ya el poder de tener con ellos como compañeros a niños con educación especial y con ciertas necesidades me hace entender todavía más. Y sobre todo, que ellos puedan sentirse parte de una comunidad tan diversa... Porque aquí se van a encontrar de todos los estratos económicos, sociales, culturales, ideológicos, y ahora también de habilidades o discapacidades.

[I had been told that the school was inclusive, but I didn't realize it until I saw it for myself, you know? Seeing them engage with classmates that receive special education and have additional needs helps me understand this even more. And what's more, to see them feel like they are part of such a diverse community... Because here, you'll find all the socio-economic, cultural, and ideological statuses, as well as abilities and disabilities.]

Sara's perspective of intersectionality at FVA was also evident in her framing of the diverse backgrounds and needs of multilingual and disabled children as analogous in their shared necessity for community and support:

Creo que desde un principio los maestros pudieron hacer sentirlos como parte de una comunidad. Que llegaron sin saber inglés y que están aprendiendo el idioma, es una habilidad menos como el que a lo mejor no puede caminar o como él que no puede comer por sí mismo. O sea, cada uno tiene diferente tipo de necesidad.

[From the beginning, the teachers have helped them feel part of a community. That they are here without speaking English, in the process of learning language, is one less ability as someone who does not [have the ability to] walk or feed themselves. In other words, each of us has a different type of need.]

Sara's reframing of language status and disability as distinct – but potentially inter-related and interconnected designations – points to the commonalities they share within the context of inclusion. In this sense, both multilingual and disabled students require additional resources to include and integrate children into the classroom as participative members, as well as additional curricular adjustments to gain access to the curriculum.

Finally, Sara reiterated a perspective that was shared by both Mira and Mr. Gabriel in their discussion of kindness, empathy, and inclusivity as social capital:

Chapter 4

El beneficio creo que va a ser el poder hacerlos conscientes desde chicos de las necesidades que hay a su alrededor.... Y de lo importante que es poder compartir y convivir con el resto del mundo, porque aquí en Estados Unidos habemos de todo tipo de personas.

[The benefit is that from an early age they will be aware of the needs that exist around them... As well as the importance of being able to share and engage with the world, because here in the U.S. we have many kinds of people]

As such, parents' shared perspectives of inclusion support a belief in the necessity of actively promoting interdependent community. In the following chapter, we will continue to explore both parent and staff perspectives of inclusion as they relate to students' language, literacy, and technology practices.

5 Empowering Student Voice: Language, Literacy, and Technology

Research examining inclusive uses of digital technologies to support the language and literacy practices of diverse students with disabilities have broadly centered on 1:1 uses for *individual* student functioning; rather than *social* uses to create access and engagement across *all* students.¹

Much of this research falls short in closely examining the sociocultural contexts of observed technology use over time in diverse classroom settings integrating students with disabilities.²

Gaps in the study of inclusive uses of digital technologies has resulted in a continued need for research examining technology for today's increasingly diverse classrooms, particularly as it relates to supporting students' language and literacy practices.

Moreover, with exception of seminal works such as Alper's *Giving Voice* and Cranmer's *Disabled Children and Digital Technologies*, research in the field often does not take an intersectional approach to its examination of the social uses of technology among culturally, developmentally, and linguistically diverse students, and their families, who identify across multiple identities.³ In this chapter, we explore these gaps by highlighting the social affordances – and challenges – of using digital technologies to support children's inclusion across language, literacy, and technology (LLT) practices implemented within a diverse school community. We use the term “LLT” to describe an integrated approach to examining language and literacy practice within the context of technology use. This interdisciplinary view of literacy practice across dimensions aligns with 21st century sociocultural conceptualizations of literacy and differs

from prior examinations looking at language, literacy, and technology practices as relationally separate and distinct.⁴

Applying an interdependent lens (see Chapter 2), we methodically examine the sociocultural context of inclusive technology use within the FVA school community in support of students' LLT practices at school and at home. Moreover, we explore how assistive uses of technologies can be used to embody, empower, and give agency to student voices as creators and engaged participants within the classroom. Our focus is broadly centered on communication and connection and the ways LLT practices support student agency and expression. The chapter also details how experiences with digital technologies had a profound mediating impact on how parents and staff come to understand students' voices and competencies.

Our study of digital technologies at FVA revealed LLT practices that aligned with commonalities and challenges often found in schools, as well practices that diverged from typical uses of technology in the classroom. We first discuss commonly observed LLT practices at FVA, including how they align and differ with LLT practices observed in typical schools. Secondly, we discuss LLT practices within the home as reported by parents and students. Finally, we take a closer look at both mainstream and assistive uses of digital technologies to support LLT practices in children with significant disabilities. Throughout we provide analysis for how LLT practices, as demonstrated at FVA, could be used to support students' agency and voice within and beyond the classroom.

A Walk through LLT Practices at FVA

This section provides a descriptive overview of LLT practices within the FVA school community in support of students' inclusion. This includes a description of LLT practices in the

classroom, supporting LLT practices at home, and supporting LLT practices in children with significant disabilities. Connections will be made to how these LLT practices align and diverge from practices generally seen in schools and how they might be used to support inclusion, engagement, and learning within school communities.

LLT in the Classroom In discussing LLT practices in the classroom, we use *physical technologies* to refer to technologies which are material in nature, such as hardware, tools, instruments, and machines and *digital technologies* to refer to physically intangible applications of data and code, such as application (app) software, data storage systems, and the internet. The use of physical technologies as instructional tools (e.g., Elmo projectors, television screens, and digital whiteboards) for review of core subjects during whole group lessons was common in all the classrooms we observed at FVA. These technologies were primarily used as visualization and scaffolding tools for teaching and review of group lessons. Often, these uses were coupled with physical manipulatives as in the following observation of a whole group math lesson reviewing mathematical thinking and math vocabulary (2D and 3D shapes, angles, operations symbols in Ms. Macias' Kindergarten classroom:

Ms. Macias combines her use of the Elmo projector with physical manipulatives, including post-it notes, stickers, and worksheets. Shapes are projected using the Elmo. Ms. Macias asks, *What does 2D and 3D mean?* as she places a whiteboard next to the Elmo, divided in half and labeled 2' on the left and 3D on right. Students clap their hands twice or thrice to demonstrate understanding as shapes are sorted into their respective columns. Ms. Macias finishes the lesson by reviewing geometric vocabulary including *vertices, diagonal, parallel, acute, obtuse, and straight*. Students stand and model each vocabulary item, using their arms to motion the direction and angle of lines.

Additional uses of physical technologies in Ms. Macias' classroom, and observed across all classrooms, included the use of digital alarms to cue and direct students from activity to activity.

The integration of physical technologies with visual manipulatives and tools is typical of well-

scaffolded classrooms, and were critical to maintaining classroom flow and order, as well as aligning with students' need for physical cues and supports written into many students' IEPs.⁵

The following observation of guided reading and computer small-group literacy centers in Ms. Ohlin's 1/2 combo class was typical of the integrated use of physical technologies, manipulatives, and tools in supporting LLT practices at FVA:

A digital alarm goes off and students stop their activity and raise their hands. When all students are quiet and ready, they rotate to their next center. At the guided reading station, Ms. Severin starts chatting with students: *How was your weekend? I missed you guys.* Then she pulls out a book: *This book is called 'Can you go here?' What do you think it's about? Do you guys want pointers?* Ms. Severin hands out plastic pointers that students can use to guide their reading. They begin choral reading and when they get to the end of the page, Ms. Severin says *Turn the page.* They continue reading page by page all together. She waits for all students to finish chorally reading each page before providing the verbal prompt, *'turn the page.'*

In this example, Ms. Ohlin uses a digital alarm as an audio cue for students to move to their next literacy station, supporting students' ability to self-regulate and remain on task with their literacy activities. Once at the guided reading center led by Ms. Severin, pointers are offered as physical scaffolds to support and guide students' choral reading.⁶ This is a simple example of the interplay between mechanical tools and physical technologies commonly observed across FVA's classrooms. Integrated uses of physical technologies with physical tools and manipulatives tends to be the extent of technology use in many U.S. classrooms – primarily used as instructional tools to support the functions of the classroom.⁷ This is in contrast to more transformative and intentional uses of digital technologies for personal expression, inclusion, and content creation.⁸

Functional uses of Digital Technologies in the Classroom The use of physical technologies as instructional tools to support classroom function often extended to how digital technologies were used in the classroom. We saw this primarily in how digital technologies, specifically education apps and websites, were used to engage students during small-group centers. Based on

our observations of classroom LLT practices, and confirmed by interviews with staff, digital game apps, such as Smarty Ants and Lexia, were used to support early language and literacy goals, for example, providing practice for letter sound identification and blending CVC words. Prior to the pandemic induced remote learning, uses of digital technologies, including game apps, centered on facilitating autonomous literacy skills development and self-guided evaluation during small-group centers as described by Ms. Wezner:

We had one station during reading that was on computers and I was starting to have them do guided reading on the Read Works website – kind of like a test prep skill. They have little passages that you can go answer questions on and go back to the passage. So more of that skill of going back into the text and finding the answers to the question. So then two stations would be on the computers. But typically, silent reading, or anything like that, would be paper books and writing on paper, pencil.

In this example Ms. Wezner alludes to test prep skills as auxiliary or supplemental skills suitable for relegation to independent computer-facilitated center stations. This delegation of the use of digital technologies was in contrast to the direct instruction for reading and writing, which was facilitated by staff in small groups using physical technologies and tools. With exception of assistive digital technologies, which we detail later in the chapter, and assistive uses of mainstream technologies, such as Chromebook Google Suite, for supporting writing, it wasn't until the pandemic that we saw a more expansive shift in the use of digital technologies as integral instruments for transforming and informing students' reading and writing practice.

Ms. Yadira reiterated the limited use of digital technologies in the pre-K and early grade classrooms that we also saw in the upper grade classrooms. As Ms. Yadira describes, uses focused primarily on supporting student autonomy during independent study, freeing staff to facilitate what were perceived to be more instruction-intensive centers, such as guided reading:

In TKK, We didn't have a lot of technology. We did literacy stations. They would have iPads so they could use an app and then work on that. And then, Ms. Jarvis had a reading station.

In these ways, digital technologies in the classroom served as holding spaces for students, allowing staff to work more intensively with students needing additional supports and affording flexibility in how teachers and staff organize literacy instruction for students. Ms. Severin also reiterated the functional use of digital technologies as instructional tools for facilitating classroom management:

I think if anything tech is great for us when we do small groups because from a classroom management standpoint, we need a fourth, or a third, or half the class to just be quiet. So, plug and play is fantastic for that. I can manage the other 10 kids.

As described by Ms. Severin, and corroborated by several staff interviewees, a central purpose of digital technologies was to functionally support classroom management by keeping a portion of the class autonomously occupied. In this way, the primary benefit of integrating digital technologies into classroom instruction centered on their use as free-standing activities, allowing staff to focus on targeted 1:1 and small group literacy instruction. These uses, while simultaneously practical and limited, are representative of the functional approaches to integrating digital technologies as instructional tools observed across U.S. classrooms.⁹

Perspectives of LLT Practices and Preferences at FVA

Perspectives and preferences for reading and writing with and without digital technologies also surfaced during classroom observations and interviews with staff and families. Considering the impact of perspectives and preferences for LLT practices 1) informs our understanding of observed practices, 2) illuminates potential areas for support in improving LLT practices within schools, and 3) provides useful information for designing inclusive instructional approaches for students with diverse literacy needs.¹⁰ In this section, we discuss teacher and student perspectives and preferences for LLT practices within the classroom.

Teacher Perspectives When asked teachers to describe student reading preferences with and without the use of digital technologies, most indicated that they had not noticed a particular preference but ventured to guess that students preferred reading with physical books rather than reading digitally on a computer or tablet. It became apparent in asking teachers about student reading preferences that this had not been a question they had considered before – perhaps as a result of digital technologies having been relegated to functional applications within the classroom. This ambivalence was evident in Ms. Wezner’s description of student preferences for reading with and without the use of digital technologies:

I think that when I first introduced doing reading on the computer, they were really excited about it cause it's new and different. But [the reading website] was only informational articles. So, I don't think it was quite as fun as reading books that are stories and stuff like that. I don't know what they would prefer for themselves, but my class loved read-alouds and when Ms. Severin would read a picture book, they could ask questions for an hour. So, I think in that sense, real books, but I don't know.

Ms. Wezner’s commentary was typical of the responses we received during interviews, with teachers themselves indicating a preference for reading with books, rather than reading digitally. This led us to wonder whether teachers’ own preferences colored how they viewed reading with and without the use of digital technologies.

We would later learn, in discussions with Dr. Tully, that historically the school had not had an opportunity to focus on intentionally integrating digital technologies in more wholistic ways into classroom practice. Rather, the focus of FVA’s piloting years had been on getting the full inclusion model off the ground. As such, competing instructional priorities – so common in schools, with FVA being no exception – was a major factor in the decision of whether, and how, to integrate the use of digital technologies into classroom practice.¹¹

When asked to describe student preferences for writing with and without the use of digital technologies, teacher perceptions were less ambivalent. Teachers indicating a preference for writing with paper in both the lower and upper grades. Ms. Wezner describes student preferences for writing in her 2/3 combo class as follows:

Typing is challenging for a lot of them, so they would prefer by hand. But then, for our first publishing of stories, I called them one by one during centers and they read me their piece and I typed it for them. I think they like seeing it all typed up, official. But they're not able to type it themselves yet. At least not fluently. So, I think that it took so long that they would prefer to hand write if they had to.

At 2nd and 3rd grade levels, Ms. Wezner indicated that students still preferred writing with pencil and paper because, as emerging writers, they had more fluency and speed writing by hand. In her view, this corresponded with fewer frustration points compared to typing – which can be very ‘hunt and peck’ in the early stages of learning to type.¹² This observation of a relationship between writing and typing fluency, frustration thresholds, and writing preferences support prior findings indicating these as factors informing students’ usage and preference for writing with and without digital technologies.¹³

In the upper grade levels both usage and preference for writing with digital technologies changed. As example, Ms. Gomez had the following to say regarding her 4th and 5th graders’ perspectives of writing with [and without] digital technologies:

I think they enjoy writing on technology, but because I think they enjoy being able to manipulate their font... how big it is, what color it is. And so those kinds of things are very new and fun for them. And so, it made it exciting to type and they want it to be on the computers in that respect.

According to Ms. Gomez, there is a shift in upper grade students realizing, and exploring, the affordances of writing with digital technologies. These include the ability to select and manipulate font size and style, use spelling and grammar check functions to improve writing accuracy, and take advantage of speech-to-text and text-to-speech functions to support writing

fluency. While Ms. Gomez did not mention writing proficiency as a factor in students' preferences for using digital technologies, there is some indication within the research that as students begin writing more fluently, usually in the mid to upper elementary grades, they also are in an improved position to take advantage of the affordances of digital technologies for writing. This can be particularly true and impactful for students who require additional scaffolds or supports for their writing, with research indicating that for these students writing with digital tools can support improvements in both the quantity and quality of writing content.¹⁴

Student Perspectives In interviews with students, we found a positive interest in using technology for both reading and writing, particularly in the upper grades for the purposes of engaging with digital education gaming apps. This positive interest is typical of that found in studies of student preferences and uses of digital technologies.¹⁵

LLT Practice in Lower Grades: Marco and Maddox Reiterating staff responses, students indicated that their most preferred and common uses of technologies at FVA included using their Chromebook computers to access digital education applications and websites during centers. In the lower grades, literacy practices incorporating digital technologies centered on using educational game apps to engage working memory and informational recall of both literacy and mathematical concepts (i.e., Lexia, Kahoot), as Marco, a 2nd grader in Ms. Wezner's class describes here:

Interviewer: So, Marco, I want to start by asking you to tell me a little bit about what you like about your school.

Marco: I like it because we can do fun stuff like Kahoot. It's really fun.

Interviewer: Can you tell me more about Kahoot? What is that?

Marco: It's a website on your laptop and you have to try and figure out what is the answer.

Marco's positive response to using education apps like Kahoot on his Chromebook for learning as being fun and a highlight of his school day was typical of the student responses given regarding the use of digital technologies for supporting LLT practices at FVA. For the youngest students, using digital technologies to support LLT practices extended to engaging with educational applications downloaded onto 1:1 iPads to support phonological and alphabet awareness. For example, Lexia was used to develop students' phonological awareness as Maddox, a Kindergartener in Ms. Jarvis' class, describes here:

Interviewer: Yes. How do you use computers for reading?

Maddox: I play Lexia

Interviewer: you play Lexia. What do you do? Can you tell me what Lexia is?

Maddox: It's about rhyming words.

Interviewer: And what's your favorite thing to do in Lexia?

Maddox: To rhyme words.

Maddox's response to this, and additional questions about his LLT practices, was typical of the younger elementary aged children we interviewed at FVA. In addition to the phonological uses of apps like Lexia to support LLT practice, Maddox indicated that he enjoyed reading student-produced writing:

Interviewer: Can you tell me what you like about your school?

Maddox: What I like about my school is the library.

Interviewer: The library. What do you like about the library?

Maddox: Cause they have books.

Interviewer: Yeah, do you have any favorite books? Tell me what your favorite books are

Maddox: The Ellis books

Interviewer: The Ellis books? I don't know what those are about. Can you tell me what those are about?

Maddox: About my friend Ellis in my class.

Interviewer: Oh, they're about your friend Ellis! Are these books that you write or are these books that someone else wrote?

Maddox: Someone else wrote. Ellis.

These stories were often written by hand by the students and then typed and printed by the staff, as mentioned earlier by Ms. Wezner. This is another example of the functional uses of digital technologies at FVA, as well as an example of writing as a relational and social endeavor that

supports student voice and classroom connection. As such, writing, and its formalized presentation in the library by means of computer processing, becomes a way for students to amplify their voice as authors (e.g., Ellis) for their classmates (e.g., Maddox) as audience.

Maddox also discussed his own writing practices, primarily produced using paper and pencil:

Interviewer: Let's talk about writing a little bit. Do you like to write? What kinds of things do you write?

Maddox: I like to write a draft.

Interviewer: What do you write about?

Maddox: I write about elephants.

Interviewer: So, you like to write about elephants. What do you like about elephants?

Maddox: It's because they can drink the water

Interviewer: Right through their long trunks. That's right.

Maddox's discussion of his writing practices at school indicates an understanding of the writing process as including the need for drafts. His discussion of elephants also indicates a centering on animals as a topic of interest – common for children in lower elementary grades. Maddox did not indicate using his Chromebook for writing – which was corroborated by the lower elementary teachers.

Younger students' preference for reading physical books and writing on paper and pencil, rather than digitally via their school-issued Chromebooks and iPads was reiterated by Marco, a 2nd grader in Ms. Wezner's classroom:

Interviewer: If we're thinking about reading on paper and reading on a computer, which do you like better?

Marco: Paper because it is almost the same thing as reading on a computer but without a screen.

Interviewer: What do you like about reading with paper better?

Marco: It's much easier for me to read on paper because sometimes when I read a lot, like looking at a screen too long, my eyeballs a little bit hurt.

As we found in our prior research of a digital reading intervention, eye strain and pain are common reasons given by students who preferred to read on paper versus digitally.¹⁶ As such, Marco's preference for reading on paper is unsurprising given these sensory barriers.

LLT Practice in Upper Grades: Maya In the upper grades, reading was done either using physical books or digitally with ‘Epic’ education software installed on school-issued Chromebook laptops. Maya describes LLT practices common in her 4th grade classroom with Ms. Gomez:

Interviewer: *What types of reading activities do you do in the class and is it on paper or on the computer?*

Maya: *Oh, so I read on paper, like the ‘Steps into Reading.’ I usually just start at the beginning and then work my way to the end.*

Interviewer: *And do you do reading on computers in the classroom or is it mostly paper?*

Maya: *Mostly just paper. Sometimes computer.*

Interviewer: *When you sometimes do it on the computer, is it a specific program?*

Maya: *It's ‘Get Epic’ I think.*

Interviewer: *Can you tell me a little what that is?*

Maya: *It's technically a website that has almost all the books and I usually just read on there if I don't have the [paper] book.*

Interviewer: *Okay. And is that usually independent reading, like during centers and things like that?*

Maya: *Usually. We don't really do it often.*

In this example, Maya reiterates the infrequent use of digital technologies in the classroom for reading that we observed at FVA. Moreover, Maya reiterates the functional and secondary nature of students’ digital technology use by discussing her use of Epic as a last resort should the physical paper version of the book she was interested in not be available. It was unclear whether part of this preference was influenced by staff ambivalence around using digital technologies to support LLT practices. In the following passage, Maya provides her reasons for preferring to read physical books, rather than digitally:

Maya: *I like reading with paper.*

Interviewer: *Can you tell me why?*

Maya: *Yeah. Because I can just turn a page and then I can just read.*

Interviewer: *So, you like being able to turn the pages?*

Maya: *Yeah. And I also like looking down [on a page] instead of looking forward [at a screen].*

Interviewer: *Looking down instead of looking forward? Why?*

Maya: *Because it's just calming.*

Here Maya is adamant about her preference for reading physical books over reading digitally on her Chromebook. She indicates feeling more comfort (looking down rather than forward), enjoying the tangible "feel" of holding a physical book while reading, as well as the physiological 'cuing' and calm that Maya gets from manually turning pages in a paper book. From Maya's perspective, the benefits of reading physical books lets her know "where she stands" as a reader in the course of moving through a book or passage. These sentiments were also expressed by students who preferred reading with physical books, particularly those who identified as confident and proficient readers, as Maya did, in our study of the affordances of a digital reading intervention on students' reading practices.¹⁷

Digital technology use for writing in the upper grades included a more active integration of Google Suite word processing software installed on students' Chromebooks, particularly in the final editing and revision phases of writing. As such, we observed more positive responses to using Google Suite word processing software for writing in the upper grades, in contrast to the less positive responses for reading digitally, described here by Maya:

Interviewer: Can you tell me a little bit about what writing looks like in your classroom?

Maya: Okay. So first we just write in our journals. If we're writing, we're usually doing a project. So, then we would put the first draft and then the next draft and then the final draft. I did a writing in January last month about how to make French toast.

Interviewer: Oh, okay. And when you do the writing, are you writing by hand or on the computer?

Maya: Well, at first, we start by writing with pencil and then, for our final draft, we do the computer.

Interviewer: Okay. And talking about computers a little bit more now, do you like writing by hand better or writing with the computer better?

Maya: Computer.

Interviewer: Can you tell me why?

Maya: Because I can memorize the keys with only a push of one button.

Maya's description of the affordances of writing digitally was typical of what our upper elementary student interviewees reported. As such, an increase in use of digital technologies to

support the writing process, particularly as it relates to revisions and final drafting, was reported in the upper elementary grades. Increased usage also corresponded with an increased preference for writing with digital technologies within the upper grades. For Maya specifically, her preference for writing with digital word processing software installed on her Chromebook laptop centered on ease and convenience, in this case the ability to produce digital script with ‘only a push of one button’ – an affordance commonly given by students who prefer digital writing.¹⁸

Interestingly, student interest and preference for reading and writing digitally was sometimes at odds with both teacher and parent preferences for using, or not using, digital technologies to support students reading and writing practices. We saw this with the teacher responses above, and we will see it again below in parents’ descriptions of students’ LLT practices at home. This mismatch between teacher, parent, and student interests and preferences for using digital technologies to support reading and writing practice is not uncommon.¹⁹

Supporting LLT Practices at Home

In this subsection we shift to discussing LLT practices within the home. We analyzed parent and student interviews to identify the ways parents cultivated LLT practices at home in support of their children’s schooling. This exploration included family home LLT practices broadly, with a focus on parents’ LLT practices for children with more significant support needs and disabilities.

Concerted Cultivation of LLT Practices: Mira & Hilda Family interviewees – the majority of which were middle- and working-class families of color – were very intentional in their cultivation of LLT practices and routines at home to support their children’s growth and learning. This was partly due to our purposive participant sampling (see Chapter 3) as well as

FVA's strong school culture which required parents to actively commit to supporting their children's learning in and out of school (see Chapter 4).

Family LLT practices common across socioeconomic class included utilizing resources found in community spaces, such as public libraries, to support their children's literacy development as detailed by Mira, a middle-class Filipina mother of three neurotypical children enrolled at FVA:

So, we try to go to the library at least once or twice a week and I have them do their homework and pick out some-books. And sometimes we bring them home and read them. They love to read books... Maya, she reads on her own and I try to encourage her to read before bedtime. Just a few minutes before bedtime. It kind of makes her calm and fall asleep easier. So, she's always reads on her own and it's not like a daily thing a couple of times a week, couple times a week. I mean, I'll try to push it every day. I'll say, did you read? But it doesn't always happen. Right. And then, Marco likes to read on his own. He actually just started reading, wanting to read independently. Before it would be like, 'will you read this to me?' And I still do. I'll still read him books. Like Maddox, I read to him all the sight words in the book. I point them out and he'll try to sound the sight words. So, if I see a sight word, I just stop and I say, 'What's this word?'

We noticed a focus on not just reading for academic advancement and growth, but also for pleasure among the upper- and middle-class families of color we interviewed. We also noticed an explicit focus on structured routines, for example the incorporation of independent and joint reading as part of the bedtime ritual. Routines and practices in upper- and middle-income families also included the integration of intentional reading strategies (i.e., sight word memorization, letter-sound correspondence) indicative of the funds of knowledge around literacy instructional best practices that this subset of our family interviewees had developed. Families' intentional cultivation of their children's learning experiences at home reflected FVA's student and community-centered school culture and messaging focused on literacy practices being formative and engaging experiences.

Reading for academic advancement and growth as home literacy practice was also frequently reported among the working-class immigrant families we interviewed. The focus of reading was

not as much for pleasure as it was to reinforce academic subjects learned in school as well as supplement the perceived lack of homework – which was deemed extremely important to children’s education and daily household work by the working-class immigrant families we interviewed. In the following excerpt Hilda, a working-class mother from rural Mexico, describes her desire for supplementation in relation to what she perceives as a lack of sufficient homework for her two boys, one with and one without disabilities. Hilda said she was quite perplexed initially by the lack of homework, as homework was the norm at the boys’ prior school and a very common form of supplementation in Mexico:

¡No hay tarea! Los pongo hacer otras cosas como leer un libro. ¡Necesito que esten haciendo algo! No solo viendo la tele.

[They don’t assign homework! So, I give them additional things to do like reading a book. I need them to be engaged! Not just watching TV.]

Hilda iterates here the strong push rooted in Mexican culture to always be working – work being morally rooted as signaling a disciplined commitment to serving a higher purpose of taking care of one’s family, and by extension one’s community.²⁰ Promoting a good work ethic is central to Mexican sociocultural norms and is an important component of the moral support for schooling parents offer their children from an early age.²¹

As such, Hilda indicated during her interview that she despised the idea of her children being unproductive and wanted to use academics, specifically reading books, to both advance her children’s learning and keep them busy and productive at home and “no solo viendo la tele.” Hilda’s perspectives on the value of productivity in relation to academic success were reiterated by another Mexican mother Sara, whose story we discuss in greater detail in Chapter 4.

Families’ intentional literacy supplementation at home was evident in all our interviews with families regardless of socioeconomic status. However, the incorporation of technology towards

this endeavor was reported more frequently in the upper- and middle-class families. This digital equity gap was largely due to issues of both access and knowledge, indicative in Hilda's brief response to our questions regarding the role technology played in supporting literacy at home:

Disculpa, pero no hay computadora en la casa y no se como usarla. ¿Es necesario tener computadora para la escuela?

[I'm so sorry but we don't have a computer at home and I don't know how to use one. Is it necessary to have a computer for school?]

Hilda apologized for her lack of computer knowledge and not being able to answer our questions about digital technologies. In Hilda's case, she experienced issues of access related to both a lack of connectivity and devices, as well as limited knowledge in how to navigate digital apps, devices, and tools. Unfortunately, a lack of support in gaining access to digital technologies for academic and social purposes can preclude lower-resourced families and communities from securing the resources they need to meet the 21st century demands of living in the U.S.²²

Hilda also confided that the family did not have money to buy a computer and was worried that the lack of digital resources at home could negatively impact her ability to support her children's schooling at home. In response to her question regarding the need for a computer at home to support schooling, I (first author) explained in Spanish that as children progress into the upper elementary grades they would be increasingly asked to use computers with access to the internet to write papers and conduct research for projects. Upon hearing this, Hilda stated that she would start "ahorrando poco a poco" – saving a little money each month – to eventually get a computer for her children.

However, despite having limited financial and technological resources, Hilda was incredibly resourceful in using her linguistic funds of knowledge, as well as local community resources, to support her children's literacy engagement and practice at home:

Los niños tienen colecciones completas. 'Cat in the Hat.' 'Dog Man.' Les digo, te lo compro si lo vas a leer.' Y vamos a la biblioteca para los que no puedo [comprar]. Al chiquito, le invento porque no leo en inglés. ¡Ahora me corrige! Con el grande, también leo. El me lo lee. Al chiquito, le gusta 'books on tape' y 'CDs.'

[The boys have complete collections. Cat in the Hat. Dog Man. I tell them, 'I'll buy it for you if you'll read it.' And for books I can't afford, we get them at the library. With the little one, I invent stories because I don't read in English. And now he can correct me! I also read with the older one. He reads to me. The little one likes books on tape and CDs.]

Hilda used free resources such as the library to expand her children's literacy activities and cultivated her family's engagement with reading by using the gifting of books as rewards for consistent reading routines. And while Hilda confessed to not having a computer at home, she used other types of technologies, such as CD and cassette tape players, to play audio books and CDs borrowed from the public library.

Hilda leveraged her children's linguistic funds of knowledge as bilingual Spanish-English speakers to engage in joint reading of English language books. She also used her own linguistic resources as a Spanish speaker to engage in imaginative storytelling in Spanish using illustrations in English language books as guides with the youngest of her boys who was still an emerging reader in both languages. Hilda's use of community resources to access books, as well as her use of familial sources of knowledge, are indicative of the ways that many working-class and first-generation families engage in the concerted cultivation of their children's education and promotion of LLT practices.²³

Using Digital Technologies to Support LLT Practices For upper- and middle-class families at FVA, technologies to support literacy skills development, such as the use of education websites and apps on mobile or laptop devices, were very common. Here Mira describes her use of the Lexia and Prodigy digital apps to support her children's literacy skills at home:

I did get the Lexia program for home for all three of them because I know what they're doing [at FVA] is great and they're getting a lot. But I just wanna supplement, right? I

got that program and I kinda try to push them to do it at least a couple hours a week. Just to try to, you know, get them off from the other games to do more educational stuff.

Mira's focus in using education apps was to supplement and support the literacy skills being developed at FVA. As such, a majority of our upper- and middle-class families used multiple devices within the home, including mobile phones, tablets, and laptop computers, to access education apps, websites, and videos to supplement their children's schooling. The parents often indicated a belief that it was their parental responsibility to provide additional support for LLT practices outside the classroom – implying that schooling is “not enough” and that parents needed to continue the process of learning at home:

[Lexia] has to be on done on the laptop and I have a sticker chart for them. So, every time that they spend 30 minutes on it, they get to put a sticker on their Sticker chart. I try to encourage them too. Maya doesn't like doing all the reading. Marco is totally into it. Loves it. Maddox as well. He likes it.

In upper- and middle-class homes like Mira's, LLT practices and routines incorporated independent usage of digital education apps, such as Lexia, to supplement FVA's school curriculum. Digital technology use was intentionally promoted within the context of developing good study habits (i.e., using sticker chart/rewards system) to keep track of, and reward, their children's' LLT activities within the home. This level of parental involvement and cultivation of children's academic outcomes was reported across all family interviewees.

Additionally, the majority of middle- and upper-class families interviewed made it a point to distinguish between the different forms of technology they used within their home routines, including Dina, mother to 3rd grader James and kindergartener Daniel:

So, we're constantly getting information through our phone. We also have a home computer that James uses to do Smarty Ants on or just learning activities. When he feels like he has to do something on his iPad, we encourage that he does Smarty Ants first and then he can have fun time on his iPad. iPad for him usually means video games [laughs], but in regard to supporting learning, I would say the home computer is more for that.

In this example, Dina intentionally divides the uses of technology within her household with the desktop computer being used for academic (i.e., Smarty Ants) and research purposes. Mobile technologies, such as the iPad, were more likely to be positioned as a source of fun and relaxation, including activities for information seeking (news) and fun (video games). Also significant was Dina's prioritization of her children's digital device use for academic purposes before being allowed to use digital devices for recreation – a prioritization that was reported by parents across the majority of our family interviews. Parents' positioning of device use for multiple purposes across contexts is consistent with findings from other studies examining uses of digital technologies in the home.²⁴

In our interviews with the children, the most popular devices for accessing digital content were mobile devices and tablets. Video gaming – particularly dance/movement, educational, and fantasy-based – was the most popular mobile and tablet device activity, as described by James, Dina's 3rd grade son:

Interviewer: *Do you use things like iPads or phones and how do you use those?*

James: *I have an iPad and I go on it mostly, but not mostly for learning.*

Interviewer: *That's okay. Can you tell me what you use it for?*

James: *I use it for playing. I play some of my games and I played this song game.*

Interviewer: *Oh, what's the song game?*

James: *You tap on the screen toward the jump and then the more you go further into the level, the more harder it's gonna get.*

Interviewer: *Do you remember what it's called so that I can look it up?*

James: *Geometry Dash Meltdown*

James' recreational use of the family iPad was an example of how technologies were used differentially by parents and children, with tablets and mobile devices used primarily for recreational engagement and desktop and laptop computers for academic purposes, such as homework completion and writing tasks. Marco, Mira's 2nd grade son, elaborates on his reasoning for differentiating his use of digital technologies for different purposes:

Well, I like to use my phone. But I also like to use a computer too because when I use a phone to use a website, it's not really that easy. But if I use a computer or a laptop, it's much easier to use a website because it's really hard to see it [on a phone]. It's a smaller screen... I like to watch videos and play games on my phone. But on the computer, I like to use websites.

Marco's explanation of his differentiated technology use illustrates how accessibility and convenience play a significant role in user's decisions of how and when to use technologies for various purposes.²⁵ Accessibility features as a determinant of technology use at home, in this case smaller screens in mobile technologies making research and academic activities via the internet more difficult, is a common finding in research examining uses of technology. As such, feasibility and ease of use is a determining factor in how families use digital technologies.²⁶

Supporting Disabled Children's LLT Practices at Home: Dina, Noah and Madeline

An important aspect of our ethnographic work at FVA was documenting the LLT practices families from diverse backgrounds engaged in to support children with disabilities identified as having moderate to substantial support needs on their IEPs. Toward this endeavor, we discuss interview findings from two representative family interviews: the first with Dina and Noah, a working- middle class couple of Mexican descent with two sons at FVA, and the second with Madeline, an upper-middle class mother of Filipina descent with one daughter at FVA. Dina and Noah's sons are James a neurotypical 3rd grader without an IEP in Ms. Wezner's classroom, and Daniel, a kindergartener with Down syndrome and an IEP outlining substantive accommodations and supports in Ms. Macias' classroom. Madeline's daughter, Star, is a 2nd grader with Down syndrome with an IEP outlining moderate accommodations in Ms. Ohlin's classroom.

Dina and Noah's family, like all the households we interviewed, demonstrate many of the literacy practices and routines often reported by upper- and middle-class families with

neurotypical children. These include parents intentionally having, and making visible, their own reading routines to their children; as well as having a variety of books available at home, as Dina discusses below:

As far as what we do at home, books are accessible. So, I've always made it a point to have a bookshelf that's loaded – just something that they can grab... Like if we go to the swap meet, I love going to the one that has the books because I could literally spend probably two hours picking out good books that I like. So, I have a huge, I love going to bookstores. I'm inspired by story. So, I plan to grow our library with time. Reading is just really strong within myself. And I know my husband enjoys reading too. I want for my kids and my grandkids, and any kid who comes to my house, to know that we love books.

Madeline also reiterated literacy practices at home similar to what Dina and other parents reported. These included promoting a joy of reading, engaging in extracurricular reading and writing activities at home, and utilizing outside resources like Ms. Brown:

She loves reading, so we do have a lot of books. Star loves homework, so I have those Ms. Brown [workbooks]. Have you heard of Ms. Brown? She has a little system for teaching kids with Down syndrome, so I have worksheets from her. And then I also have, like at Costco they sell the kindergarten and first grade [workbooks] and we just go through those. I mean, she could literally do homework 24 hours a day and reading. And I have to tell her 'no' sometimes. [laughs] But yeah, a lot of reading and writing at home. And sometimes [for homework] I'll have to write a sentence, I'll ask her questions. She gives me an answer. I write out her the words, or the sentence, and she copies it.

Engaging in writing practices at home – including the use of sentence frames to support Star's writing and homework completion – as well as accessing reading and writing materials designed for children with Down syndrome, were strategies Madeline used to support Star's literacy engagement. Incidentally, Dina also mentioned in her interview that she too used Ms. Brown materials, and both Madeline and Dina indicated that their participation in resource communities for families of children with Down syndrome was quite strong.

In our interviews with upper, middle-, and lower-income families of color, we found the intentional cultivation of literacy practices to be commonly reported across socioeconomic status. This is in line with prior research examining the concerted cultivation practices of diverse

families; and is in contrast with prior research relegating concerted cultivation practices as typically white middle-class phenomena.²⁷ Family literacy habits and traditions, such as engaging in and cultivating a love of reading, extend to include diverse families of multiple socioeconomic backgrounds, include families of children with disabilities.

Like Mira's family reported above, Dina and Madeline prioritized and monitored their children's technology use to promote their children's learning, not uncommon in middle-class households with multiple digital devices.²⁸ As such, Dina and Madeline's prioritization of device use for learning was a prerequisite for their children to have access to devices for recreation – a reported practice among the majority of families we interviewed. Here Madeline discusses how she monitors Star and her older brother's access to the family's iPad devices:

Yeah, she's on it. She's learned a lot from it. But we have no iPads during the week. Only on the weekends... I think for her, I think it's more innocent. Whereas my son, it's, you know, YouTube. We have to kind of watch him now, he's 10, 11. But for her it's all innocent. It's all nursery rhymes and baby shark and all that stuff.

Parents' monitoring of devices, and worries about their use, particularly for older children and children with disabilities – is a common topic of concern for parents.²⁹ With that said, for a majority of parents we interviewed, these concerns were coupled with a positive belief in the potential for using digital technologies, particularly education apps, to support their children's literacy practice and engagement.

Presuming Competence in Supporting Disabled Children's LLT Practices During our interviews with Dina, Noah, and Madeline, we also discovered a need to discuss misconceptions, particularly those related to academic outcomes, held about their children. Children with Down syndrome, a genetic condition in which a person is born with three copies of chromosome 21 instead of two, often have physical and intellectual differences across a wide range of abilities.³⁰

By law, children with Down syndrome are protected under the Individuals with Disabilities Education Act and entitled to supports and accommodations, as typically outlined in an IEP.

Misconceptions about the literacy practices and outcomes of children with Down syndrome and their caregivers abound, including the perception that children with Down syndrome cannot read and write.³¹ Tied to these misconceptions is the idea that children with Down syndrome are less interested or able to engage in literacy practices that support their literacy development.³²

Dina sought to dispel this myth in her discussion of Daniel's love of reading:

For Daniel, he loves to now pick up a book and say, 'I'm going to read you a story.' And even though we're not articulating the words on the page, he's able to point to the illustration on the books and tell me a little bit about it. And he knows how to start the book. And he'll read it and then he'll close it and say, 'The End.' [laughs]... For me, it's having fun with it. You know, it's not necessarily making it a heavy chore. So, we do need to read 20 minutes a day, but if he's more happy about doing it, then I'll [read with him] as long as he's excited about doing it.

Dina not only shares that Daniel enjoys reading, she also points out how Daniel's knowledge of narratives and storytelling conventions – crucial early literacy skills – support and make possible his participation in joint-reading practices with her. Dina and Daniel's attitudes and approaches to engaging in joint-reading activities and reading for pleasure are aligned with the kinds of literacy practices and approaches we know to be effective in supporting children's reading development and engagement.³³

Dina and Noah explained that Daniel's enthusiasm for reading extended to his desire to complete all of his academic homework. They went on to describe how Daniel viewed his brother James as a peer model, an effective motivator that Daniel's family used to assist him in meeting his homework goals:

Dina: So, Daniel is very eager. And he's very excited when he gets homework [laughs]. He mimics everything his brother does. He sees us consistently with James, with his homework. So, he wants to be a part of that too. I don't really have to talk him into

checking his backpack and showing me what's there and he gets very excited, 'I have homework,' and we'll sit down.

Noah: Dina will sit through with him and he'll actually do it. And he'll stay engaged. The whole time. And he'll answer questions. If she says something, he'll listen and respond back to her. He'll finish it. [laughs]

Peer modeling has been demonstrated to be useful for all children – particularly for children with developmental and cognitive disabilities – in noticing, developing, and practicing academic and social routines and behaviors.³⁴ As discussed in Chapter 4, peer modeling as an inclusive support strategy was widely used within FVA's classrooms – with many students carrying the practice into their homes. The ability to ask questions about one's own work, as Noah reported Daniel did with Dina, has also been shown to be an effective strategy for engaging with academic content.³⁵

Dispelling myths about what their son Daniel could and could not do was very important to Noah and Dina – something they indicated having to constantly do with family and friends. This came through in the examples Noah and Dina gave of Daniel's and their family's practices as well as in the language used to describe Daniel's accomplishments – for example when Noah said “and he'll actually do it” – as if beseeching us, the researchers, to suspend misconceptions we might have of Daniel's abilities or competence.

Madeline, similarly to Dina and Noah, was also eager to dispel myths about her daughter Star's literacy abilities:

I know she'll always be like, not at the same level, but what she has just learned in this year and a half is amazing. I could see. I mean, I'm shocked at times too because she's reading, she's picking up a book and she's sounding out the words. If she doesn't know it, she'll ask me. I would say 95% of her sight words, well, she knows. We're working on math with her and, I mean, her art is amazing. Her dancing. It's amazing.

Madeline, Dina, and Noah's belief and support in their children's abilities and competencies echoed Ms. Wezner and Ms. Gomez's sentiments, outlined in Chapter 4, about the importance of

shifting one's mindset to believe that all students can succeed and must be given opportunities to do so. Madeline expresses this belief in presumed competence while discussing her reasons for moving Star to FVA:

I was in the back of my mind thinking about sending, or actually advocating, at her school. Back then she was going to Warner elementary, which is a public school. And I was thinking about maybe asking them to change her education goals because I noticed that she was very bright. I took her to tutoring and they all said, 'you know what, Star doesn't belong in a moderate to severe classroom.' This girl sitting next to me at [a Down syndrome conference] just told me about FVA and she said, 'you know, it's open, you just have to sign up and win the lotto.' And we did, and we got in. I had never even heard of this school and I was just thinking, 'Oh my gosh.' I heard horror stories about trying to advocate for kids to get into mainstream. And, oh, I love this school. This is her second year here and she's doing great. I mean, socially, she's always got along with everyone, but, educationally, I mean, she's reading!

Madeline echoes Ms. Wezner's observations from Chapter 4, reflecting on presumptions schools make that children with moderate to substantive support needs are incapable of learning in general education classroom settings, and are best served in segregated classroom environments. This is a belief that, as explained by Ms. Wezner, is prevalent among teachers and schools.³⁶ As such, both Madeline's and Dina's commentary reflect a belief that supporting their children's growth and engagement centers on presuming competence.

Parents' active cultivation of their children's LLT practices supported a necessary relationship between presumed competence and opportunity and was integral to extending FVA's vision of inclusion to families in support of the broader school community. Parent commentary also pointed to the leap of faith families at FVA take in supporting and advocating for the full inclusion of their children at home and beyond. As demonstrated by Dina, Noah, and Madeline, this leap of faith includes believing in students' abilities to achieve levels of success that extend beyond pre-prescribed notions of what disabled students can and can't do.

Supporting Disabled Children as Creators and Writers: Star and Finn

In addition to discussing observed and reported LLT practices at school and home, we were also interested in exploring how the integration of physical and digital technologies into the literacy practices might empower disabled students' agency and voice as creators. As such, we were interested in understanding disabled students' own perceptions of themselves as creators and writers, as well as staff perceptions of the affordances of technology to support students as creators and writers in the classroom. In this section, we focus on the stories of Star, Madeline's daughter with Down syndrome, as well as Star's classmate Finn, a 2nd grader with Autism.

Using Multimodality to Support Expression: Star Multimodality refers to interactions between multiple modes of expression (i.e., artistic, literary, and written) across diverse media.³⁷ Multimodality mediates the means and ways that we communicate and express ourselves as creators.³⁸ In *Giving Voice*, Alper argues that children's creation and consumption of diverse media afford alternative avenues for communication and expression. For children with disabilities, access to multimodal modes of content representation afford diversified opportunities for fuller expression as creators.³⁹ In our interview with Star, she used drawing and writing to express her interests, ideas, and thoughts.

When we interviewed Star, she was very eager to share her interests, including how she used her writing and drawing abilities to express herself. In prefacing my interview with Star, her mother, Madeline indicated that Star was performing near grade level. I corroborated with Star's teacher, Ms. Ohlin, that she indeed was doing well in the general classroom setting and was a very active and engaged member of her classroom.

Prior to starting, Madeline suggested that she sit in to help facilitate, stating that people new to Star sometimes had difficulty understanding her articulation. As a result, Madeline's facilitation is reflected in the conversations below. The first thing Star did during our interview was show me a birthday card she drew depicting herself with her father, which we discussed at great length:

Interviewer: *Thank you so much for talking with me, Star. Can you tell me about the picture that you drew?*

Star: *Yeah. I draw my daddy. I love my daddy.*

Interviewer: *Your house?*

Star: *Yeah. I went swimming with my dad.*

Interviewer: *Is this a birthday?*

Madeline: *What is this honey?*

Star: *Birthday*

Madeline: *Who is this for?*

Star: *Daddy*

Madeline: *Oh, it's for daddy? Is this his birthday card?*

Star: *Yeah.*

Interviewer [Reading the card out loud]: *"'I love you daddy' by Star." This is beautiful!*

It was very clear that Star viewed herself as a creator and enjoyed expressing herself using her art and writing as forms of visual expression. Star used her art to express her love for her dad, and her preferred activities (i.e., swimming with dad). Star's birthday card to her father was on par with the forms of visual and written self-expression that younger elementary aged children in the early stages of developing their literacy abilities tend to engage in.⁴⁰ Star's use of writing to express her emotional world and share her connection with others was also evident in her response when asked what she liked best about school:

Star: *I like writing*

Interviewer: *You like writing? Why?*

Star: *I write about my daddy and my mommy.*

Interviewer: *Lovely!... So, you like that you get to write?*

Star: *Yeah.*

Interviewer: *How do you feel when you write?*

Star: *Happy.*

In Star's response, we see that she views herself as a writer and writing as a source of personal joy – giving writing the power to amplify our identities as creators.⁴¹ Star's intentional choice to write about her mother and father, the two most important people in her world, is a nuanced, thoughtful, move to create connection and express love for others that dispels myths about the emotional worlds of children with moderate to severe disabilities.

Using Digital Tools to Expand Writing: Finn Initial observations of how Finn, a minimally speaking autistic 2nd grader, used digital technologies to support his writing led to exploring assistive uses of mainstream digital technologies, defined as digital devices and tools that support fuller participation and engagement in the classroom.⁴² Observed assistive uses of digital technologies for writing at FVA included the use of speech to text and spellcheck functions in word processing applications such as Google Docs. Assistive uses of digital technologies for reading included the use of text to speech and “read to me” functions integrated into digital literacy apps such as Lexia and Epic. General and special education teachers, with paraprofessionals' support, managed assistive uses of these applications on students' Chromebook and iPad tablet devices.

Following classroom observations, we reached out to Finn's mother, Blake, for an interview. However, when we attempted to interview Finn, he was apprehensive to speak with us, which resulted in Blake volunteering to facilitate the interview. As a result, Blake's facilitation is reflected in the excerpt below. Congruent with classroom observations, Finn's preference for engaging in literacy activities with digital technologies was reflected in his interview:

Blake: Let's talk about reading and writing. What kinds of things do you like to read or write about? Do you have a favorite story or book?

Finn: I like to read the book 'up' and I like writing about movies.

Blake: Let's talk about computers now. Do you use computers for reading and writing? What is your favorite thing to do on the computer?

Finn: *Read on Epic.*

Blake: *How do you feel about reading and writing? Do you like reading and writing with paper or with computers better?*

Blake: *Happy. I like computers better.*

Finn indicates that reading with Epic, an interactive digital reader app that affords both “read to me” and independent reading options of high interest levelled readers, was his favorite thing to do on the computer. When asked about writing, Finn also indicated a preference for using his computer to read and write, using happy to describe his positive feelings towards engaging in literacy practices with his computer.

How Finn felt about using technology for his reading and writing was corroborated in both classroom observations and staff reflections, and reflected how Finn, and students with similar support needs, responded to integrating assistive use of digital technologies into their writing practice. For Finn, and students with similar support needs, the sensory act of writing with pencil and paper can prove to be difficult. Students with disabilities often face a concordance of fine and gross motor coordination needs that make the writing process particularly taxing.⁴³ Handwriting difficulties may lead to decreased legibility and shorter, less complex, pieces to reduce handwriting burden.⁴⁴ Difficulties with self-regulation can present as distractibility and impede planning processes critical to producing coherent writing.⁴⁵ Such challenges can result in writing becoming a physically laborious and potentially demotivating task.⁴⁶

As such, transitioning to writing using his Chromebook device, particularly with the allowance of the Google Docs speech-to-text function, allowed Finn to improve both the quality and content of his writing. Assistive uses of mainstream digital technologies create opportunities for students with sensory support needs, like Finn, to positively mediate the writing experience – freeing students to focus on content generation and expression of voice, rather than the

mechanics of writing.⁴⁷ In Ms. Carina's view, the affordances created by incorporating assistive uses of digital tools, such as speech to text, into students' writing practices were instrumental to creating a motivating learning environment for students to engage with their writing:

One of the ways that it really helped a lot of the students was [with speech to text]. We had a student in particular who just, he would get really overwhelmed when it came to writing. He couldn't form the words together. He would get frustrated really easily. And so the way that we helped him with technology is we introduced him to speech to text. And so he was able to calmly share a story, tell us what he wanted to say, and then we would go through it together and edit it. So, we'd sit there and comfort him. Like, 'Oh, you're doing great. should that be capitalized?' And so he would [make the revision] after that because he saw it already, written out. It was like, 'Okay, I'm halfway there.' So, he was able to keep going with that.

Ms. Carina saw the use of technology to support writing as potentially empowering for students. This was particularly true for students like Finn who require additional supports to engage in the writing and revision process and for whom such tools make full participation possible. Ms. Carina's view was shared by other paraprofessionals, including Ms. Sandy and Mr. Gabriel, with whom Ms. Carina was in constant communication regarding students' progress and needs. This included sharing observations and intentionally incorporating assistive uses of digital tools into the writing practices of other students once they witnessed a positive impact:

And then after we saw that it was successful, we noticed a kid in Ms. Gomez's class, he was also having trouble and he started using speech to text. And so that also helped him a lot too. So that's just one of the ways that we saw that it was very beneficial to him... He was able to write more than he typically would. I mean, the detail, he was able to include more details, so the quality of his writing was better as well. And then just overall him feeling successful too. He didn't completely hate writing. He wasn't crumpling his papers and throwing them away. He was like, 'All right, let's get to it.'

The ability to write more, with greater quality and detail, using digital technologies, as observed by Ms. Carina, has been established in the literature.⁴⁸ For example, word processing features in Google Docs can support emerging writers by facilitating the editing and revision process and alleviating handwriting strain.⁴⁹ Desktop publishing features make writing less tedious and more

expeditious for emerging writers and also facilitate possibilities for peer collaboration through applications such as Google Docs.⁵⁰ Finally, assistive use of mainstream digital tools, such as spell check and text to speech, afford benefits for emerging writers engaged in the production and revision processes of writing.⁵¹

Studying the supports provided by paraprofessionals such as Ms. Carina, in tandem with disabled students' own perspectives and practices – affords insight into how best to support disabled students in sharing a fuller picture of themselves as creators. This includes supporting assistive uses of mainstream digital technologies to afford alternative means of textual communication and facilitate students' agency, engagement, and inclusion in the classroom.

Supporting Linguistic Expression using Assistive Technologies

In this section we analyze the ways minimally speaking students at FVA used assistive technologies and tools to express to themselves and connect with their school community. Assistive technologies and tools for communication are technologies that support students' linguistic expression, which we define as a person's use of language, whether articulated by that person or through an intermediary, to share thoughts and feelings, make requests, and solicit or give information.⁵²

Assistive systems of support for students with disabilities fall along the range of low-tech, mid-tech, and high-tech tools.⁵³ Low-tech tools are mechanically simple, do not require extensive training, and are the most commonly used assistive tools in classrooms. At FVA, low tech included the use of behavior charts and visual calendars to support and reinforce positive classroom behavior. Straddling the line between low tech and mid tech is the as the Picture Exchange Communication System (PECS). Finally, high tech tools are mechanically complex,

require substantial training, and tend to be much more expensive.⁵⁴ At FVA, high tech tools included the use of Language Acquisition through Motor Planning (LAMP) and Proloquo2GO – augmentative and alternative communication (AAC) applications downloaded onto dedicated iPad tablets assigned to minimally speaking students at FVA.

LAMP is high-tech a therapeutic intervention based on neurological and motor learning principles designed to be used by people with autism, however now it is used by minimally speaking individuals across a range of disabilities.⁵⁵ LAMP uses a speech-generating device to expose students to core words with auditory feedback. LAMP can be used with several speech-generating digital applications and dedicated devices, however FVA exclusively used LAMP Words for Life for iOS on iPad devices.

Proloquo2Go is a high-tech, symbol-based, communication app for iOS designed to be used by minimally speaking individuals as a daily communication tool.⁵⁶ Proloquo2Go can be customized with high frequency key words organized thematically in folders and uses text-to-speech child and adult voices across multiple languages, including the ability to switch languages mid-sentence for bilingual users. It is designed to be used by minimally speaking individuals across all ability levels in need of AAC support.

PECS was a common low to mid-tech AAC intervention used at FVA – independently or in conjunction with Proloquo2GO. PECS was initially developed for students diagnosed with autism, however today it is used with students of all ages facing communication challenges across multiple disabilities.⁵⁷ PECS uses pictures of preferred and high frequency objects and actions as exchange items that students can use with a communicative partner to comment, make

requests, and answer questions. The goal of PECS is to teach functional communication, with more advanced users often transitioning to AAC applications and speech-generating devices.

Ms. Davis, FVA's Speech Language Pathologist, managed these AAC interventions, including digital applications on dedicated iPad devices assigned to students, with the support of Ms. Alexa, the Speech Language Pathology Assistant, and Ms. Blaire, a graduate student completing her practicum for the SLPA designation at FVA. Providers were also supported by the Special Education teachers, Ms. Severin and Ms. Haberly, as well as the paraprofessionals assigned to each classroom. Below we discuss how staff supported students in their use of assistive technologies at FVA – specifically those utilizing AAC to support linguistic expression.

Below, we discuss how Conrad, a minimally speaking 2nd grade student with Down Syndrome in Ms. Ohlin's classroom, uses LAMP to negotiate interactions with his classmates. Then, we discuss how Santiago, a minimally speaking 1st grader with Down Syndrome in Ms. Macias' classroom, uses PECS to collaborate with peers during literacy centers. Finally, we discuss how Tammy, a non-speaking 4th grader with Down Syndrome in Ms. Gomez' classroom, uses Proloquo2Go to make her participation visible in classroom discussions. We also use Tammy's case to explore how students' technology use impacted teachers' understanding of student competency and voice, as well as efforts to presume competence.

Negotiating Embodiment of Voice with LAMP for iPad: Conrad Observations of Conrad's use of LAMP for iPad with his peers revealed the kinds of negotiations minimally speaking students navigate in their usage of high-tech AAC devices in the classroom. For Conrad, negotiations in the use of his iPad were complicated by the social allure iPads hold – which can sometimes detract from their use as communication devices.⁵⁸ This resulted in issues of

boundaries around use, as was seen in the following observation of a guided reading lesson facilitated by Ms. Severin:

The students are engaged and listening. Ms. Severin's group includes both Star and Conrad. Star proficiently decodes her book as Ms. Severin uses her pen to help her track her eyes. Ms. Severin then moves to Conrad and begins a picture walk of the drawings that Conrad made for his book. Star moves next to Conrad and grabs his iPad. Ms. Severin immediately responds, *You need to ask Conrad if you can use his voice. Conrad, can Star touch it?* Conrad shakes his head *no* and Star gives the iPad back to him.

Negotiating boundaries in the use of Conrad's AAC device (i.e., his iPad) centered on two elements: first, defining Conrad's "voice" as embodied by his AAC device, secondly, deciding whether others were allowed to partake in the embodiment of Conrad's voice – in other words, use his device. Debate continues as to whether others should be allowed to use AAC devices dedicated to specific users – particularly if said devices are being situated as that person's "voice" with all the traditional conceptualizations of voice as embodiment of body and self.⁵⁹

Variations in whether voice should be limited to one or multiple bodies evidenced itself as boundary shifts in how voice was both interpreted and embodied among Conrad and his classmates. These tensions revealed themselves as students negotiated their engagement with Conrad and his iPad during the remainder of the lesson:

Conrad types *Finish banana best* into his iPad. Star leans over and adds *little* to form *Finish banana best little*. Star takes Conrad's iPad again and Isabelle, another classmate, exclaims, *Star touched his iPad!* Ms. Severin responds: *Star needs to ask Conrad... We are going to get a second iPad for us to touch so Conrad will have his and we will have ours.... For now, let's leave it for Conrad.* Ms. Severin hands the iPad back to Conrad, who continues typing, while a protective Isabelle sits between him and Star. Star returns to her own work.

Negotiations and tensions in the use of Conrad's iPad between students reveals his device to be a site where *"identity and personhood are negotiated."*⁶⁰ Whereas Star's interest may be situated in both the utility and novelty of the device – not necessarily viewing it as an embodiment of Conrad's voice – Isabelle clearly views Star's use of Conrad's device as a violation of his

personhood. This belief is reinforced by Ms. Severin's affirmation that, yes, Conrad's iPad is his voice – if the class wants to communicate via device, they need to get an additional iPad to do so. From Isabelle and Ms. Severin's viewpoints, voice embodies individual personhood, and as such, needs to be bounded as one person, one voice.⁶¹

Differences among Conrad's classmates about whether, and how, to engage with him vis-à-vis his iPad device were also evident in the FVA staff's approaches to integrating the use of AAC devices into classroom interactions. In the following excerpt, Ms. Alexa adopts a more fluid approach to engaging with Conrad's iPad compared to Ms. Severin's during another literacy center rotation:

Ms. Alexa shows Conrad a book of foods and prompts: *Can you tell our friends 'I want...'* This prompt is directed towards Conrad, who uses his iPad to say: *I want French Fries*. Alexa asks each of the students in Conrad's group what they prefer. As the group grows more boisterous with conversation, Ms. Alexa asks for quiet: *I want to hear Conrad*. Conrad uses his iPad to say, *I want yogurt*. Ms. Alexa takes the iPad from Conrad to show it to his classmates and says, *Conrad chooses yogurt*.

In these examples, distinctions of how, and to what extent, others should use students' AAC devices to support classroom engagement and communication are not always clear. As Alper noted in *Giving Voice*, for adults who intensively engage with disabled children, such as caregivers who speak on behalf of and as intermediaries for their children – an integral aspect of advocacy can include embracing the fluidity between bodies and device, entering what she describes to be “*a liminal state in terms of where one person's body or voice ended, and another's began.*”⁶² For Ms. Alexa, modelling and scaffolding Conrad's communication was of utmost importance – what she was charged to do in Conrad's IEP as his SLPA. For her, this meant having a more active hand over hand approach in negotiating the use of Conrad's device by, and with, him.

Supporting Collaborative Peer Communication with PECS: Santiago Staff were also observed intentionally negotiating the use of assistive technologies, in this case Santiago's PECS board, to encourage collaboration and communication amongst students. In the following interaction, Ms. Blaire demonstrates a hand over hand approach – similar to Ms. Alexa's approach with Conrad – in negotiating the use of Santiago's PECS board between Santiago and his classmates as they select books for their literacy center:

Ms. Blaire is helping Santiago, along with six of his classmates, in selecting books for silent reading. Ms. Blaire shows the children how to use Santiago's PECS board to make requests and has Santiago and his classmates use the board to discuss the books they are going to read silently. Afterwards, Ella, a classmate, helps Santiago select a book while another student flips through Santiago's PECS board.

This observation revealed how service providers could scaffold the use of assistive technologies to leverage peer to peer modelling and cultivate children's inherent interest in communicating with each other. In Ms. Macias' classroom, provider intervention resulted in Santiago's classmates' developing interest in learning how to use the PECS board to communicate with him. This observation was notable to us having observed provider interactions in other, often less integrated, classroom settings where use of PECS, and other assistive technologies, was used exclusively between disabled students and their designated service providers – a dynamic that often results in disabled students remaining segregated from their classmates, as well as dependent on their assigned service providers.⁶³

Inclusive collaboration among Santiago and his classmates in using the PECS board to communicate supports FVA's messaging that *all* forms of communication get equal space and value. This includes a belief that having voice transcends the parameters of speech. Moreover, communal use of Santiago's PECS board situates the concept of voice across that fluid "liminal

space” of multiple bodies.⁶⁴ This is in contrast to the positioning of Conrad’s iPad device as singularly his voice by Ms. Severin.

Making Agency and Participation Visible with Proloquo2Go: Tammy In the following excerpts, we use Tammy’s case to explore how students use their AAC devices to exert agency and make their participation visible in the classroom. Technologies which aid communication hold a charged, non-neutral, presence in the classroom because they make visible people’s thoughts, feelings, and actions that may have otherwise been marginalized– in other words, technology politicizes voice.⁶⁵

We first met Tammy during the winter of 2020 in FVA’s front office prior to the start of that day’s classroom observations. Tammy was seated near the front entrance, exploring Proloquo2Go on her iPad. She looked up as I walked into the office and, using Proloquo2Go, introduced herself with a big smile: *Hi, my name is Tammy. I am nine years old.* In this brief encounter, Tammy asserted her presence in the office and made visible her personality and energy – using Proloquo2Go to engage with me with her voice.

Later that morning, I got to see how Tammy’s use of Proloquo2Go supported her classroom participation. Ms. Blaire, under Ms. Davis’ supervision, was facilitating a whole group social skills lesson about empathy in Ms. Gomez’s classroom. Ms. Blaire began the lesson by providing a definition of empathy on the whiteboard: *Empathy – to imagine how someone might feel, put yourself in their shoes.* This was followed by a social skills video about empathy from Everyday Speech,⁶⁶ prior to initiating the following interaction:

Ms. Blaire: *Okay, now we are going to do a few scenarios and try to think about how they might feel. If Jose is a new student and doesn’t know anyone, how might he feel?*

Tammy [using Proloquo2Go]: *Nervous.*

Ms. Blaire: *What do the rest of you think?*

Multiple students: *Sad, anxious, shy...*

Ms. Blaire: *Right so what can we say to him to make him feel better, make him feel included?*

Iggy: *We can help him meet new people?*

Ms. Blaire: *What if Ari is having a birthday party and nobody went, how would she feel?*

Tammy [using Proloquo2Go]: *Sad.*

In this classroom discussion, Tammy uses Proloquo2Go to give voice to her thoughts and share fuller picture of her emotional world with her teachers and classmates. This interaction makes clear the potential affordances of AAC technologies, such as Proloquo2Go, to make visible Tammy's agency and participation in the classroom.⁶⁷ In this way Tammy is able to use Proloquo2Go to exert herself as a participant and make visible her opinions and thoughts – thus countering her own marginalization. We see this again in the following lesson in which Ms. Blaire is discussing idioms while Ms. Davis provides one-to-one support to Tammy in her use of Proloquo2Go to participate:

Ms. Blaire: *Have you ever heard the term 'Snug as a bug?'*

Tammy [using Proloquo2Go]: *No*

Ms. Blaire: *Snug as a bug means feeling very comfortable, for example, under the covers when you go to bed. Last one! 'Dead of winter...'*

Ms. Davis: *Tammy, would you like to pick the next speaker?*

Tammy [using Proloquo2Go]: *I choose Carissa.*

Tammy uses Proloquo2Go to make several things known. First, Tammy makes known which content she is, and is not, familiar with, in the lesson. This is important because it allows staff to better tailor their instruction to Tammy. Second, Tammy actively influences the direction of classroom discussion by selecting Carissa, another minimally speaking 4th grader with Down Syndrome, as the next speaker. As such, this interaction centers disabled students as agentic participants within their classroom communities – as opposed to the more common positioning of disabled students as passive and acted upon.⁶⁸

Empowering Student Voice and Competency: Assistive Technologies as Assets

While I didn't personally interact with Tammy directly until the winter of 2020, I had heard about her, and the progress she was making with Proloquo2Go, from staff in the fall of 2019 as we commenced field studies at FVA. Our first observed conversation among staff regarding Tammy's use of Proloquo2Go occurred during a team collaboration meeting. FVA's team collaboration meetings, as discussed in Chapter 4, are opportunities for community building among staff. Each staff member participates by sharing a success, a challenge, and an action round robin style.

That day's discussion featured Tammy's introduction to the Proloquo2Go program, installed on a dedicated iPad device for her. According to staff, Tammy had been excitedly learning to use Proloquo2Go, even taking the iPad home on weekends. The following story, as told by Ms. Sandy and Ms. Gomez, of Tammy creating a sugar skull for Día de los Muertos illustrates the potential power of assistive technologies to embody and empower student voice:

Ms. Sandy: This skull was filled with beautiful colors and Tammy found the description tab on her iPad and typed 'Pretty.'

Ms. Gomez: I said 'Why yes! It is pretty!' to which Tammy typed 'Proud.'

Ms. Sandy: It just made me realize how much we didn't know about Tammy.

Tammy's experiences using Proloquo2Go to communicate had a profound mediating impact in how the teachers and staff came to understand her competencies. For Ms. Sandy, this incident afforded a valuable lesson in presuming competence (see Chapter 4). Tammy's story presents a compelling example of how, through her use of Proloquo2go, Tammy was able to give voice to her feelings and thoughts and share a fuller picture of herself as a creator with classmates and teachers alike. In these ways, Tammy's use of her AAC device afforded her alternative means of

linguistic expression – thus facilitating her agency, engagement, and inclusion within the classroom.

As Alper describes, incorporating digital technologies into discourse expands communicative possibilities – affording students additional opportunities to share views of themselves that might otherwise remain invisible within school communities:

*In sum, recreational media and technology use can help nonspeaking children reveal a side of themselves that the scientific, medical, and educational communities either do not or choose not to acknowledge... This view enables us to imagine a world with greater collective communicative power, for it extends recognition or competence that is often not presumed among children and individuals with communication disabilities.*⁶⁹

As the examples in this chapter sought to demonstrate, technologies can be used by students to negotiate the presentation of their ideas and thoughts, reveal their identities and personality, and exert agency and engagement across home and school contexts. Just as important, students can use technologies to demonstrate competence – illuminating funds of knowledge, understanding, and insight to reveal inner worlds that might otherwise remain unobserved. Finally, students can use technologies and tools for figurative and textual expression to engage in multiple forms of expression and share their identities as creators with the world around them.

6 Looking to the Future

Reform minded proponents of inclusion have moved towards school-wide inclusion models in which all students are seen as permanent members of the general education classroom.¹ This has resulted in the increasing inception of schools like FVA where a commitment to inclusion supports students with disabilities as normative, valued, and included members of the school community. There has however, been room for interpretation in both the definition of inclusion as well as what inclusive practices might look like in general education classrooms. This includes a gap between widely held beliefs about the value of inclusive education and the lack of guidance for stakeholders invested in cultivating inclusive schools.²

This lack of prescriptive clarity poses challenges for school community efforts to coordinate and implement inclusive education programming that addresses the needs of all students. As such, this dissertation was written partly in response to the call for more research into inclusive pedagogies as they relate to disabled children and their uses of digital technologies in schools.³ Toward this endeavor, we synthesize findings outlined in Chapters 4 and 5 to offer suggestions for policy and best practice in bringing a fuller vision of inclusive education to fruition.

A comprehensive vision of inclusion requires a substantive paradigm shift by policy makers, school leadership, teachers, and parents, in understanding and mitigating how principles of inclusion have historically played out in schools. Using FVA as a case study, we outline key recommendations for realizing a fuller vision of inclusive education across U.S. schools. The

chapter also suggests a rethinking of the ways digital technology use can contribute to the inclusion of students with disabilities in the classroom, arguing for a perspective of interdependence that emphasizes the relational and contextual nature of peoples' engagement with each other via their technology use.⁴ Examples of students' LLT practices are synthesized through an interdependent lens to extrapolate how stakeholders can support policies and practices that foster the inclusion of disabled children in school and society.

Moving Forward: Understanding Successes and Challenges

The purpose of this dissertation was to share FVA's to illuminate how school communities could support children's inclusion in schools via inclusive LLT practices incorporating digital technologies. In Chapters 4 and 5, we explored FVA's framework for inclusion, LLT practices, as well as assistive uses of digital technologies to support students' agency and engagement within the classroom. Through this journey, we discovered numerous dimensions of inclusive practice at FVA, including participants' perceptions and approaches to inclusion and the factoring of digital technologies into their LLT practices across school and home contexts. We synthesize the results of our observations and engagement at FVA to outline recommendations about how to mobilize an inclusive pedagogy that incorporates digital technologies in schools to support inclusion. We situate this discussion within the framework of having examined successes and challenges at FVA to support a deeper understanding of how best to move forward in using digital technologies to support the inclusion of students with disabilities in schools.

As described in Chapter 4, major successes at FVA included participants' ability to cultivate and operationalize a framework for inclusion centering on interdependence as a cornerstone of inclusion. This presented itself across four dimensions that we conceptualized as FVA's

framework for inclusion: supporting students' agency and engagement as active community members, cultivating a culture of kindness, supporting collaborative professional development and engagement, and committing to an intersectional vision of inclusion that accounts for families' diverse identities and experiences as cultural assets. A major success was also FVA's ability to support the inclusion of minimally speaking students in the classroom through assistive uses of both mainstream and AAC technologies. This included using AAC technologies to support peer to peer modeling and engagement, as well as the use of assistive features in word processing tools to facilitate the writing process for students with diverse sensory needs. These practices allowed us to thematically explore the affordances of digital technologies in empowering disabled children's agency as readers and writers and illuminate how students' uses of digital technologies afforded alternative modes of identity and expression.

However, alongside these successes, challenges in integrating digital technologies into classroom practice arose. With exception of assistive uses of AAC technologies there was unevenness in integration with technologies mostly used as instructional tools to support the daily functions of teaching, rather than as potentially transformative tools for expanding access and engagement with curriculum. Inconsistencies in technology use often centered on variability in teacher understandings of the affordances of technology use for students – which can lead to tensions in decisions about when, where, and how to allow technology use in schools.⁵ As Cranmer notes in *Disabled Children and Digital Technologies*, technology use in schools, including FVA, tends towards the pedestrian in support of the mechanics of teaching, rather than to expand students' critical thinking and engagement.⁶

Differences in attitudes and values parents, teachers, support staff, and students placed on the use of technologies in the classroom also posed challenges. Parents and teachers were more

likely to view technologies as potential disruptors while paraprofessionals, service providers, and students were more likely to view technologies as mediators for communication and connection. In the latter view, connection and expression – along with what Garcia describes as the cultural wealth students bring to the classrooms in their usage of digital technologies – are but several of the affordances inclusive uses of digital technologies hold for supporting classroom learning.⁷

Key Questions for Inclusive Practice in Schools

Research questions outlined in Chapter 3 were used to explore inclusive LLT practices at FVA were *process* oriented to support our study’s empirical goals.⁸ Research questions included *What do inclusive school and classroom practices look like in an inclusive school community? How do students, staff, and parents engage in literacy activities and use digital technologies in an inclusive school community? How do LLT practices support (or hinder) students’ inclusion as fully engaged members in their school community?*

While our research questions allowed us to synthesize findings reflective of inclusive practice – they also afforded a frame for arriving at practical questions to guide our discussion of why our research matters. Practical questions are derivative of the research process that we undertook at FVA and are meant to inform recommendations for best practice. Practical questions include: *How can school communities make schools more inclusive? How can school communities use digital technologies to support students’ inclusion, agency, and connection? How can school communities cultivate inclusive LLT practices to empower students’ voices as creators?*

These practical questions guide our discussion of disabled students’ access to inclusion as facilitated through the use of digital technologies embedded within LLT practices. This includes reflection on factors that influence disabled children’s uses and experiences with digital

technologies across school and home contexts and are critical to the cultivation of an inclusive pedagogy for technology use within the classroom.⁹

Lessons Learned: Cultivating an Interdependent Vision of Inclusion

A distinguishing aspect of FVA's full inclusion model was the deep interdependence among students and staff in forming the school community. Interdependence at FVA manifested as a commitment to intentionally working and playing together, in the process being mindful to include maximum participation. Interdependence materialized in the collaboration and assistance that students and staff bestowed upon each other. The quality of this collaboration and assistance was continuous – occurring before, during, after class sessions; as well as comprehensive, demonstrated by community stakeholders.

As discussed in Chapter 2, we used interdependence – a relational state in which people work together toward a shared goal – as an inherently inclusive, collaborative, framework for exploring FVA's full-inclusion model.¹⁰ Our use of interdependence is congruent with shifts towards community-centered approaches to understanding models of, and approaches to, inclusion within communities and schools. As such, adopting an interdependence frame affords stakeholders a framework for assessing the ecological and relational nature of the practices and customs within school communities.¹¹ Adopting an interdependence framing is thus essential to the assessment of inclusive practices such as team-teaching approaches and integration of parents and stakeholders into the community ecologies of schools.

Interdependence provides an empowerment framework for acknowledging, and building upon, the work done by students, teachers, and staff within schools. As we explore engagement with each other, and with digital technologies, we can use interdependence to better understand

how, for example, students model for each other to create accessibility. As such, interdependence provides a framework for exploring how school communities can come together to achieve inclusion via collaborative practices that cultivate engagement and increase social capital.

Interdependence in schools is complex, characterized by multiple simultaneous action and practice within the classroom environment. In the examples in this dissertation, we saw the improvisational nature, and flexibility required, in cultivating a joyful and interdependent classroom community. This attunement and flexibility to the socioemotional needs of students enabled teachers to maintain connection with students. Throughout the year, we saw many behaviors meant to create access, community, and inclusion for students with diverse abilities, backgrounds, and needs. Adopting an interdependent frame also allowed us to better understand the ways the broader FVA community engaged in school-wide practices and celebrations. Being part of the FVA community meant “we are in *all of this* together. Nobody gets left behind.” This commitment is critical to fulfilling the aims of schools wanting to be more inclusive.

A commitment to interdependence requires a level of care between community members, including between students with and without disabilities, not typically seen in segregated school settings.¹² That it occurs at FVA, we assert, is a direct result of integration with a commitment to interdependent collaboration and inclusion. At FVA, for example, students used peer modeling to support each other’s participation. This level of care between children with and without disabilities contrasts with the isolation of students with disabilities that we often see in schools.¹³

This level of care is a testament to FVA’s commitment to inclusion, as Ms. Davis points out:

What I love the most about FVA, that’s different from traditional schools, is that I consistently see all the kids playing together and they help each other. At other schools, I’d see kids sitting at a different table for lunch or not being included in some activities. FVA doesn’t do that.

Vulnerability and learning to rely on others are integral to the delivery of a successful inclusion program. Promoting reliance between members of a school community also serves a greater goal of ensuring that members have agency in supporting each other to participate to their fullest capacity – bringing to mind the kinds of outcomes that result when marginalized community members work together towards shared goals.¹⁴ This acknowledgement – and acceptance – of vulnerability and inter-reliance is key to a relational understanding of interdependence as “being in this together,” as expressed here by Ms. Carina:

You need to be able to work with other people. So that's just an adjustment – being able to communicate effectively with all the adults in the classroom... Learning to rely on other people and not just, 'I can do it on my own' because I mean, you can't. You need the support. We all need the support. Communicating with all the people all the time, is good because there's going to be times where I feel like overwhelmed, but it's not, 'Oh, I'm overwhelmed and I'm alone.' It's, 'okay, we're all overwhelmed together.'

Ms. Carina describes the challenge in making the shift to an interdependence framing: we are not accustomed to seeking support but, in her words, default to “doing it alone.” This relational shift in how we work includes sharing the burden of problem-solving together. Being “overwhelmed together” in our feelings, behaviors, and practices of collaboration, as Ms. Carina describes, makes relating an inclusive and humanizing experience. Adopting an interdependent frame in the delivery and conceptualization of inclusion allows for full humanization of all community members. Mr. Gabriel pointed out the humanizing effects of being in a fully integrated, inclusive, school community where everyone matters equally without judgement:

When we usually go to a typical learner school, you don't get to see the reality of our entire population. We don't get to see that true community that you live in. And so, when you grow up and you see, kids or human beings, in the market with special needs, you kind of, well, tend to just look at them weird... I feel like being in a full inclusion school, you get to see and you get to know that person. And just because that person might act a different way and might look a different way than you do, it doesn't make that person any less than you are. So I feel like the students who go to full inclusion have a more, a better understanding of who this person is. His ideas.

Mr. Gabriel points out the rarity of this level of inclusion, saying that people don't usually "see the reality of our entire population" because people with disabilities tend to be made invisible, with systemic structures, practices, and attitudes preventing full integration.¹⁵ He makes the important distinction that, not only is true inclusion *not* common, it is also not reflective of a "true community." In other words – without the inclusion of disabled community members we don't have an accurate representation of society. Acceptance of this precept is integral to the conceptualization of interdependence as a relational frame in which *all* members of a community have equal access, visibility, and voice. Ms. Severin also alluded to the ecological nature of interdependence and the role it plays in supporting the relational tasks of working, living, and problem-solving in society:

One of my professors hammered it home to me in my teaching program. All of the kids on my caseload – even the ones with the most significant disabilities – I want them to be able to go into a shop, and order a sandwich, and be able to pay for it, and hopefully be there with friends. So they're with a group of friends, they order a sandwich, the shop makes the sandwich wrong. They can go back and say, 'excuse me, you put onion on my sandwich. I really don't want onion. Can you redo this again?' Make the change, do all that, sit with their friends, have a sandwich, and then get home. And home is maybe where they live with their friends cause they're like 18 or 21. And they have a fun social life and they have a meaningful job and they feel like they are contributing.

In this excerpt a connection is made between interdependence and sources of social capital, which Ms. Severin defines as the ability to advocate for oneself, make and have friendships, and live a happy and productive life. Developing students' abilities to garner social capital – crucial to the social integration of people with disabilities – touches on an essential objective of full inclusion programs: preparing students to lead fulfilling lives as contributing members of their communities.¹⁶ Ultimately, by cultivating interdependent approaches in the inclusion of students with disabilities, school communities can support students' ability to sustain integrated lives within their community.

Institutionalize a Culture of Kindness The cultivation of interdependent approaches to inclusion includes developing the social skills needed to advocate for, and sustain, meaningful relationships. Critical to this work is institutionalizing a culture of kindness as a means of creating spaces “centered on love, care, and joy.” In *My Brother’s Keeper*, Villavicencio discusses the importance of creating a community of care to counter the harmful messages students face about themselves and to affirm their identities and self-expression: “*Protective spaces like these, established over time with attention to building trust and modeling vulnerability, can help schools develop meaningful relationships among teachers and students while generating a sense of brotherhood and of family among students.*”¹⁷

Mr. Gabriel provided a compelling example of a staff member who truly encapsulated Villavicencio’s conceptualization of the necessity for protective spaces in cultivating equity and inclusion. When asked what he most wished for the students at FVA, he centered his messaging on the importance of cultivating a culture of kindness centered as a cornerstone for building a truly inclusive interdependent school community:

I would like them to succeed and for them to just *explore* and do whatever they feel is right. I would love to see them be *successful* and be *loving* and *caring* and be *gentle* with the world. I feel like our community has a better sense of taking care of your community and your friends compared to the typical learning school. And not to say that they don’t have a sense of, you know, *consciousness* of that, but I feel we really put that out there in our community. So, I don’t know, it’s a very *heavy* question for me to think about.

Creating a culture of kindness also requires a recognition of agency and connection as interdependent: for us to truly connect, we need to understand and affirm the agencies we bring as individuals to the collective. This requires positioning students as active agents within their school communities.¹⁸ Affording agency instills in students the knowledge that they can use their contributions, assets, and skills to contribute to the school community. This includes allowance for student interests and questions should shape the pedagogies that inform classroom instruction

within school, including the use of digital technologies.¹⁹ As such, relationships centered on kindness empowers and includes students – allowing them to realize their agency and connection within their classroom communities.

Create a Community of Collaboration Operationalizing a vision for inclusion within schools requires the development of a collaborative learning community that clearly defines what stakeholder roles and responsibilities are to children. In *My Brother's Keeper*, Villavicencio states that “*Embarking on the transformative work in a school requires a community of learners committed to the same goals who can serve as mentors, confidants and creative partners.*”²⁰ At FVA this was an effort spearheaded by Dr. Tully to leverage the trust garnered from FVA’s strong culture of kindness toward the creation of a collaborative professional learning environment. Staff collaboration, as evidenced at FVA, should focus on shared messaging and allowance of time for staff to engage in regularly scheduled team meetings and prep times. It should also include provision of regular formative observation and feedback of teaching practice, as was practiced by Dr. Tully – herself a master teacher and “practitioner leader,” as described by Ms. Gomez. Time and again, the staff discussed how Dr. Tully supported their growth as “active professionals”²¹ – centering collaboration from a place of social justice underlying FVA’s set of inclusive values.

Finally, the intentional integration of paraprofessionals and service providers, as we saw at FVA, into curriculum planning and implementation is critical to developing a collaborative professional community centered on inclusion. Hand in hand, collaboration refutes the relegation of responsibility for students with disabilities to others includes – pushing against the common practice in schools to “refer out” disabled students to paraprofessionals and service providers.²² – which is yet another way that children with disabilities get an unequal education in schools (i.e.

as when students are pulled out for provision of services in U.S. classrooms). It requires, instead, a focus on integrating service providers and paraprofessional staff into program implementation and including the general education teacher as central to that endeavor.²³

Collaboration also tackles the gap between beliefs, values and attitudes underpinning inclusive education and the lack of guidance offered to teachers and providers about how inclusion should be enacted in schools. As such, getting to the point of teacher and provider buy in of an inclusive collaborative model of teaching requires developing staff's understanding of the benefits inclusive teaching strategies for students' academic engagement.²⁴ Collaborative endeavors towards inclusion in part stems from supporting general teachers in believing in their ability to support *all* children – not needing to "hand off" certain children to others. One co-teaching combination that encompassed this trajectory was Ms. Wezner, a general education teacher at FVA who also happened to hold a special education teaching credential, and Ms. Severin, a special education teacher at FVA and the only staff member, other than Dr. Tully, to have previously taught at another full inclusion school. Ms. Wezner discusses her unique partnership with Ms. Severin in their provision of inclusive instruction:

Being able to come from a side that actually knows how to write goals and all the legal parameters, I think that we collaborate on goals a lot for the kids. Just bouncing ideas off of each other like, 'how can they meet that goal?' Or if she finds something for one kid's specific goal, then I'll be like, 'Oh, actually that'd be great for our whole class. Let's use it as a whole lesson for everyone because everyone can use that graphic organizer.' So I think just being able to plan with the goals in mind and then adapting it to really benefit *everyone* rather than just that one kid.'

Ms. Wezner speaks to how her unique background in special education supports her ability to collaborate with Ms. Severin in the development and application of IEP goals. This is relatively uncommon for general education teachers to so closely collaborate with teachers providing specialized education services in the development of IEP goals – a disconnect that could create

barriers to creating more inclusive collaboration across the various members of IEP teams in typical school settings.²⁵ As such, creating an inclusive professional community requires institutional buy-in for supportive infrastructures designed to cultivate schools' collaborative approaches to supporting inclusion in the classroom. This requires that district and school leadership support for teacher and staff professional development as collaborative be explicit. This also requires redefining the role of paraprofessionals as bridges, using explicit training and organization to support comprehensive integration of paraprofessionals into classroom planning and instruction. Finally, teachers need to be supported in designing lessons to be more inclusive – rather than trying to build in inclusion after the fact. This includes support for collaboration with paraprofessionals and service providers preemptively being built into teacher and staff prep time.

Lessons Learned: Defining a Vision for Inclusive Digital Pedagogy

Obstacles associated with schools becoming more inclusive also carry over to the kinds of challenges schools face in realizing the full potential of digital technologies to support student access and engagement in the classroom. Widespread beliefs abound about the power of digital technologies to transform schools – however, the kinds of practical institutional and classroom level practices that could bring schools closer to that reality are, with few exceptions, largely absent.²⁶ As such inclusive digital pedagogies must start with understanding that learning with technology is not about the technologies themselves per se, but rather is about the connected learning and behaviors engendered in the use of digital technologies to support inclusion.²⁷

An expanded view of digital tech use as social and relational aligns with our interdependence framing and considers the socio-cultural impact and dynamic of technology use within school

communities. As Cranmer shares, understanding technology as a mechanism for access requires the view that access “*be the result of a set of complex and interrelated qualities, human and social resources and relationships alongside the digital.*”²⁸ Understanding technology as a mechanism for access and inclusion also includes moving away from viewing access moves as simply tied to material possession – but rather viewing its use as encompassing multiple social resources and relationships.²⁹

Ultimately a model of inclusive digital pedagogy entails viewing digital inclusion as embedded across multiple people and contexts.³⁰ Sociocultural and relational qualities of 21st century digital tech use is amplified by the convergence between mainstream and assistive technologies that promote increased engagement and access between users and their worlds. This presents a compelling framing for using technology to connect, socialize, support friendships and engagement as affordances of bringing students together in collaboration. Inclusive digital pedagogy requires universal support for *all* students using assistive features of digital technologies to support their work and destigmatize its use.³¹

Promote Consistent Coordinated use of Digital Technologies Consistent and coordinated uses of digital technologies – particularly for disabled students – are often scuttled by costs, insufficient material and time resources, and lack of professional development, outreach, and support. When infrastructure supports are in place for technologies to be consistently used to support student’s inclusion, students are empowered to engage more fully in classroom activity. However, inconsistent uses of digital technologies, as in Conrad’s case below, can have opposing effects of removing access and inclusion:

The students have just entered the classroom and sit on the carpet as Ms. Alysha begins explaining centers for the day. Meanwhile, Ms. Alexa explains that she was hoping to start speech intervention with Conrad during literacy centers today using his AAC device,

however Conrad looks miserable. He appears to be very tired and sick and is sitting with his center but not participating. Ms. Brenda, a paraprofessional, walks over with his ACC device and uses it to ask Conrad *Are you sick?* Conrad begins to cry and Ms. Brenda uses his device to say *up*. They walk over to the office together, leaving Conrad's ACC device on the carpet area floor.

Inconsistencies in the use of digital technologies, particularly assistive technologies for disabled students as observed here, are often related to competing priorities in staff uptake and training.

At FVA, competing priorities created uptake challenges with Ms. Davis, the SLP, and Ms. Alexa wanting to consistently incorporate assistive technologies to support students in relation to the pressures teachers and paraprofessionals felt in needing to implement the school's broader model. As is common in schools, staff sometimes see the integration of digital technologies as separate from, rather than an integral part of, inclusive practice for supporting agency and inclusion within the classroom. This was illustrated by a following conversation I [first author] had with Ms. Alexa regarding the inconsistent uses of Conrad's AAC device and the difficulties she felt as a service provider in collaborating with staff to coordinate AAC use for Conrad:

Basically, it's mostly just me using it with him. Sometimes others do, but it's not very often at all... We would show up and the iPads were not even charged. We would have to charge them. Now though, they are charged. It's hard when you are an outsider coming in. You don't know what to say or how much feedback to give. I kind of feel it's not my place... I don't see him using it at recess. And I don't know if he is using it at home. I know the Mom is on top of things, but I'm not sure what is happening.

As this example demonstrates, digital inclusion is not just about access to devices, it is also about unified messaging and engagement around the affordances of using digital technologies as an essential component of inclusive pedagogy. This includes the need to cultivate positive views toward the integration of digital technologies into classroom practice. It also involves including teachers and parents in the consultation of how technologies can be integrated into students' LLT practices, including specific discussion of children's use of AAC devices and assistive features already prevalent in mainstream technologies. This includes the normalization of use of assistive

features in digital technologies— for example, supporting teachers and parents in allowing students’ use of speech to text or text to speech digital tools to support students’ LLT practices.

Take Inventory of Parent and Teacher Usage and Views of Technology Promoting coordinated and consistent use of digital technologies requires taking inventory of stakeholders’ views toward towards the use of digital technologies in the classroom. Consultation and assessing of attitudes require being mindful of the common assumptions that providers, teachers, and caretakers know more than they do about how to inclusively integrate digital technologies into classroom instruction. Assumptions and overestimations of stakeholders’ comfort level in using digital technologies are common pitfalls to technology interventions and roll outs – as is underestimating the level of security, or insecurity, that teachers, parents, and students might feel about their competencies for using technologies to support inclusive academic practice.

In many schools, as was the case at FVA, disconnects occur between the home and school contexts with regards to students’ uses of digital technologies.³² While parents were mindful of their home practices, for some there was a disconnect in knowing how technologies were being used with their children at FVA. For example, when we pivoted to discussing the role of technology in supporting Star’s literacy practices at school, Madeline was not familiar with how technology was used with Star at school:

Interviewer: *You mentioned PE. Do you take your iPad with you?*

Star: *Yeah.*

Madeline: *No. For school. Star, for PE you don’t use a computer, right? You don't take a computer to PE, do you?*

Star: *No.*

Interviewer to Madeline: *I know sometimes they'll give iPads [AAC devices] to the kids.*

Madeline: *Oh yeah?*

Interviewer: *With programs like the Proloquo2Go.*

Madeline: *Oh, okay.*

Interviewer: *I don't know if they're doing that with her.*

Madeline: *Yeah, I don't know either.*

I later confirmed that Star's classroom did indeed use technology in the classroom for GoNoodle sensory breaks – Star's version of "PE." Given the level of Madeline's involvement with Star's education, we were a bit surprised to learn that her use of technology with Star was divorced from the digital happenings of the school. The disconnect between home and school in the uses of technology with students is not uncommon and can hold repercussions for students for whom consistent uses of technologies across home and school environments could be useful.³³

We also saw this home/school disconnect in technology preference and use in our interview with Blake, Finn's mother. In her interview, Blake indicated that while certain digital apps were used to support reading, there was reticence to incorporate technology into Finn's writing routines. Similar to other families we interviewed, Blake reported that technology was used primarily as a source of entertainment:

We, we don't use a lot. Both of them have, what is it? The Kindle Fire... But that's more for traveling and entertainment. We'll use that for like, you can stream a movie on the airplane. I do have an app on my iPhone that I'll let them use called, 'Endless Alphabet. And it's a fun app that helps with reading and writing and it's interactive and you drag the letters to spell, it like helps with spelling. That's the only one they like... So I wouldn't say they use a lot of technology for reading and writing. They're very tactile.

Blake viewed Finn's need for tactile stimulation as more compatible with reading and manipulating physical books, rather than engaging in digital reading. While at times she indicated Finn's enjoyment in using literacy apps, it was usually used as entertainment and not necessarily positioned as an intrinsically important LLT practice:

I'd say he prefers physical books over digital books... But, I think they like the [iReady digital app] animations, which keeps them engaged. So, when it gives you a break, iReady will be like, 'Good job! You did this!', you know, there's these little monsters dancing with a funny song that gets their attention. It kind of keeps them motivated. But they don't really need motivation with tactile books. They just like pictures in books.

In these statements, Blake indicated that she saw reading and writing with technology as inferior in supporting Finn's literacy needs. Blake's sentiments were in contrast to what we observed in Finn's use of digital technologies in the classroom.

In the case of FVA, teacher viewpoints of the affordances of using digital technologies to support students' LLT practices tended to align more with parents, however many paraprofessional perceptions, such as Ms. Carina's in Chapter 5, aligned with students' primarily positive reception of digital technologies. Majority teacher viewpoints at FVA aligned with common viewpoints held by teachers generally towards the use of technologies for LLT practices, as illustrated in Ms. Gomez's commentary below:

I still think that reading an actual book is so much better. Like just the physical touch of it. I feel like I would lose a lot more attention from kids if it's on a screen to be honest. So, I prefer physical books and I think they did as well...

Ms. Gomez's preference for the physical experience of holding and feeling a paper book is a common reason given among the teacher and parent interviewees when asked about their preferences and uses of digital technologies for reading, and is in line with the responses we've observed in our prior research from people who have a preference for reading paper books. A concern with the negative effects of using ³⁴digital technologies on children's attention is also commonly expressed among parents and teachers who have concerns about the impacts of screens on students' attention and retention.³⁵

Competing viewpoints and buy-in within staff almost always reflect those of school leadership, with Dr. Tully's perceptions of the affordances for digital technologies as no exception. While Dr. Tully was supportive of the possibilities of using digital technologies to support inclusion and students' LLT practices, not uncommonly, she didn't feel confident about how best to integrate technologies into FVA's classrooms. As such, learning more about the

subject of how best to integrate digital technologies as part of a school's inclusive model of instruction, was a of the primary objectives of the authors' research practice partnership work with FVA. Because of the lack of a knowledge base for how best to use technologies to the support students, technology use through the 2019-2020 year was mostly relegated as an add-on and secondary to the competing task of piloting the full inclusion model.

When asked about the challenges of implementing a full inclusion model, Dr. Tully alluded to the pressures of competing priorities. She discussed challenges to balancing provision of services, which includes assistive uses of digital technologies, with the broader goal of piloting FVA's full inclusion program. This includes the constraints historically inherent in navigating the prevailing medical model viewpoints of how services and assistive digital technologies should be used with the values and goals of full inclusion models: *Inclusive service delivery has been just a battle the entire time and we're still battling it out now... Honestly, almost all of the structures of special education simultaneously advocate for full inclusion and constrain the practice of it.*

To conclude, assessing personal views of technology is critically important to school community efforts to integrate digital technologies into classroom instruction.³⁶ Making the necessary paradigm shifts towards a collective messaging of the affordances of digital technologies for inclusion includes assessing stakeholder assumptions and knowledge gaps, providing teacher professional development and parent outreach, and assisting parents and teachers in viewing technology use more wholistically.³⁷ This includes supporting both parents and teachers in understanding digital technologies and tools as "cultural objects" with the potential to mediate how children express and present themselves to the world.³⁸ As Alper discusses in *Giving Voice*, practical ways to support productive understandings among families

and staff of the affordances of digital technologies, is through surveying and conversation early on in the school year. This affords opportunities to understandings and expectations around technology use including an understanding of the beliefs, habits, and roles that digital technologies play in students' lives across the school community ecosystem.³⁹

Provide Technical Assistance to Support Uptake Stakeholder buy-in and consistent implementation and messaging also relate to issues of comfort and feasibility in the actual use of digital technologies. We saw this in our attempts to bring digital storytelling, defined as the multimodal uses of digital tools to tell stories, to FVA during the Fall of 2019.⁴⁰ Digital storytelling as an inclusive digital practice to support students' language and literacy engagement was enthusiastically embraced by Dr. Tully and the teaching and paraprofessional staff. However, once we engaged in the process of training the staff in the making of digital stories, issues of comfort and feasibility surfaced. Differences in comfort level using the technologies, coupled with teachers' competing priorities to focus on lesson planning and implementation, were underestimated by us and resulted in challenges implementing digital storytelling at FVA.

This resulted in our two participating teachers, Ms. Gomez and Ms. Wezner, enjoying the training and seeing the value of digital storytelling but being unsure of how to incorporate digital storytelling into their actual curriculums. This was compounded with their lack of familiarity and training with the technology itself – all of which resulted in the paraprofessionals taking up attempts to integrate digital storytelling at FVA in lieu of Ms. Gomez and Ms. Wezner. Our experiences attempting to integrate digital storytelling into the inclusive teaching practices at FVA suffered from not having an infrastructure for ongoing technical support, as such incorporating digital storytelling became untenable. These results align with prior research

demonstrating that, despite best intentions, if technology interventions are not systematically supported, they are more likely to fail.⁴¹

With that said, we were pleasantly surprised to learn later that two of the paraprofessionals who participated in the training, Mr. Kellan and Mr. Gabriel, had taken up digital storytelling at FVA as a form of documenting the daily life, as well as special occasions and celebrations, of the school community. These digital stories were used as documentation of cultural practice and values at FVA, content for promotional and celebratory materials, and as a creative and empowering outlet for the paraprofessionals to engage and support FVA's community school practices and celebrations. Mr. Gabriel was particularly interested in exploring digital storytelling and involved in putting together projects, which he described during his interview:

For our kindergarten class, we use the storytelling to re-enact Pete The Cat. Ms. Macias was one of the first to start using it. This [digital story] was for the purpose of Spring Jam. And then I helped Ms. Gomez and Ms. Haberly set up the [WeVideo movie making app] accounts for the kids because I know they were going to do, 'Who's your hero?' and answer 'why is the person your hero?' So that's what has been going on. But now I've used it for all the YouTube videos that I've shot, so I've been editing from there. I've been screening video so that we can put the lessons up on YouTube. I'm still editing for our winter program, which I'm trying to get done as soon as possible.

As one of the most tech savvy staff members at FVA, providing technical assistance to school, including the digital storytelling endeavors, fell largely on Mr. Gabriel. Without schools being afforded the resources to contract extended technical assistance, the task of providing that support often falls on the staff members who identify as most technologically proficient. In this respect, we fell victim to the common occurrence of providing a technical training without also supporting FVA in developing a plan for continued technical support in implementation. Mr. Gabriel commented on his experiences supporting teachers with digital storytelling, including the role being tech savvy often plays in the uptake of technical endeavors such as digital storytelling:

For me, I think I was really excited to [use WeVideo] and be able to create a movie with that. I know Ms. Macias, she's very tech savvy, so she was very excited to explore this new program and put a movie together to showcase at the Spring Jam. So, I mean they were very excited. Dr. Tully has always been excited to use the video and she's so excited about the Winter Program. I try to do my best to make the best possible video in the short amount of time. I'm very used to doing it.

One of the purposes in having introduced digital storytelling at FVA as an inclusive LLT practice was to encourage staff to go beyond functional uses of digital technologies towards integrative uses that support content creation, expression, and empowerment. We felt digital storytelling would allow students to develop their writing skills and practice the steps in writing (i.e., brainstorming, storyboard drafting, revision), as well as afford students opportunities to develop visual and kinetic skills, as supported by the literature.⁴² Digital storytelling opens opportunities for collaborative peer writing, including the incorporation of synchronous and asynchronous script writing through shared cloud computing such as Google Docs.

Digital storytelling as an inclusive LLT practice also supports collaboration between student and teachers, who can support students in their writing by adding direct comments. Moreover, digital storytelling affords students the opportunity to personally express themselves as content creators through the addition of multimodal digital media and content.⁴³ Of course, our primary oversight in the launching of digital storytelling at FVA lay in not fully realizing the extent to which such projects require both training and ongoing technical support. As such, were it not for Mr. Gabriel's resourcefulness and tech savvy, with support from Mr. Kellan and Ms. Macias, the ultimate fate of digital storytelling at FVA might have been non-existent. Without professional development and technical support being built into the infrastructure of digital intervention development, implementation and uptake are in danger of failing.⁴⁴

Provide Professional Development to Cultivate Digital Pedagogies

Launching inclusive digital pedagogies, such as those encapsulated by digital storytelling, also requires substantial professional development addressing both the influence of “first order” (i.e. access) and “second order” (i.e. attitudes) factors influencing the uptake of digital technologies in schools.⁴⁵ This includes discussion of how limiting factors – as outlined above – can constrain uses of digital technologies as instructional tools to support the “traditional curricula” rather than as assets to cultivate inclusive digital pedagogies that support students LLT practices. As example, movement toward developing inclusive digital pedagogies requires schools to examine the multimodal ways students use technologies and media across time and space (i.e. digital apps, music, art media, social media, cloud platforms, search engines etc.) to support self-expression and information sourcing – using this knowledge to bring students’ organic interests and technology into the classroom.⁴⁶

Effective professional development and outreach centers on learning about and sharing identified best practices of inclusive digital pedagogy. In *Good Reception*, Garcia outlines key components for wireless critical pedagogy as being student centered; empowering student identity; community driven; culturally relevant; supportive of technical and academic literacies; and not needing to be reliant on specific digital technologies.⁴⁷ Using Garcia’s framework, key questions for staff to consider include *How are traditional texts altered by technology? How does the tool offer ways of presenting information? Are the ways students communicate made more robust as a result of this technology?* As such, professional development for enacting inclusive digital pedagogies should focus on helping staff the most basic and accessible features commonly available across digital technologies, tools, and devices to support constructive uptake of digital technologies in the classroom.⁴⁸

Finally, development of inclusive digital pedagogies needs to be positioned as a good use of teachers' time for integration to occur. This requires institutional support from school districts, policy makers, and institutions, to afford school communities the financial and intellectual resources needed to support the development and implementation of inclusive digital pedagogies. This includes meeting the call for more research on the role of digital technologies in implementing inclusive pedagogies in support of students' inclusion and LLT practices.

Conclusion

This dissertation aims to build upon prior works in its relational view of participant social practice in the use of technologies towards inclusion of students in the classroom. In the tradition of Cranmer, Livingstone and Sefton-Greene, and Alper, we engage in research on both the formal and informal learning that occurs within the school community ecosystem vis a vis parent and practitioner uses of digital technologies to support the inclusion of disabled children. Building on the existing literature, I also aimed to differentiate this dissertation from previous work by extending prior research on engagement with digital technologies to demonstrate how direct observation of both online and offline LLT practices engaged in by disabled children, along with their teachers and caregivers, converge across both school and home contexts to support inclusion.

This exploration of inclusive LLT practices is situated within what Livingstone and Sefton-Greene refer to as *“a particularly interesting point in late modernity, in which the contrary forces of socio – technological innovation and the reproduction of traditional structures (the school, the family, social class) threaten to pull young people in different directions.”*⁴⁹ As such, we have situated our listening and observation of how students at home and at school engage

with digital technologies with the knowledge that the conditions under which students are growing up in are impacted by 21st century shifts of substantive sociocultural significance – with variable consensus of what this all means for children’s education.

The unique challenges children must face in growing up in the 21st century cannot be ignored – nor can the fact that these futures in part depend on the ways school communities choose to integrate digital technologies into students’ lives.⁵⁰ Aligned with the ideals laid forth by our relational framing of interdependence, equitable uses of digital technologies in the 21st century hold – somewhat mythical – promises for connection, creative thinking, and a bridge between older traditions and newer practices for social change.⁵¹

At their best, digital technologies offer the vision of the power of connection.⁵² From this perspective, digital affordances can facilitate communication that is “*creative, civic, collaborative, and experimental, potentially linking spaces, respecting voices, building self-efficacy, supporting interests, acknowledging expertise, and scaffolding learning.*”⁵³ As such, by exploring the ways students, families, and schools engage in LLT practices, we reveal what Livingstone and Sefton-Greene call “*the processes of social reproduction*” to illuminate and enact aspects of disabled children’s identities that might otherwise be made invisible – and revealing how school communities use, and don’t use, technological resources to enact alternatives for inclusive practice. Studying the lives of students with disabilities, along with their teachers and caretakers, reveal aspects of their social worlds that might otherwise remain marginalized.

Using FVA as a case study, the intent of this dissertation is to shed light on inclusive best practices that enable an interdependent vision of inclusion to be materialized at the intersection

Chapter 6

of language, literacy, and technology. As stakeholders begin shifting toward inclusive models of education, understanding technology's role in this process will be critical to the success of inclusion efforts aimed at creating educational access and equity. This dissertation adds to the interdisciplinary study of disability, education, and technology by examining the ways digital technologies can support the inclusion and LLT practices of culturally and linguistically diverse students with and without disabilities. Toward this endeavor, we strove to illuminate the kinds of social organization that allow for inclusive school communities to thrive – including insights into the ways that digital technologies can be used to help students express their agency and voice while developing LLT practices. Finally, this dissertation sought to explore how insights gleaned from our work with FVA can lead school communities to broader understandings of interdependence as a frame for tackling the societal goals of inclusion – with the hope that one day disabled students' voices are no longer at the margins.

TABLES

Table 1 Embedded Units of Analysis Page
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Unit of Analysis	Case(s)
School	One (FVA)
Grade	Four (K, 1/2, 2/3, 4/5 grade combos)
Families	Six (children per grade: K: 3, 1/2: 3, 2/3: 3, 4/5: 2)

Table 2 Selected Observation Protocol Items 44

Guiding Question	Category	Sample Codes
What do inclusive school and classroom practices look like in an inclusive school community?	Special Education Services	<p>Structured Academic Instruction (SAI): teacher or service provider provides specialized help individually or small group.</p> <p>Speech therapy: one-to-one, pair, or small group services aimed at supporting speech development</p> <p>Occupational therapy: one-to-one, pair, or small group services aimed at supporting gross and fine motor development</p> <p>Reading/writing intervention: one-to-one, pair, small group instruction aimed at supporting reading/writing development</p> <p>Social Skills/Behavioral Supports: one-to-one, pair, small group intervention aimed at supporting student social and behavioral goals</p>
	Co-Teaching Practices for Inclusion	<p>One Teach, One Assist: One teacher provides whole group instruction while other teacher provides individual assistance.</p> <p>Station (Center) Teaching: Learner groups rotate between teachers and/or staff as they move from station to station as a group.</p> <p>Parallel Teaching: Learners are split into two groups and provided either the same, or complementary, lessons in their smaller groups.</p> <p>Team Teaching: Teachers coordinate and plan together to provide instruction together to learners within the same classroom.</p>
How do students, staff, and parents engage in literacy activities in an inclusive school community?	Literacy Activities	<p>Listening to connected text: Students are engaged in listening to text read by teacher or audio.</p> <p>Reading comprehension: Students are engaged in talking or writing about the meaning of text.</p> <p>Writing: Students are composing a specific piece of extended writing.</p>

Tables

		<p>Language development: Teacher help students attend to studying language, including figurative language, idioms; and grammar.</p>
<p>How do students, staff, and parents use digital technologies in an inclusive school community?</p>	<p>Instructional Technology</p>	<p>Demonstration equipment: overhead projector, Elmo, digital slides, clickers, TV screen, smartboard/whiteboard, other</p> <p>Devices (teacher and/or student): Tablet (i.e. iPad), Desktop computer, Laptop computer (i.e. Chromebook), other</p> <p>Digital content: Visual media (e.g. movie, documentary, video clips), social media (e.g. YouTube), Education apps, games, websites, other</p>
	<p>Assistive Technology</p>	<p>Mobility aids: wheelchairs, scooters, walkers, canes, crutches, prosthetic devices, and orthotic devices.</p> <p>Software/hardware: communication apps (i.e. Proloquo2Go), voice recognition, screen readers, and screen enlargement apps.</p> <p>Digital features: closed captioning, speech to text/text to speech functions, hot spots, adjustable font</p> <p>Environmental Modifications: playground equipment, class supplies, ramps, grab bars, wider doorways to enable access.</p>
<p>How do LLT practices support (or hinder) students' inclusion as fully engaged members in their school community?</p>	<p>Classroom Engagement</p>	<p>Making connections: Students are given examples (either verbally through illustrative stories or graphically through movies or pictures) that clearly and explicitly link class material to popular culture, the news, and other common student experiences.</p> <p>Problem solving: Students are asked to actively solve a problem (e.g., work out a mathematical equation) through explicit (e.g., "Please solve for X") or written (e.g., worksheets) requests to solve a problem.</p> <p>Creating: Students are provided with tasks where the outcome is open-ended rather than fixed (e.g., students are asked to generate their own ideas rather than finding a specific solution).</p>

Table 3 Selected Interview Protocol Items

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Category	Type	Sample Questions
Family	Parent	What adjustments have you needed to make in how you engage with school moving from a more “typical” environment to a full inclusion environment? How has the push-in structure at FVA benefited/challenged your child? What kinds of things does your family like to read or write about at home? In your opinion, how does your child feel about reading and writing? With and without technology? Is there a preference?
	Student	What do you like about FVA? What makes FVA special to you? Can you tell me your favorite parts of the day? Let’s talk about computers. Do you use computers for reading and writing? What is your favorite thing to do on the computer?
Staff	Teacher/Para-professional	What makes FVA different, or similar, to other schools? What did you expect? What surprised you? What have been the benefits/challenges of integrating technology into the full inclusion model? How is this similar/different from your use of tech in “typical” classroom environments?
	Speech/Service Provider	What adjustments have you needed to make in your delivery of services in a full inclusion environment using a push-in structure? How do you consult and collaborate with team members to meet students’ IEP goals? In your opinion, how do your students feel about communicating with and without technology? Is there a preference? Why?
	Administrative	What brought you to FVA? Could you share your reasons for working at FVA? Could you share your hopes and dreams for students at FVA?

Table 4 FVA School Demographics

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Demographic	Future Visions Academy	Surrounding County
Students	120	450,000
Gender	52% female, 48% male	52%, 48% male
Race/Ethnicity	81% minority enrollment (64.2% Latinx, 19.2% White, 13.3% multiracial, 1.7% Asian, 1.7% Hawaiian/Pacific Islander)	75% minority enrollment (49.1% Latinx, 25% White, 16.9% Asian, multiracial 4.3%, Filipino 2%, Black 1.3%, 0.3% Hawaiian/Pacific Islander)
Disability	21%	13%
English language learner	37%	22%
Free/reduced price meals	63%	50%

Table 5 Family Interview Participants

Parent	Child	Ethnic Self ID	Disability	Economic Status	Home Language	Grade (Class)
Madeline	Star	European & East Asian	Down Syndrome	Upper Middle Class	English	2 (Ohlin)
Dina & Noah	James Daniel	Latinx & Pacific Islander	Down Syndrome	Working Class	English	3 (Wezner) K (Macias)
Hilda	Leonardo Luigi	Mexican	Learning Disability	Working Class	Spanish/ELL	1 (Ohlin) 4 (Gomez)
Mira	Maddox Maya Marco	Filipino	None	Middle Class	English/some Tagalog	K (Jarvis) 4 (Gomez) 2 (Wezner)
Sara	Leon Isla	Mexican	None	Middle Class	Spanish/ELL	K (Macias) 3 (Wezner)
Blake	Finn Chandler	European	Autism	Upper Middle Class	English	2 (Ohlin) K (Macias)

Table 6 Staff Participants

Name	Position	Class	Experience	Ethnic Self ID	Language
Ms. Jarvis*	General Ed Teacher	TK/Kinder	Experienced teacher	European	English
Ms. Macias*	General Ed Teacher	K	Experienced teacher	Latinx	English & Spanish
Ms. Ohlin*	General Ed Teacher	1/2	2 nd year teacher	European	English
Ms. Wezner**	General Ed Teacher	2/3	1 st year teacher	European	English
Ms. Gomez**	General Ed Teacher	4/5	Experienced teacher	Latinx	English & Spanish
Ms. Haberly*	Special Ed Teacher	K & 4/5	2 nd year teacher	European	English
Ms. Severin**	Special Ed Teacher	TK/K, 1/2, 2/3	Experienced teacher	European	English
Ms. Davis**	SLP	All classes	Experienced provider	Multiracial	English
Ms. Alexa*	SLPA	All Classes	1 st year provider	Latinx	English
Ms. Carina**	Paraprofessional	2/3 & 3/4	2 nd year paraprofessional	Latinx	English & Spanish

Mr. Gabriel**	Paraprofessional	K & TK/K	1 st year paraprofessional	Latinx	English & Spanish
Ms. Sandy**	Paraprofessional	2/3 & 3/4	1 st year paraprofessional	European	English
Ms. Yadira**	Paraprofessional	TK/K & 1/2	2 nd year paraprofessional	Latinx	English & Spanish
Ms. Holly*	Paraprofessional	TK/K & 2/3	1 st year paraprofessional	European	English
Mr. Kellan*	Paraprofessional	1/2 & 2/3	1 st year paraprofessional	European	English
Mr. Anthony*	Paraprofessional	K & 1/2	2 nd year paraprofessional	Latinx	English & Spanish
Ms. Belinda*	Paraprofessional	1/2	2 nd year paraprofessional	Latinx	English & Spanish
Mr. Bernardo*	Paraprofessional	TK/K	2 nd year paraprofessional	Latinx	English & Spanish
Ms. Petersen	Special Ed Teacher	TK/K, 1/2, 2/3	Experienced teacher	European	English
Ms. Blaire*	SLP practicum trainee	All classes	1 st year provider	European	English
Dr. Tully**	Executive Director	All classes	Experienced teacher and administrator	European	English
Ms. Cindy*	Office Administration	All classes	Experienced administrator	Latinx	English & Spanish

Table 7 Classroom and School Observations

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Location	Teachers	Supporting Staff	Number, Date & Type
TK/Kinder	Ms. Jarvis Ms. Severin	Paras: Ms. Yadira, Mr. Gabriel, Ms. Holly, Mr. Bernardo Speech: Ms. Davis, Ms. Alexa	Literacy Centers (10/28/19, 11/18/19), Speech Language Goals/Literacy Centers (1/9/20, 1/23/20, 2/13/20)
Kinder	Ms. Macias Ms. Haberly	Paras: Mr. Anthony, Mr. Gabriel, Mr. Bernardo Speech: Ms. Davis, Ms. Alexa	Phonics/Silent Reading (10/21/19), Math Centers (10/28/19), Speech Language Goals/Literacy Centers (1/9/20, 1/30/20, 2/6/20, 2/13/20), Speech Language Goals/Literacy Centers (2/19/20)
1/2 Combo Class	Ms. Ohlin Ms. Severin	Paras: Ms. Yadira, Mr. Kellan, Mr. Anthony, Ms. Belinda Speech: Ms. Davis, Ms. Alexa	Math Centers (10/28/19), Literacy Centers (11/4/19, 11/11/19), Speech Language Goals/Social Skills Whole Group (2/13/20), Speech Language Goals/Literacy Centers (2/26/20)

Tables

2/3 Combo Class	Ms. Wezner Ms. Severin	Paras: Ms. Carina, Ms. Sandy, Mr. Kellan, Ms. Holly Speech: Ms. Davis, Ms. Alexa	Storytime (10/21/19), Math Centers (11/4/19), Independent & Whole Group Writing (11/18/19, 5/26/21), Reading Whole Group (12/2/19, 5/26/21), Speech Language Goals/Phonics Whole Group (1/9/20), Speech Language Goals/Literacy Centers (1/23/20, 5/26/21), Speech Language Goals/Social Skills Whole Group (2/26/20),
4/5 Combo Class	Ms. Gomez Ms. Haberly	Paras: Ms. Carina, Ms. Sandy, Ms. Holly Speech: Ms. Davis, Ms. Alexa	Independent Writing (10/21/19), Science Whole Group (11/4/19), Independent Writing (11/18/19), Writing Whole Group (12/2/19), Speech Language Goals/Social Skills Whole Group (1/9/20, 1/30/20, 2/13/20), Speech Language Goals/Grammar Whole Group (2/6/20)
Whole School	All Staff	All Staff	Team Collaboration Meeting (10/11/19), Flag Day & Class Rotations (10/14/19), Staff Lounge (10/21/19, 11/18/19, 1/23/20), Digital Storytelling PD (10/24/19-10/25/19), Front Office/Staff Lounge (10/28/19, 10/30/19, 5/26/21), Holiday Assembly (12/19/19), Recess (2/13/20, 5/26/21)

Table 8 Staff Interviews

Staff	Position (Class)	Location (Date)
Ms. Wezner	General Education Teacher (2/3 combo)	Remote (4/20/20), In Person (4/23/21)
Ms. Gomez	General Education Teacher (4/5 combo)	Remote (5/21/20)
Ms. Severin	Special Education Teacher (TK/K, 1/2, 2/3 combo)	Remote (5/6/20)
Ms. Petersen*	Special Education Teacher (TK/K, 1/2, 2/3 combo)	In Person (4/30/21)
Ms. Davis	Speech Language Pathologist (All classes)	Remote (5/4/20)
Ms. Carina	Paraprofessional (2/3 & 3/4 combo)	Remote (4/27/20)
Mr. Gabriel	Paraprofessional (K & TK/K combo)	Remote (4/20/20), Remote (5/20/21)
Ms. Sandy	Paraprofessional (2/3 & 3/4 combo)	Remote (4/22/20)
Ms. Yadira	Paraprofessional (TK/K & 1/2 combo)	Remote (4/20/22), In Person (4/23/21)
Dr. Tully	Executive Director (All classes)	Remote (6/2/20), Remote (6/3/21)

Table 9 Family Interviews

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Parent	Child (Grade/Class)	Location (Date)
Madeline	Star (2 nd /Ohlin)	In Person (1/28/20)
Dina & Noah	James (3 rd /Wezner) Daniel (K/Macias)	In Person (2/6/20)
Hilda	Leonardo (1 st /Ohlin) Luigi (4 th /Gomez)	In Person (2/10/20)
Mira	Maddox (K/Jarvis) Maya (4 th /Gomez) Marco (2 nd /Wezner)	In Person (2/25/20), Remote (5/5/21)
Sara	Leon (K/Macias) Isla (3 rd /Wezner)	In Person (3/6/20), Remote (5/4/21)
Blake	Finn (2 nd /Ohlin) Chandler (K/Macias)	In Person (6/6/21)

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