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# Preparing In-Service Elementary Teachers to Support English Language Learners: A Qualitative Case Study of a Job-Embedded Professional Development Using TPACK

Rachel Theresa Lopez

# PREPARING IN-SERVICE ELEMENTARY TEACHERS TO SUPPORT ENGLISH LANGUAGE LEARNERS: A QUALITATIVE CASE STUDY OF A JOB-EMBEDDED PROFESSIONAL DEVELOPMENT USING TPACK

by

Rachel Theresa Lopez

Bachelor of Arts
Hamline University, 2007

Master of Arts
California State University, Fresno, 2016

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Accepted by:

Lucas Lima de Vasconcelos, Major Professor

Michael Grant, Committee Member

Hengtao Tang, Committee Member

Anna Clifford, Committee Member

Cheryl Addy, Interim Vice Provost and Dean of the Graduate School

# DEDICATION

I want to express my heartfelt gratitude to my family for your constant support and encouragement throughout my academic journey.

To my beloved husband, Tony, your endless love and unwavering support have helped me to succeed. I greatly appreciate the hours you sacrificed on the golf course. Your patience, understanding, and encouragement have been a constant source of motivation, and I am deeply grateful for always having you by my side.

To my precious children, Owen and Xitlali, I hope my accomplishments inspire you to realize your dreams. You are why I strive for excellence, and I am grateful for the joy and fulfillment you bring into my life every day.

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I dedicate this dissertation to my family with all my heart, and I hope that my achievements serve as a testament to the unwavering support and encouragement that you have given me. Thank you for always being there and helping me realize my full potential.

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# ABSTRACT

Nation-wide, the number of English Language Learners (ELL) in our classrooms continues to increase. Twenty percent of students enrolled in California public schools are ELLs, the highest percentage in the nation. With the continuously growing number of ELLs in our classrooms, our mainstream teachers must be prepared to teach content and meet the unique linguistic needs of these students. At Sotomayor Elementary School in the Central Valley of California, 38% of the students enrolled are ELLs. Despite high numbers of ELLs, the district sees minimal evidence of intentional planning for Designated English Language Development (D-ELD), or instruction specifically targeted to students' language needs, to support their language development. This qualitative action research case study examined the extent to which instructional coaching and workshops on TPACK affect in-service elementary teachers' instructional planning with technology integration in D-ELD at a Central Valley in California. This study examined the experiences of in-service elementary teachers in planning and teaching D-ELD after participating in instructional coaching and workshops on TPACK. As such, the study answered the following questions: (1) How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK? (2) How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK? and (3) What are teachers' perceptions of professional development using the TPACK framework?

This action research qualitative case study followed three in-service elementary teachers at Sotomayor Elementary School as they participated in job-embedded professional development to increase teachers' ability to plan for D-ELD enhanced with technology. As part of the study, teachers participated in five workshops utilizing the TPACK framework to guide their instructional design. Simultaneously, participants received weekly one-on-one coaching as they planned for D-ELD instruction. Data were collected through multiple means to answer the research questions, including teacher interviews, planning think-alouds, observations of D-ELD lessons, and lesson plans.

An inductive and thematic analysis was conducted. The study found that as a result of participating in professional development, the participants gained greater confidence in planning for technology-enhanced D-ELD. There was a shift from teacher-centered to student-centered use of technology. Additionally, findings showed that professional development is most effective when it addresses a specific classroom need.

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# INTRODUCTION

## National Context

The number of English Language Learners (ELL) continues to increase nationwide. According to the National Center for Education Statistics (NCES), "the percentage of public school students in the United States who were English language learners (ELLs) was higher in fall 2018 (10.2 percent, or 5.0 million students) than in fall 2010 (9.2 percent, or 4.5 million students)" (National Center for Education Statistics, 2021). Given the continued increase of ELL students in mainstream classes nationwide, it is increasingly essential for all classroom teachers to have the knowledge to meet the pedagogical and linguistic needs of ELL students (Baecher et al., 2016; Crawford et al., 2008; de Oliveira & Burke, 2014; Kolano et al., 2013; McManus-White, 2019).

Despite an increasing number of ELL students in our classrooms and an increased focus on supporting their learning, ELLs continue to trail their non-ELL peers in academic performance. According to the National Assessment of Educational Progress (NAEP) (2019b), only 10% of fourth-grade ELL students were proficient or above in reading compared to 39% of fourth-grade non-ELL students. The gap in mathematics is similar, with only 16% of fourth-grade ELL students meeting the criteria for proficiency or above compared to 44% of their non-ELL colleagues (National Assessment of Educational Progress, 2019a). In addition to the overall academic achievement gap, there is also an increase in Long-term ELL (LTEL) students, defined as EL students who have been in U.S. schools for six or more years. In California, for example, the percentage of

LTELs in secondary schools increased by 20% between 2008 and 2016. In other words, during the 2015-16 school year, 82% of all ELL students at the secondary level had been in U.S. schools since at least the sixth grade and still had not achieved English language proficiency (WestEd, 2016). The lack of language proficiency has significant academic implications for these students. A study conducted in Arizona found the graduation rate of LTEL students to be only 49%, which is 36 percentage points lower than English-only students. Even more astounding is that LTEL graduation rates were 32 percentage points lower than ELL students who achieved English language proficiency by early to mid-elementary school (WestEd, 2016). The fact that these students have been receiving academic language support through programs such as Designated English Language Development (D-ELD), Sheltered English, or other such programs, but have not achieved language proficiency, highlights the need for elementary teachers of ELL students to better meet the language needs of our ELL students not only in English Language Arts (ELA) but in all subject areas.

Most mainstream teachers have not received specialized training specifically in supporting ELL students (Cunningham & Crawford, 2016; de Jong & Harper, 2005). Nevertheless, teachers are the policymakers in their own classrooms, making the decisions on planning and implementation. Therefore, it is essential for teachers not just to have a toolkit of strategies (Kinsella, 2018) but also the content knowledge and knowledge of language acquisition to best plan for language instruction for ELLs (de Jong & Harper, 2005; Lyster, 2007).

In addition to supporting ELL students' language acquisition across all content areas, there is also a need to support ELLs development of 21st-century skills through the

use of technology (Parris et al., 2017). The California English Language Arts and English Language Development Framework (2014b) specifically addresses the need to utilize technology during instruction. The framework states, "the question is not whether technology should be used in classrooms, but rather how best to capitalize on technology to support teachers and learners" (California Department of Education, 2014b, p. 955). The use of technology can also be seen woven throughout the California ELD standards. For example, standard 10 of Part I of the standards states that students should "Writ[e] literary and informational texts to present, describe, and explain ideas and information, using appropriate technology" (California Department of Education, 2012).

Research has shown that effective teachers significantly impact student learning (Hattie, 2009). However, it is not enough for teachers to simply possess content, language acquisition, pedagogy, and technology knowledge. This is especially true of teachers of ELL students (de Oliveira, 2016; de Oliveira & Burke, 2014). It is the complex application of this knowledge that creates effective instruction. Although many factors contribute to a teacher's effectiveness, the communication of clear lesson objectives and intentional planning contributes significantly to the academic achievement of students (Fenner & Snyder, 2017; Genesee et al., 2006; Gibbson, 2015; Marzano, 2007; Moore, 2016).

## Local Context

California has the largest ELL population in the nation. Twenty percent of all students in California are ELL students (National Center for Educational Statistics, 2019). This percentage is even higher at Vineyard School District in the Central Valley of California. Thirty-four percent of all elementary students in the district are ELL students,

which can be higher or lower, depending on the school. In some schools within the district, ELL students make up more than half the student body. Therefore, all mainstream classroom teachers must have the knowledge and skills to support these students' linguistic and content needs.

Following national trends, ELL students in the Vineyard district trail their non-ELL peers. Every year in California, students complete the California Assessment of Student Performance and Progress (CAASPP) math and English Language Arts (ELA) test in elementary grades third through sixth. On the 2018 assessment, ELL students performed significantly lower than their English-only (EO) peers. In math, only 6% of ELLs met or exceeded grade-level expectations, as opposed to 29% of their EO peers. In ELA, the gap was more significant, with only 7% of ELL students meeting or exceeding standards compared to 36% of their EO peers. This data highlights the need to better support ELL students' linguistic needs across content areas. If we do not intervene with more targeted support for our ELL students, the gap will continue to widen.

The use of technology is conspicuously missing from almost all elementary D-ELD instruction across the district. Despite being 1:1 with Chromebooks, these students are missing out on valuable tools that can help to enhance their language learning (Ahmadi, 2018). Additionally, the lack of technology use does not allow the students to engage fully in all ELD standards, as technology use and integration are embedded in many standards (California Department of Education, 2014b).

Vineyard School District is in the process of a system redesign as it recognizes a greater imperative to meet students' needs to improve academic success. As part of the Elementary District Academic Coach team, we have been tasked with providing targeted

support in various areas. However, the need for support specifically in lesson planning and design, has been noted and requested. As observed through district-level walk-throughs, there is minimal evidence of intentional and cohesive lesson planning across all content areas. Without deliberate planning, the district will continue seeing a gap in student achievement between ELL and non-ELL students.

## Statement of the Problem

Although the number of ELLs in our classrooms is increasing nationwide (National Center for Educational Statistics, 2019), general education classroom teachers remain underprepared to meet the linguistic needs of these students (Baecher et al., 2016; Daniel & Peercy, 2014; de Jong & Harper, 2005; de Oliveira & Burke, 2014; Kolano et al., 2013; McManus-White, 2019). As a result, ELL students continue to trail their non-ELL peers in academics (Carter, 2019; Hoff, 2017; Miley & Farmer, 2017; Moore, 2016). Following national trends (National Assessment of Educational Progress, 2019a, 2019b), ELL students at Vineyard School District continue to trail their English Only peers on district benchmarks in math and English Language Arts (ELA), highlighting the linguistic needs of ELLs across content areas. Despite students having 1:1 Chromebooks beginning in kindergarten in the district, individual student technology is rarely used during D-ELD instruction, denying ELL students additional linguistic support and the opportunity to develop their 21st-century technology skills. Vineyard School District has prioritized D-ELD instruction as a means to address students' linguistic needs and support ELLs academically. However, there has been very little support for classroom teachers and no professional development opportunities in the area of D-ELD. Additionally, minimal evidence of intentional instructional planning has been observed district-wide in D-ELD

instruction. Instructional planning is the foundation on which solid language instruction can be provided to our ELL students. However, in its absence, it is unlikely that teachers will be able to meet their students' needs effectively.

**Purpose Statement**

The purpose of this qualitative action research case study was to examine the extent to which instructional coaching and workshops on TPACK affect in-service elementary teachers' technology integration in D-ELD at a school in the Central Valley in California.

**Research Questions**

What are the experiences of in-service elementary teachers in planning and teaching D-ELD after participating in instructional coaching and workshops on TPACK?

1. How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK?
2. How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK?
3. What are teachers' perceptions of professional development using the TPACK framework?

## Plan for Sharing and Communicating Findings

The findings of this research were shared with various stakeholders, including participating teachers, school site administrators, district academic coaches (DAC), and the director and coordinators of the district Curriculum, Instruction & Assessment (CI&A) department. The use of pseudonyms and the presentation of data from

participating teachers collectively ensured the anonymity of the participants during all modes of communication. "[A]t the heart of action research is *tangible* benefits to people and communities" (Stonebanks, 2019, p. 6). As such, the findings and initial recommendations from this action research were shared first and foremost with the participating teachers. They had an opportunity to ask questions and provide feedback regarding the findings' presentation and the recommendations. The study participants felt their voices had been accurately captured and represented and did not have any recommendations for changes. A full report was shared with the Curriculum, Instruction, and Assessment (CI&A) director and coordinator during an in-person meeting to discuss the findings and recommendations. Finally, the findings from the research were presented to the elementary DAC team with a focus on the next steps and implications for the continued work of the DAC team.

## Statement of Research Subjectivities and Positionality

I am back in the sophomore year of my undergraduate studies, enthralled in a guest lecture by the late Dr. Tania Forte. She discussed globalization and the development of multiple identities. In discussing her identity as a French-Israeli-Arab and participants' identities in her studies, Dr. Forte likened identities to a flower garden. Each person has a flower garden planted with mixed flowers and plucks to create various bouquets of identities for different contexts, all with a different combination of flowers and the same underlying makeup. This metaphor has stuck with me as it highlights the complex and diverse backgrounds and influences (flowers) that make up our views of ourselves and, ultimately, the world around us.

In research, worldviews are discussed in terms of paradigms, the researcher's way of viewing the world, and knowledge. This worldview, or paradigm, influences their research. "It is impossible to engage in any form of research without committing (often implicitly) to ontological and epistemological positions" (Scotland, 2012). Although not specifically addressing a researcher's paradigm, Watson-Gegeo (2004) states that cognitive scientists have found most cognitive thought to be unconscious or beyond our awareness. Therefore, researchers must do some deep reflection to identify their ontology, epistemology, methodology, and axiology, all of which make up one's paradigm.

In Aliyu et al.'s (2015) discussion of ontology, epistemology, and axiology, the positioning of paradigms was represented as a continuum influenced and determined by three axes: ontology, epistemology, and axiology. In other words, although there are characteristics of paradigms, there is no hard and fast delineation between paradigms. Instead, paradigms occupy spaces along a continuum, sometimes overlapping characteristics with other paradigms. Methodology is also impacted and informed by these axes.

The representation of paradigms across a continuum recognizes that there can be shared characteristics between different paradigms and that other paradigms exist along these continuums. Lather (2006) and Pipere (2016) refer to the need for educational researchers to be open to the complexities that exist within educational research. Lather (2006) calls us to say "yes to the messiness" (p. 48) of the proliferation of paradigms. Within this conflict of providing clarity of research by identifying my paradigm and the

messiness that exists in complexity, I find myself returning to the notion of a flower garden.

Many things influence my paradigm. Despite identifying an overall affiliation with a pragmatic paradigm, I also recognize influences from other philosophies. However, as Grant (2011) stated, paradigms are not like clothing into and out of which one can change. Similarly, the metaphor of a bouquet does not quite fit as the bouquet will eventually die, and a new one will need to be made. Like identities, paradigms are influenced by many things. However, they are much more static. I, therefore, find a stained-glass window to be a more apt metaphor for my paradigm. Characteristics of pragmatism heavily influence my paradigm or stained-glass window. However, I also recognize the shades of the transformative and post-positivism paradigms scattered throughout my window. I am not arguing for an ever-changing or fluid paradigm but by recognizing the complexity of my paradigm and other influences, I can better identify the biases and influences on my research that I may not otherwise.

In my action research study, I sought to explore how teachers of ELL students intentionally integrate technology during D-ELD. The transformative paradigm influenced my research. In line with this paradigm, my research focused on ELLs, a marginalized population, in an effort to address the equity issue of access to well-planned instruction. As the achievement gap between ELL students and non-ELLs continues to grow, it is imperative that we, as educators, take up this equity issue and work towards eliminating the gap. However, as my study did not explicitly call out the politics and political agenda, it is shaded by the transformative paradigm but sat within the pragmatic paradigm. In this study, I explored the teachers' experiences of technology integration.

Although there is a single reality, each teacher experiences and interprets technology and its integration into instruction differently. I explored how we, as educators, navigate through the variability and complexity of our experiences to provide equity for our ELL students.

A clear view of my stained-glass window is essential in reflecting upon my subjectivity. The stained-glass pieces are who I am. They are the experiences I have had that shade my view of the world. However, before viewing my stained-glass window in its entirety, we must first know the pieces and from where they came. Several critical moments throughout my life have shaped and influenced my paradigm. When I was very young, my parents practiced medicine at a hospital on an Indian reservation. I was too young to remember very much from our time there. When I was around ten years old, I asked my mom what it was like to practice medicine on the reservation. Among other things, she responded that sometimes when she saw patients, a shaman or medicine man would walk into the patient's room as soon as she left. I asked if that ever bothered her. Her response was a very quick no. She said "Whether it was my poisons or the patient's belief in their shaman that healed them, it didn't matter. What was important was that the patient got better." In other words, she recognized that there was no single "right" way to view even medicine and healing.

Over and over again, my parents modeled the importance of advocating for a better and more just world. So, unsurprisingly, I have always chosen to do work that strives to give back to the community and work to address inequities.

Although I believe some truths are independent of the person, I do not believe that true objectivity can be achieved. Like social constructivists, I believe that individuals

seek to understand the world around them (Creswell, 2014). However, my view is more pragmatic because I do not believe in multiple realities but instead believe that there are multiple interpretations of a single reality (Mertens, 2009). Like the transformative and pragmatic paradigms, I think reality exists in a historical, cultural, and ethnic context (Scotland, 2012). However, this creates complexity because even if there is a single reality, it is interpreted and experienced differently. Therefore, lived realities are different.

As mentioned earlier, although I sit firmly in the pragmatic paradigm, a post-positivism shard of glass entered my stained glass window as I read the work of Watson-Gegeo (2004). "Western philosophical and mainstream scientific thought, in which cognition rides in a detached fashion above the body and is in some sense distinct from it – an idea still implicit in much educational and SLA research and teaching" (p. 333). I am indeed steeped in the Western philosophy of knowledge, which still heavily leans towards post-positivism. Even though I consciously have pragmatic beliefs, subconsciously, I tend to consider objective studies as being more "scientific." In thinking about research-based educational practices, I asked myself, "what studies are those?". Lather (2006) identified the reliance and preference for quantitative objective studies as researched-based due to No Child Left Behind. Subconsciously, I have this bias as well. When I think of research-based practices, I initially think of best practices supported by quantitative research. Although this is not where my thoughts remain, it does bring to light my bias. One of my shards of glass does not fully define nor derail my paradigm position, but I need to recognize and call out.

I believe that all forms of method collection should be on the table to examine and understand the complexities of educational research and the world around us more fully. Pipere (2016) identifies transdisciplinary approaches to educational research as essential to allow for the openness of its complexities. This means that I am open to both qualitative and quantitative research. Therefore, the driving decision of the research design must be the study itself.

Much in line with pragmatism, my stained-glass window tints my view of reality and, thus, the subjectivity of my research (Creswell & Creswell, 2018; Mertens, 2009). My research focused on the intentional planning of technology-enhanced language instruction during D-ELD instruction for ELLs. Therefore, it is necessary to delve into the why of this research personally to understand my subjectivity and positionality.

**Why focus on ELLs?**

I am a white native English-speaking teacher. It does not initially appear that I would have much of a connection to this research besides the high numbers of ELL students in our classrooms in the district where I conducted my study. However, I have been a language learner. I studied abroad in Germany in high school, despite not speaking any German before my exchange year. Although this is not the same experience our ELL students face in our classrooms, this experience does impact how I view language instruction for students. I know the heavy cognitive load our ELL students carry to learn content and the English language simultaneously. I see language instruction across all content areas as a critical element in effective instruction for ELLs as language is used everywhere. Therefore, language instruction should not simply be connected to a single subject or purpose.

My maternal grandparents were both ELL students themselves. My grandfather was an ELL student in the district in which I conducted this study. Although he spoke very fondly of having graduated from Vineyard Unified School District, he also spoke of the challenges he faced as an ELL student, the lack of high academic expectations because he was an ELL student, and the struggle he faced to be on par with his English only classmates. Eighty years later, we still have a long way to go to ensure our ELLs have the same academic opportunities as English-only students. We must attend to the achievement gap between ELLs and non-ELLs. It is an equity issue that demands our attention. This connection to the study is a shard of glass that shades my view of the importance of effective instruction for our ELL students and our need to continue to study instructional practices to meet their needs.

**Why Technology Integration?**

The field of educational technology is not merely concerned with the development and utilization of technology in instruction. Instead, it is a field focused on the intentional and cohesive design of instruction and the continued study of effective practices with technology (Januszewski & Molenda, 2008). Technology should not be used just for the sake of using technology. For this reason, technology integration is a part of a larger innovation instead of the focal point of the study. The intentionality with which one aligns instructional goals, best instructional practices, and technology integration, in other words, intentional planning, is critical for effective instruction. It is essential to be flexible, continuously learn, and demonstrate strong pedagogical competencies as a practitioner.

**Impact on this study**

My personal and professional beliefs have influenced my desire to focus on instruction for ELLs and informed the design of the innovation. Given the influences I have, I needed to incorporate feedback from others, such as DACs and classroom teachers, throughout the development of the innovation and the study to ensure that my personal biases did not overshadow the study. Additionally, collecting data from multiple sources helped to ensure that I was not biased toward a positive outcome of the study innovation.

As I conducted this research, I did do so as an insider/outsider (Herr & Anderson, 2015). I am an insider because I researched within the district where I work. Additionally, I am a teacher and conducted research with other teachers. However, I am also an outsider because I am no longer a classroom teacher. I am currently a District Academic Coach. Therefore, I had credibility on the one hand with teachers, but there may also have been some skepticism as I am not currently a classroom teacher. When interviewing participating teachers, it was imperative for me to be aware of the unofficial power dynamics that exist between the classroom teachers' positions and my own. As I worked with participants to co-plan, I had to ensure I approached the planning as a peer. I had to be sensitive to avoid the notion that instruction has to be a certain way because the "district" says so. I was there to facilitate conversations and provide resources and an alternative lens as much as I listened to and learned from the participants. Final instructional decisions were always theirs to make. By approaching our work together in this way and making it clear to the participating teachers that our conversations remained confidential, it helped address the unofficial power dynamic.

## Definition of Terms

### English Language Learner

ELLs are students whose first language is a language other than English. ELL students are identified through the Home Language Survey, which parents complete when students are registered for school (U.S. Department of Education, 2016). Although each school district creates its own language survey, they all include questions regarding the first language spoken by the student and the primary language spoken at home by adults and the student. Additionally, ELLs have been identified through the use of the Home Language Survey but have not yet been reclassified as English language proficient. In California, language proficiency is measured through the yearly administration of the English Language Proficiency Assessment of California (ELPAC) as well as meeting district academic targets. Although there is concern regarding the misclassification of students due to the reliance on the home language survey (García Bedolla & Rodriguez, 2011), for the purpose of this study, ELL students will be classified as those identified by the district through the use of the Home Language Survey, who have not yet achieved English Language Proficiency.

### Designated English Language Development

In California, schools are required to provide ELL students with language support and instruction at the students' proficiency levels to support the students' language acquisition as well as access to the core content (California Department of Education, 2014a). This language support is required to occur as both integrated ELD (I-ELD) and D-ELD. I-ELD is part of regular content instruction in which the content is the focal point of instruction; however, language is still supported as a secondary focus. D-ELD,

on the other hand, is a "protected time during the regular school day, in which teachers use the CA ELD Standards as the focal standards in ways that build *into and from content instruction* to develop critical language ELs need for content learning in English"(California Department of Education, 2014a, p. 106). Although I-ELD is also very important, this study focused on D-ELD instruction.

**Content-Based Language Learning**

A growing body of literature shows that students acquire language better and faster when language instruction is connected to content instruction. In other words, content provides the context through which language instruction is conducted (de Oliveira, 2016; de Oliveira & Lan, 2014; Hoff, 2017; Hoody et al., 2019; Lyster, 2007). Gibbson (2015) refers to this as "subject-based language learning." The California ELA/ELD framework (2014a) calls for D-ELD instruction across all content areas as well:

> "Designated ELD is not separate and isolated from ELA, science, social studies, mathematics, ad other disciplines but rather is an opportunity during the regular school day to support ELs in developing the discourse practices, grammatical structures, and vocabulary necessary for successful participation in academic tasks in all content areas" (California Department of Education, 2014a).

In this study, content-based language learning will refer to language-focused D-ELD instruction that supports students' language acquisition across all content areas.

**TPACK Framework**

"[T]eaching is a complicated practice that requires an interweaving of many kinds of specialized knowledge" (Koehler et al., 2013, p. 13). The TPACK framework provides

educators with a framework through which the complexities of the relationships between the various components of instructional knowledge can be viewed. They are as follows (Koehler et al., 2013; Schmidt et al., 2009):

- **Content Knowledge** (CK) – A teacher's knowledge about the subject to be taught. In this study, this meant not only the content knowledge of math and ELA but also the content knowledge of language acquisition.
- **Pedagogical Knowledge** (PK) – This is the teacher's knowledge about the processes and methods of teaching and includes: classroom management, lesson planning, student learning, and student assessment.
- **Technological Knowledge** (TK) – This refers to a teacher's knowledge about various technologies.

The framework not only identifies these three components but also the interplay between them as follows (Koehler et al., 2013; Schmidt et al., 2009):

- **Pedagogical Content Knowledge** (PCK) refers to the blending of content knowledge with the appropriate pedagogy. "Specifically, according to Shulman (1986), this transformation occurs as the teacher interprets subject matter, finds multiple ways to represent it and adapts and tailors to the instructional materials to alternative conceptions and students' prior knowledge" (Koehler et al., 2013, p. 15).
- **Technological Content Knowledge** (TCK) is the knowledge of pairing appropriate technology for specific content needs and goals. "[It] is an understanding of how technology and content influence and constrain one another" (Koehler et al., 2013, p. 16).

- **Technological Pedagogical Knowledge** (TPK) – This is the knowledge about not only how technology can be used in teaching and enhance pedagogy but also an "understanding that using technology may change the way teachers teach" (Schmidt et al., 2009, p. 125).
- **Technological Pedagogical Content Knowledge** (TPACK) – This interplay of all three components requires high skill, knowledge, and intentionality. Koehler et al. (2013) describe it as:

> the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies, pedagogical techniques that use technologies in constructive ways to teach content, knowledge of what makes concepts difficult or easy to learn, and how technology can help redress some of the problems that students face […](p.16).

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# CHAPTER 2
# LITERATURE REVIEW

The purpose of this qualitative action research case study was to examine the extent to which instructional coaching and workshops on TPACK affect in-service elementary teachers' technology integration in D-ELD at a school in the Central Valley in California. The study sought to explore the following research questions: What are the experiences of in-service elementary teachers in planning and teaching D-ELD after participating in instructional coaching and workshops on TPACK? (1)How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK? (2) How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK? (3) What are teachers' perceptions of professional development using the TPACK framework?

## Methodology

A systematic search of the literature was conducted to help ensure a thorough review of the extant research. The most common search terms used were: technology integration, professional development, ELLs, and TPACK. Other search terms included: action research, language-content instruction, adult learning, instructional coaching, elementary, and teacher characteristics. Similar search terms were also used to expand the search. For example, educational technology and technology were used instead of technology integration to identify related studies that may not have used the term technology integration.

Similarly, quality teachers, teacher characteristics, and teacher practices were used to locate studies of effective teacher practices related to teaching ELL students. Search terms were used together to help narrow the searches. For example, "English language learners" AND "technology integration" AND "elementary" were common search terms used together. The most commonly used databases for the literature search were *ERIC* and *Education Source*. Other databases included *JSTOR*, the University of South Carolina library's *multi-search tool*, *Pro-Quest*, *EBSCOhost*, and *Google Scholar*. Sources were also identified by mining the references of highly relevant sources. I began the review by searching for terms broadly and without any filters. This enabled me to get a broad sense of the existing literature. After the initial review, the search terms became more specific, and I narrowed the searches to peer-reviewed articles and those which were published in the last five to ten years.

A systematic review of the literature is presented in this chapter to provide an overall picture of the academic discourse surrounding the topics of technology integration, language development instruction for ELLs, professional development for in-service teachers, and how this study fits into and expands the existing body of research. Additionally, I will present and discuss how this body of literature has informed this study in terms of the content and design of the innovation, ongoing in-service teacher professional development, and the study's methodology. The following topics will be discussed in this chapter: (a) instructional technology integration, (b) TPACK as a framework for technology integration, (c) English Language Learners (ELLs), (d) teachers' needs, and (e) effective professional development.

## Instructional Technology Integration

Technology integration in instruction has been widely studied at elementary, secondary, and post-secondary levels. This literature review focused on technology integration with ELLs and English as a Second Language, primarily at an elementary level. In this section of the literature review, I will discuss the following: (a) definition of technology integration, (b) study methodologies, (c) teacher perceptions of technology integration, (d) positive impacts of technology integration, (e) minimal/negative impacts of technology integration, and (f) challenges and barriers to technology integration.

### Definition of Technology Integration

The National Center for Education Statistics (NCES) defines technology integration broadly as "the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools. Technology resources are computers and specialized software, network-based communication systems, and other equipment and infrastructure" (Technology in Schools Task Force, 2002, p. 75). Newer definitions of instructional technology focus on information and communication technology (ICT) (Koh et al., 2015; Spiteri & Rundgren, 2020; Valtonen et al., 2017), or technologies used to "transmit process, store, create, display, share or exchange information by electronic means" (UNESCO, 2007, p. 1). As with this definition, subsequent operationalized definitions in the literature also focus more on defining the purpose or use of technology instead of the specific technology tool used. For example, in California's Blueprint for Great Schools (CA Department of Education, 2011), technology integration is a means of increasing effectiveness and productivity. The goal is to have students utilize technology in ways they will encounter in the world

outside of school. Others define technology integration as using technology in the classroom to redefine teaching and learning to create meaningful, authentic, and innovative learning opportunities for students (Hutchison & Woodward, 2018). Still, other researchers have placed student learning and outcomes at the center of their definitions (Bitner & Bitner, 2002; Parris et al., 2017). Technology is defined simply as a tool to reach the desired learning goal.

> For the purpose of this research, Okojie et al.'s (2005) definition was utilized:
>
> In a broad sense, technology integration can be described as a process of using existing tools, equipment, and materials, including the use of electronic media, for the purpose of enhancing learning. It involves managing and coordinating available instructional aids and resources in order to facilitate learning. It also involves the selection of suitable technology based on the learning needs of students as well as the ability of teachers to adapt such technology to fit specific learning activities. It calls for teachers' ability to select suitable technology while planning instruction. It also requires teachers to use appropriate technology to present and evaluate instruction as well as use relevant technology for follow-up learning activities (p. 67).

This definition encapsulates the broad use of technology tools and the impetus placed on learning, as is seen in the previous definitions. Additionally, in alignment with this study, Okojie et al. (2005) describe technology integration as a process. Therefore, technology integration is not just the end result of utilizing technology tools to enhance teaching and learning; instead, it is the whole process of selecting the appropriate technology tools to best support student learning.

## TPACK as a Framework for Technology Integration

As stated previously, integrating technology into classroom instruction is a process, often a complex one. TPACK is a framework that can provide some structure and guidance to teachers when planning for instruction with technology integration. Although there are other frameworks for technology integration, such as the SAMR Model, TPACK is the foundational framework for this research because it captures the complexity of instructional planning. Each element of TPACK interacts with one another in the same way that instructional design is the interplay of the design elements. Additionally, although technology plays an important role in the framework, TPACK emphasizes the importance of the content and pedagogy driving technology integration. To better understand the TPACK framework and the pivotal role this framework plays in this research, I will discuss the following in this section: (a) an overview of the TPACK framework, (b) instructional planning informed by TPACK, and (c) critiques of TPACK.

### *Overview of TPACK Framework*

TPACK is a framework that teachers can use to help highlight the knowledge they need when designing instruction with technology integration. The framework builds upon the complex interactions of context, content, pedagogical, and technological knowledge (see Figure 2.1) (Harris et al., 2013; Koehler et al., 2013; Swallow & Olofson, 2017).

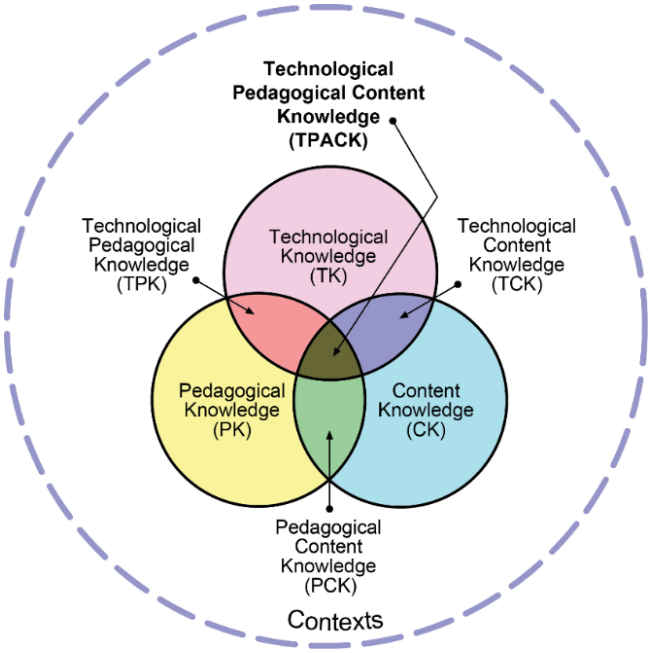


Figure 2.1 TPACK Framework Model
*Reproduced by permission from the publisher*,
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- **Content Knowledge (CK) -** Content Knowledge is the teacher's knowledge of the specific content to be taught (Koehler et al., 2013).
- **Pedagogical Knowledge (PK)** is a teacher's knowledge of effective pedagogical practices. A teacher has an understanding of how students learn.
- **Technological Knowledge (TK)** is a teacher's knowledge of various information technology tools. TK is constantly in flux as there are always new technologies and new ways of engaging with technology.
- **Pedagogical Content Knowledge (PCK)** is the interplay between pedagogical and content knowledge. The teacher considers the content, curriculum, assessment, and pedagogies.

- **Technological Pedagogical Knowledge (TPK)** is the interplay between the content and selecting appropriate technology tools to enhance content learning. Technology tools, in turn, can alter how content knowledge is represented.
- **Technological Content Knowledge (TCK)** is the interplay between utilizing technology to enhance effective pedagogical practices.
- **Technological Pedagogical Content Knowledge (TPACK)** is the interplay between technological, pedagogical, and content knowledge categories. Teachers consider how content drives pedagogical and technological instructional design decisions and how those categories can help redefine the others.

**Instructional Planning Informed by TPACK**

Instructional planning has been defined narrowly as a systematic and deliberate process (Hoare et al., 2008). The learning goals are central to the process (Harris & Hofer, 2011; Hutchison & Woodward, 2018). For the purpose of this research, instructional planning is defined as a process by which teachers explicitly plan for content learning utilizing the most appropriate pedagogy and tools to facilitate learning in a given context. In other words, instructional planning is a process through which teachers work through design thinking, intentionally considering what students need to learn, what they already know and how to most effectively teach them the content.

TPACK is not just a framework but can also be utilized as a tool for instructional planning with technology integration. In line with the operationalized definition of technology integration, the TPACK framework provides a lens through which to view the process through which teachers can work to design instruction that incorporates content, pedagogy, and technology to plan for effective instruction (Greene & Jones, 2020; Harris

et al., 2013; Koehler et al., 2013). Researchers have also used the TPACK framework to develop professional development and planning cycles to guide teachers through intentional planning for technology integration (Beschorner & Woodward, 2019; Harris et al., 2013; Hutchison & Woodward, 2018; Kibler et al., 2019; Kolb, 2017; Pareto & Willermark, 2019; Ronan, 2018). This demonstrates that although TPACK has generally been used to ascertain teachers' knowledge in the TPACK areas, it provides a useful framework to facilitate instructional planning.

**Study Methodologies**

Studies of technology integration have utilized a variety of methodologies. Consistent with Harper and Milman's (2016) review of the literature, the studies identified in this literature review consist primarily of mixed-method and qualitative studies. Often, studies employed more than one method of data collection. These methods have included surveys, interviews, observations, document analyses, and test scores.

The most common qualitative study design has been the use of a qualitative case study (Andrei, 2017; Beschorner & Woodward, 2019; Pareto & Willermark, 2019; Shin, 2014; Shin & Seger, 2016). Anglin (2017) utilized a qualitative interview approach. These studies utilized a qualitative approach in order to dig into the rich experiences of the participants. Consistent with Harper & Milman's (2016) review, these studies typically utilized more than one data collection method. For example, student work samples were utilized by Shin (2014). Mixed methods were also a commonly utilized study design. It is interesting to note, however, that the mixed methods studies most often quantified qualitative data such as student work samples, lesson plans, etc. through the

use of rubrics (Al-Qallaf & Al-Mutairi, 2016; Arcon et al., 2017; Burstein et al., 2014; Darling-Aduana & Heinrich, 2018; Heineman, 2016; Zheng & Warschauer, 2019).

## Teacher Perceptions of Technology Integration

Teachers' perceptions of technology integration influence the frequency of technology integration as well as the quality of the integration into instruction (Heineman, 2016; Liu et al., 2017). As previously stated, technology should not be the driving factor of instructional design. Teachers are not likely to integrate technology simply for the sake of utilizing technology. Teachers are more likely to integrate technology when they believe it is beneficial. Anglin (2017) and Miller (2018) found that teachers felt integrating technology was useful in aligning instruction with 21st-century learning. Information and communication technology (ICT) tools such as blogging, presentation tools, Google suites, podcasts, among others, provide more opportunities for collaboration, creativity, communication, and critical thinking (Koh et al., 2015; Parris et al., 2017; Uslu & Usluel, 2019). Additionally, the use of technology during instruction enables more individualized or differentiated learning (Wood et al., 2018). This is especially important for ELLs as additional language scaffolds, and supports can be provided (Cullen et al., 2013; Ok & Ratliffe, 2018; Wood et al., 2018).

## Positive Impacts of Technology Integration

Harper and Milman's (2016) literature review found that integrating technology increased student motivation, led to some academic gains, and provided students with more collaborative and individualized learning opportunities when 1:1 devices were utilized. Research explicitly conducted to examine the impact of technology integration with ELLs has also found these positive impacts to be true. For example, Shin (2014)

found that the use of blogging with ELL students increased their motivation and confidence. In addition, studies found that intentional integration of technology led to improved linguistic gains of ELL students predominantly in the complexity and quality of their writing (Al-Qallaf & Al-Mutairi, 2016; Arcon et al., 2017; Darling-Aduana & Heinrich, 2018; Shin, 2014; Zheng & Warschauer, 2019). For example, Al-Qallaf and Al-Mutairi (2016) and Shin (2014) found that the length and complexity of students' writing increased with the use of blogs. These studies demonstrate the potential of technology integration to create positive gains in linguistic terms and student motivation.

**Minimal/Negative Impacts of Technology Integration**

However, not all of the findings of technology integration have been positive. The use of technology does not automatically lead to positive results for students. How technology is integrated into instruction is important (Harper & Milman, 2016) and is often a greater contributing factor than the specific technology tool. Teachers' capacity to pair effective pedagogical practices with the appropriate technology tool significantly impacts the successful integration of a technology tool (Prince, 2018). Carr (2018) found no statistically significant difference between the math achievement of students who used technology for math intervention and those who did not use technology. This highlights the importance of integrating technology and altering the pedagogical approaches when doing so.

**Challenges and Barriers to Technology Integration**

Teachers experience first and second-order barriers to technology integration (Durff & Carter, 2019; Ertmer, 1999; Makki et al., 2018). Second-order barriers are those within a teacher’s control, such as knowledge, skill, belief, and attitudes (Durff & Carter,

2019; Ertmer, 1999). Teachers' confidence and self-efficacy in utilizing technology often determine their willingness and effectiveness in integrating technology into their classrooms (Heineman, 2016; Liu et al., 2017; Swallow & Olofson, 2017). The more confident a teacher feels in utilizing technology, the more likely they are to integrate it. Similarly, the less confident teachers feel in their ability to utilize technology, the less likely they are to integrate technology into their instruction (Andrei, 2017; Heineman, 2016; Liu et al., 2017; Swallow & Olofson, 2017). Tondeur et al.'s (2017) literature review also found teachers' pedagogical beliefs to be a barrier to technological integration. For example, Liu et al. (2017) found that teachers with increased confidence in technology usage were more likely to favor 21st-century learning pedagogies, such as student-centered learning, project-based learning, or highly collaborative pedagogies. However, teachers with less confidence in using technology preferred more traditional pedagogies. These second-order barriers and challenges highlight the importance of pedagogy when integrating technology.

First-order barriers are those outside of a teacher's control. These barriers to technology integration include time, lack of technical support, and the need for more professional development (Durff & Carter, 2019; Ertmer, 1999; Ertmer & Ottenbreit-Leftwich, 2013). The lack of time includes both the lack of time for planning (Andrei, 2017; Moore, 2013; Tondeur et al., 2017) and the lack of instructional time for implementation (Anglin, 2017; Beschorner & Woodward, 2019; Tondeur et al., 2017). With so much content to teach, instructional time is very valuable, and often teachers feel it is not enough. Attempting to use a new technology tool can be especially frustrating when a teacher runs into a technology glitch in the middle of instruction without a person

to whom they can reach out to help resolve the issue quickly. In addition, a lack of technical support can make some teachers much more hesitant about integrating a new technology tool (Andrei, 2017; Beschorner & Woodward, 2019; Prince, 2018). This is especially true when a teacher already lacks available instructional time.

Additionally, it takes a lot of time for teachers to learn new technologies and feel confident in applying them in their instruction. Studies have found that teachers often lack knowledge of technology tools and how to leverage the tools for student learning (Al-Qallaf & Al-Mutairi, 2016; Anglin, 2017; Prince, 2018; Swallow & Olofson, 2017; Tondeur et al., 2017). In other words, additional professional development is needed. However, teachers need to have the opportunity to learn about technology tools, but they need to have opportunities to utilize the technology as tools in their own learning (Al-Qallaf & Al-Mutairi, 2016).

## English Language Learners

ELLs are a growing population in the nation, particularly in California (California Department of Education, 2021). As such, it is increasingly important for general classroom teachers to know content and pedagogy for teaching content and language to ELLs. This section of the literature review will provide a review of the existing research specific to ELLs. This section will discuss (a) definitions of ELL and D-ELD, (b) specific ELL student needs, (c) methodologies of studies specific to ELLs, (d) second language acquisition, (e) content learning, and (f) effective instruction for ELLs.

### Definition of ELLs

In California, ELLs are identified through the use of a district-determined home language survey completed by parents (California Department of Education, 2020). To be

classified as an ELL student, the home language survey must indicate the student's first language to be a language other than English or the predominant language spoken at home to be a language other than English. Additionally, ELL students are individuals identified by the language survey who have not yet been reclassified as English Language Proficient. Each district outlines the specific criteria. However, the student must have achieved language proficiency on the state's yearly English Language Proficiency Assessments for California (ELPAC) and demonstrated adequate academic achievement to be considered language proficient or reclassified.

**Designated English Language Development**

For the purpose of this study, the definition of Designated English Language Development (D-ELD) from the California Department of Education (2018) will be used as it comes directly from the education code:

> Designated English Language Development means instruction provided during a time during the regular school day for focused instruction on the state-adopted ELD standards to assist English learners in developing critical English language skills necessary for academic content learning in English (California Code of Regulations, Title 5 [5 CCR] Section 11300[a], par.1).

Although ELL students should receive language support throughout the school day, this study focused on this designated or protected instructional time for ELLs. During other times throughout the school day, ELLs receive language support, however, content learning is the focus of instruction. During D-ELD, on the other hand, ELLs receive instruction in which language learning becomes the focus and content learning is secondary.

## ELL Student Needs

ELL students have unique academic needs. In addition to having to learn content as do their non-ELL peers, ELL students also have the challenge of learning the language through which the content is taught. According to the National Assessment of Educational Progress (NAEP) (2019), the average scale score for ELL students in reading and math, respectively, was 191 and 220. This trailed non-ELL students whose reading and math scale scores averaged 224 and 243, respectively. Halle et al. (2012) found that students who achieved oral language proficiency after first grade were significantly behind their non-ELL peers academically, even by eighth grade. Researchers have highlighted the unique challenges ELL students face in learning the content and learning the language of content simultaneously (de Oliveira & Lan, 2014; Halle et al., 2012; Lyster, 2007). English is not only a language they need to learn but also the mode through which all learning occurs for ELLs (Carrasquillo et al., 2004; Halle et al., 2012). As such, ELL students need to learn not only the content but also the vocabulary, structures, and language conventions of the content to understand and communicate their learning appropriately.

## Second Language Acquisition (SLA)

There are numerous SLA theories, many of which stem from general learning theories such as behaviorism, cognitivism, and constructivism. Although there is not always agreement between these various SLA theories, there are some core characteristics that are shared (Lightbown & Spada, 2017):

- Language learning is non-linear.

- Language instruction does not automatically equate to language learning and development.
- Learning an additional language to the point of social and academic proficiency is slow and accomplished over several years.

Language development for ELL students does not mean that they acquire language in a specific sequence. Instead, it is a process that continues throughout one's lifetime through the active receptivity and production of language (Lightbown & Spada, 2017). Receptivity and production require that learners experience language development opportunities in a social context.

The language theory that is the focus of this literature review is situated in the sociocultural perspective. This theory of SLA has close ties with Vygotsky's constructivist theory. ELLs absorb new concepts and linguistic knowledge through social interactions (Li, 2013). Language is the means through which meaning is created. When learners engage in collaborative dialogue, they build their receptive comprehension and co-construct meaning while simultaneously attending to linguistic form (Li, 2013; Lightbown & Spada, 2017; Walqui & Bunch, 2019). Therefore, the instructor’s responsibility is to deliberately facilitate and structure opportunities for meaningful dialogue or productive talk in which language is meaningfully scaffolded and supported. Learning tasks have to provide meaningful opportunities to consume and produce language as a means of meaning-making and need to be carried out in authentic tasks (Li, 2013; Lightbown & Spada, 2017; Walqui & Bunch, 2019; Walqui & Heritage, 2018). Without authentic tasks, students will be unprepared to utilize language effectively outside of the classroom (Chen & Brown, 2012).

## Effective Instruction

The constructivist learning theory stipulates that the learner is at the center of instruction and is an active participant in the processes of learning as they construct meaning from their experiences (Bofill, 2013; Ertmer & Newby, 1993; Harasim, 2012; Kaya, 2015; Walqui & Bunch, 2019). There are several different branches of thought within the constructivist theory. However, Vygotsky's *social constructivism*, in which learners construct meaning through deliberate and meaningful social interactions and collaborations with others (Chen, 2016; Kaya, 2015; Reyes & Vallone, 2008), is the foundation of this study and aligns with the SLA theory previously presented. A constructivist learning environment is one in which collaborations and communication are encouraged and intentionally structured to facilitate the construction of meaning and ultimately lead to learning (Kaya, 2015; Walqui & Bunch, 2019). Another key tenet of constructivism is that learning tasks should be rooted in and connected to the real world. In other words, skills should not be learned in isolation but rather should be learned through relevant and authentic learning tasks (Bofill, 2013; Ertmer & Newby, 1993; Walqui & Bunch, 2019).

Vygotsky also spoke of the *zone of proximal development*, the learning space just beyond a student's independent abilities: "[I]n a collective sphere, under the guidance of adults, a child is able to do much more and to do it with understanding and independently" (Vygotsky, 2017). Instructional tasks should be specifically designed to stretch the students' knowledge and understanding with the appropriate scaffolds to create new learning and knowledge (Vygotsky, 2017; Walqui & Bunch, 2019). Instructional tasks designed utilizing constructivist pedagogies provide students ample opportunities to

engage with the active construction of language as they collaborate and communicate with their peers and others authentically, thus stretching and building their linguistic knowledge and competencies.

Several studies have shown constructivist pedagogies to be effective for ELL learners as learning a language requires the active construction of language and knowledge (Walqui & Bunch, 2019). ELLs are at a disadvantage during instruction conducted primarily in English, as English is the language medium through which students process and create their learning. Instruction that allows students to collaborate and authentically utilize language is most effective for ELLs (Kibler et al., 2019; Li, 2013). Additionally, students' language needs to be supported with appropriate scaffolds (Hoody et al., 2019; Walqui & Bunch, 2019). Scaffolds, however, should help stretch the students' language and should not be permanently used as a crutch (Walqui, 2008). This is best done through teacher and peer modeling and feedback (Shin, 2014; Zheng & Warschauer, 2019).

**Study Methodologies**

Studies related to ELLs have employed a variety of methodologies in order to explore how learners acquire English as a second language. As with studies of technology integration, the predominant methodologies were qualitative and mixed method studies.

Much of the research was designed as qualitative case studies to dig deeply into rich data (de Oliveira, 2016; de Oliveira & Lan, 2014; Leighton et al., 2019). These case studies have employed a variety of methods for data collection, including observations, interviews, and student work samples. For example, de Oliveira (2016) utilized classroom observations, lesson plans, photos of classroom displays, and field notes from school

activities to develop a rich understanding of language teaching using the Language-Based Approach to Content Instruction (LACI) by two fourth-grade teachers. In addition, a single study conducted in Spain with English as a Second Language Learners employed a quantitative quasi-experimental model (Martín et al., 2020). However, the sample size of this study was not very large and, therefore, has limitations in its generalizability.

Mixed methods were another commonly utilized design in the literature (Darling-Aduana & Heinrich, 2018; Hoody et al., 2019; Kibler et al., 2019; McManus-White, 2019; Zheng & Warschauer, 2019). Often, these studies quantified qualitative data such as work samples and classroom observations through the use of rubrics or observation protocols. For example, Hoody et al. (2019) utilized a modified version of Soto's shadowing protocol, allowing qualitative and quantitative data to be collected from classroom observations. Surveys were also a common method of data collection for quantitative data.

## Teachers' Needs

To develop professional development for teachers in the area of technology integration during D-ELD instruction, it is first essential to understand teachers' needs. This section will review (a) teachers' perceptions of teaching ELLs, (b) content knowledge needs related to teaching ELLs, (c) pedagogical knowledge needs related to teaching ELLs, and (d) technological needs for technology integration.

### Teachers' perceptions of teaching ELLs

General education teachers often feel underprepared to teach ELL students (Hansen-Thomas et al., 2014; Kolano et al., 2013). The more experience and training a teacher receives to teach ELLs, the more likely they feel confident in their ability to

effectively teach ELLs (Hansen-Thomas et al., 2014; Kibler et al., 2019). A study conducted by Murphy and Torff (2019) found that teachers had lower critical thinking expectations of ELLs as compared to non-ELL students. Despite other studies showing an increase in teacher confidence, Murphy and Torff (2019) found that an increase in training did not increase the teachers' expectations of ELL students' critical thinking abilities.

**Content Knowledge Related to Teaching ELLs**

Teachers need to have specific content knowledge and understand the language demands of the content (Achugar et al., 2007; de Oliveira & Lan, 2014). Language demands can occur at three levels, the word, sentence (syntax), or discourse level (Zwiers, 2008). Word level includes vocabulary or phrases necessary to comprehend the content and communicate effectively about a given content. At a syntax level, language demands include sentence structure. For example, transitions or the passive and active voice are a part of the syntax level. Finally, at the discourse level, the focus is on meaning-making and clarity of communication. At each of these levels, a teacher must identify the linguistic challenges students will face within the content lesson to provide appropriate language supports and instruction to help make the content and learning accessible to students. To do this, teachers need professional development in learning and utilizing metalanguage, language about language, to help build their students' language development (Achugar et al., 2007). A study conducted by Master et al. (2016) found that the achievement gap was reduced between ELL and non-ELL students of teachers who had specialized language training and professional development.

### Pedagogical Knowledge Related to Teaching ELLs

It is not enough to know strategies for ELLs. Like technology integration, teachers need a well-developed PK to design effective ELL instruction (de Oliveira, 2016; de Oliveira & Burke, 2014). Teachers have reported they feel underprepared to teach ELL students (Johnson & Wells, 2017). This feeling of under-preparedness is partly due to a lack of knowledge of effective pedagogical practices for teaching language. Strategies are helpful but are not enough (Kinsella, 2018).

### Technology Integration

Teachers need professional development in technology integration specific and relevant to their classrooms (Andrei, 2017; Anglin, 2017; Liu et al., 2017). As part of the professional development, teachers need time and opportunities to co-plan and learn as part of a professional learning community (PLC) (Andrei, 2017).

## Effective Professional Development

Teachers receive many hours of professional development each year. However, not all professional development is effective. This section will examine the research of effective professional development. I will discuss (a) characteristics of effective professional development, and (b) challenges and barriers to changing teacher practices.

### Characteristics of Effective Professional Development

Teachers need professional development to integrate technology (Andrei, 2017; Liu et al., 2017) and teach ELLs (Olseova & Garcia, 2015). However, not all professional development leads to a change in practice (Tondeur et al., 2017). A significant amount of research has been conducted on the characteristics of effective professional development. Professional development can take several forms. However, professional development is

most likely to create instructional change if it is specific to an instructional strategy (Desimone, 2009; Garet et al., 2001; Johnson & Fargo, 2014) and employs elements of active learning (Desimone et al., 2002). In addition, professional development that responds to a specific classroom need (Burstein et al., 2014; Darling-Aduana & Heinrich, 2018; Dawson et al., 2008) and is practice-based, not theory-heavy (Markham et al., 2017) is more likely to lead to instructional change as it is directly relevant to the work the teacher does in the classroom.

I found many commonalities of effective characteristics in examining the extant research of professional development specific to technology integration and teaching ELLs. First, professional development needs to respond to a specific classroom need that teachers are currently experiencing (Burstein et al., 2014; Darling-Aduana & Heinrich, 2018; Dawson et al., 2008; Jenkins, 2013; Liao, 2018; Nasongkhla & Sujiva, 2015; Piña, 2019). In line with Markham et al.'s (2017) findings that professional development should be practice-based, teachers are most receptive to professional development that helps them address an existing problem of practice and can be applied immediately to their classroom. Second, professional development should provide teachers with ongoing support over an extended period of time (Cavazos et al., 2018; Endress, 2018). One way to provide ongoing teacher support is through job-embedded support or coaching (Crawford et al., 2008; Darling-Aduana & Heinrich, 2018; Dillard, 2006; Endress, 2018; Heineman, 2016; Jenkins, 2013; Moore, 2013; Piña, 2019). Another effective practice is providing time and structure for teachers to collaborate and learn from and with one another (Hutchison & Woodward, 2018; Stegall, 2016).

Although there were many similarities of effective characteristics of professional development specific to technology integration and teaching ELLs, there are a couple of unique practices to each that should be specified here. First, professional development for technology integration should not only impart knowledge of technology tools and how to integrate them into instruction but should also be designed to provide opportunities for teachers to use the technology tools in their own learning (Al-Qallaf & Al-Mutairi, 2016; Brewer & Erickson, 2008; Burstein et al., 2014) For example, Brewer and Erickson (2008) utilized digital storytelling as part of their professional development design. It was a technology tool through which teachers demonstrated their learning. As such, teachers not only developed knowledge and confidence in utilizing the technology tool but also better understood its role in supporting and facilitating learning.

Professional development focused on ELL instruction should not just be about strategies (Kinsella, 2018). There should be a focus on building teachers' knowledge of language development across curricula. Teachers need professional development in identifying and supporting language needs in content lessons (Crawford et al., 2008; Endress, 2018).

**Challenges and Barriers to Changing Teacher Practices**

Several challenges to creating instructional change through professional development have been identified. Although coaching or in-classroom support has been identified as an effective professional development element, finding available time for coaching and planning is often challenging (Jacobs et al., 2018; Jenkins, 2013; Stegall, 2016). Another barrier is the load on the teachers, as teachers may already feel overloaded with other initiatives (le Fevre, 2014). Teachers are often divided between the district, site, and even

grade level initiatives and are inundated with a variety of extra tasks. This leads to a feeling of overload that leaves little room for additional professional development. Finally, the teacher may not be comfortable with the perceived risk of coaching and trying a new instructional practice (Jacobs et al., 2018; le Fevre, 2014).

## Chapter Summary

Before concluding, it is necessary to reiterate the key ideas in the literature. Technology integration is the complex process of utilizing technological tools to enhance instruction and student learning (Okojie et al., 2005). The TPACK framework is a framework that recognizes the complex interplay of content, pedagogical, and technological knowledge along with the context in the process of planning for instruction (Mishra et al., 2009). Teachers can utilize this framework to help guide their planning process to keep the focus on the learning goal while optimizing the use of technology to enhance student learning. In order for TPACK to be a useful framework to teachers during planning for D-ELD instruction, teachers must have strong content, pedagogical, and technological knowledge specific to teaching ELLs. ELLs need language support across all content areas (de Oliveira, 2016; Lyster, 2007) and learn most effectively when constructivist pedagogies are employed, thus enabling students to produce language in meaningful ways (Reyes & Vallone, 2008). Teachers need further professional development in metalinguistics, pedagogies that best support ELLs language development, and technologies that can enhance their students' language learning. This study drew from the body of research on effective professional development. The TPACK framework served as the foundation of in-service professional development

related directly to teachers' classrooms, provided ongoing support, and was practice-based.

# CHAPTER 3
# METHOD

The purpose of this qualitative action research case study was to examine the extent to which instructional coaching and workshops on TPACK affect in-service elementary teachers' technology integration in D-ELD at a school in the Central Valley in California.

**Research Questions**

What are the experiences of in-service elementary teachers in planning and teaching D-ELD after participating in instructional coaching and workshops on TPACK?

1. How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK?
2. How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK?
3. What are teachers' perceptions of professional development using the TPACK framework?

In this chapter, I will provide a detailed description of the methods used to answer the research questions. The chapter consists of the following sections: (a) research design, (b) setting, (c) participants, (d) innovation, (e) data collection, instruments, and protocols, (f) data analysis, (g) procedures and timeline, (h) rigor and trustworthiness, and (i) plan for sharing and communicating findings.

## Research Design

There are two types of educational research: research *about* education and research *for* education (Biesta & Burbules, 2003). Action research is an approach to research that aims to provide the educational practitioner with a frame of systematic inquiry to produce research *for* education (Creswell & Poth, 2018; Merriam & Tisdell, 2015). In other words, research is not just about increasing general knowledge about education but generating actionable knowledge and addressing a real problem of practice for the practitioner (Mertler, 2014). Action research in education improves the practitioner's practice to solve a real problem (Collatto et al., 2018; Efron & Ravid, 2013). It is for this reason that this study aligned with action research. This study examined how instructional coaching and workshops on TPACK affect in-service elementary teachers' technology integration in D-ELD at a school in the Central Valley in California in response to the problem of practice of lack of clear evidence of teacher instructional planning for D-ELD with technology integration to best support ELLs language development.

To further understand the alignment of and choice of action research for this research, one must better understand the characteristics of action research and what sets it apart from other types of research. Mertler (2014) outlines the features of action research as incorporating change or action conducted by the practitioner, directly and immediately applicable to classroom teachers, systematic, cyclical, and situationally grounded. In other words, action research is guided by the principle of research *for* education. It is research facilitated by insiders and driven by the desire to impact real change at a given location (Collatto et al., 2018; Merriam & Tisdell, 2015). It is not research focused on

generalizability, as is the goal of empirical research. Neither is it a narrative or ethnography in which the objective is to describe to understand. These, among other research designs, are all essential modes of acquiring further knowledge. However, action research seeks to create local change. Changes initiated by school-based problem-solving, such as through action research, are more effective than initiatives of change that originate from the outside, such as more traditional research (Herr & Anderson, 2015). It is this insider practitioner change approach that this research provided. Table 3.1 outlines some characteristics of action research (Efron & Ravid, 2013) and the alignment of this study.

**Table 3.1**

*Study Alignment to Action Research Characteristics*

| Action research characteristic | Study Alignment |
|---|---|
| The purpose of research is to improve practice. | This study aimed to examine the impact of a job-embedded professional development on teachers planning for D-LD with technology integration. A hopeful outcome of this study was to improve the practice of the participating teachers. |
| Research is conducted by insiders/practitioners | I am a District Academic Coach (DAC), which is a teacher on special assignment position. My work is to provide professional development and coaching support to elementary teachers across the district within which this study takes place. As such, I was an insider conducting this research. |
| Participants are a natural part of the inquiry setting. | I have and continue to support teachers at Sotomayor Elementary School as part of my regular job duties. The professional development and coaching participants received are a natural part of their work. |
| The research findings are directly relevant and applicable to the participants' practice. | The impact of the findings was two-fold. First, they directly pertained to the work of the classroom teachers as the findings helped to inform further approaches to instructional planning for technology- |

| Action research characteristic | Study Alignment |
| --- | --- |
| | enhanced D-ELD. Secondly, the findings informed my practice and the practice of the DAC team in the future development of professional development for classroom teachers. |

Action research can take different forms and employ a variety of research designs, including qualitative, quantitative, and mixed methods. This study used a qualitative case study approach (Tracy, 2020). "[A]ll qualitative research is interested in how meaning is constructed, how people make sense of their lives and their worlds" (Merriam & Tisdell, 2015, p. 25). Additionally, qualitative research is a systematic, inductive investigation in which the researcher is the primary means of collecting data. This study was interested in how teachers plan for D-ELD instruction with technology integration and how a job-embedded professional development impacts that planning process. I collected data through interviews, classroom visits, planning think-alouds, and collecting artifacts of lesson planning.

There are many qualitative approaches, including narrative, basic qualitative study, ethnography, and case study (Creswell & Poth, 2018; Merriam & Tisdell, 2015; Tracy, 2020). Merriam and Tisdell (2015) define a case study as an "in-depth description of a bounded system" (p. 39). Creswell and Poth (2018) go deeper and define a case study:

> as a qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving

> ***multiple sources of information*** *[…]* and reports a ***case description*** and ***case themes*** (p. 97)

This research study was bounded by the location, Sotomayor Elementary School and the innovation itself. This study examined elementary teachers' experiences as they participated in the job-embedded professional development and the processes through which they planned for D-ELD instruction. This study collected data from multiple sources (Creswell & Poth, 2018; Merriam & Tisdell, 2015; Yin, 2018) to gain a deep understanding of the planning process and technology integration for each participant. The data were analyzed inductively in line with the case study design, and themes were identified. A thorough description of the analysis process is provided later in this chapter. This research design did not provide generalizability as is typical of quantitative research. However, the thick, rich description provided valuable insight into the specific impact of the professional development for the participating teachers at Sotomayor Elementary School. This insight informed actionable recommendations and next steps in line with action research.

## Setting

This study took place at an elementary school in a district in the Central Valley of California. The district, located in a medium-sized city in a rural area, has 20,175 students. Sotomayor Elementary School was selected as the site for my study as 38% of the student population are ELL students. This site was also chosen because I have directly supported this site in my position as District Academic Coach for ELA and ELD and a previous position I held with the district. As such, I have built relationships with teachers, students, and the administration.

Following district and national trends, ELLs at the school site are significantly behind their English-only peers in ELA and math. Additionally, according to the 19/20 school year English Language Proficiency Assessments for California (ELPAC) data, only 13% of all third through sixth-grade ELL students scored as proficient on the assessment. This is slightly lower than the district trend. Scoring as proficient is the first of four criteria students must meet to be reclassified as English proficient (California Department of Education, 2020). Given the large gap in academic performance as well as low number of students achieving language proficiency, the school has identified D-ELD instruction as an area on which to focus for their strategic academic plan. Additionally, the district has focused its efforts on improving ELD instruction. Therefore, this research aligned with the school's needs and the district's initiative.

This study focused on planning for D-ELD instruction in both self-contained and deployment classrooms. In self-contained classrooms, teachers keep their students and provide D-ELD instruction to all levels of ELL students in their rooms. In a deployment classroom, the teacher receives other ELL students from other classrooms in their grade level. Students are often grouped by language proficiency levels, determined by their ELPAC scores. The proficiency levels include (1) emerging – students who have limited receptive and productive English language skills and need substantial support; (2) expanding – students who have a moderate level of English language proficiency and need moderate to light language support; and (3) bridging – students who can communicate effectively in a variety of settings and purposes needing light language support (California Department of Education, 2012).

## Participants

All general education teachers at the school site were eligible and invited to participate in this study. Two presentations providing an overview of the professional development and study were given at staff meetings. During the presentation, the staff was told they did not have to participate in the study to attend the workshops. In addition, a flyer with a description and date of all workshops was emailed to the staff by the site administration. Four teachers participated in the workshops and of those four participating teachers, three volunteered to participate in the study.

All three participants were female teachers. Two were Caucasian and English-only speakers. One of the participants was Latina and was herself an English language learner. Two of the participants had both gone to school in Vineyard School District. One of the three had even attended Sotomayor Elementary School as a child. Two participants were in their thirties, and one was in her early twenties. The participants were a first-year teacher, a teacher in her third year of teaching, and a teacher in her fifth year of teaching.

## Innovation

In this study, the innovation was an in-service professional development incorporating workshops and coaching. The professional development supported teachers' instructional planning for technology-enhanced D-ELD instruction. The professional development consisted of two parts to capitalize on research-based practices of effective professional development:1) hands-on workshops (Currwood, 2011; Pareto & Willermark, 2019), and 2) instructional coaching (Coburn & Russell, 2008; Desimone & Pak, 2017; Hall, 2016). This section will detail the design of each part of the professional development innovation.

**Workshops**

Teachers participated in five 90 minute after-school workshops. The TPACK framework (Koehler et al., 2013) was at the center of the workshop design. Each workshop topic was a component of the TPACK framework: context, content, pedagogy, and technology. In addition, the TPACK framework was used to guide the design and development of D-ELD lessons (Pareto & Willermark, 2019). Each of the five workshops were similarly structured to build teachers' knowledge in the workshop topic, help them make direct connections to their classrooms, and promote collaborative lesson planning. Table 3.2 provides an overview of the workshop topics and brief descriptions. Following the table, a detailed description of each workshop is provided.

**Table 3.2**

*Workshop Topics and Description*

| Workshop topics | Learning outcomes | Description |
|---|---|---|
| 1. Overview and Context | ● Identify the components of the TPACK Framework<br>● Identify a desired D-ELD classroom structure<br>● Identify ELL students' academic language needs | The participants were introduced to the purpose of the workshop series and the TPACK framework. First, participants developed their understanding of the context in which D-ELD instruction occurs. Next, participants examined their views of D-ELD instruction and its impact on their decision-making. Then, participants explored the possible structures for D-ELD instruction. Finally, participants examined existing data on ELL students to identify the students' academic language needs. |
| 2. Content | ● Identify language demands in a content lesson.<br>● Connect CA ELD | Participants actively engaged in activities to develop their ability to identify the language demands of |

| Workshop topics | Learning outcomes | Description |
|---|---|---|
| | standards and content language demands. | content lessons. By the end of the workshops, participants identified the learning outcome(s) for a lesson/unit aligned with the CA ELD Standards. |
| 3. Pedagogy | ● Describe best instructional pedagogies for teaching ELLs<br>● Identify 1-2 instructional strategies that can be applied to their classroom | Participants were introduced to constructivist pedagogies that best support language development for ELLs. In addition, participants engaged in hands-on activities to build their knowledge and understanding of at least one instructional strategy they could utilize in their D-ELD classes best to teach their identified language outcome in the previous workshop. By the end of the workshop, participants began to create their lesson/unit plans. |
| 4. Technology | ● Identify 1-2 technology tools to utilize in instruction.<br>● Describe how the technology tool can enhance student learning. | Participants explored ways to integrate technology into instruction to support students' language learning. In addition, participants explored how technology integration could be utilized to capitalize on effective instructional pedagogy for ELLs. |
| 5. TPACK | ● Reflect on lesson and TPACK<br>● Synthesize learning from workshops and coaching | Participants reflected on their instructional plans and implementation. They dove into the interplay of technology, pedagogy, and content knowledge and how these impact their instructional designs (Koehler et al., 2013; Mishra et al., 2009; Pareto & Willermark, 2019). |

### *Workshop 1: Overview and Context*

This workshop set the stage for the upcoming work the participants did. The workshop began with a 20-minute introduction of the TPACK framework and an overview of the workshop series professional development design and purpose. Next, participants engaged in a quick personal goal-setting activity to identify and share their purpose for participating in the workshop series. Setting a personal purpose or goal helped the participants connect the upcoming workshop content to their classrooms and their personal, professional goals related to D-ELD (Croft et al., 2010; Garet et al., 2001; He et al., 2011).

The remaining 70 minutes of the workshop focused on an often-forgotten component of TPACK, context (Swallow & Olofson, 2017). Although context can refer to macro-level, societal, and political considerations, the focus of context in this workshop was on the micro- or classroom level (Swallow & Olofson, 2017). So first, participants engaged in an activity to explore their own beliefs about instructing ELLs and D-ELD and reflected on the impact these beliefs have on their decision-making.

The following learning activity focused on the classroom structure of D-ELD. First, participants shared their current D-ELD system or student groupings such as deployment, self-contained small group, self-contained whole-group with ELLs and English-only students, etc. Participants had the opportunity to share the strengths and challenges of their structures. Then, as a group, we explored different structures. The presented structures included a deployment model, a small-group model, and a whole-class model with a gradual release. The whole class model included English-only students. We focused primarily on this last model as all participants were teaching D-

ELD in this model due to COVID restrictions. Participants had some quiet time to reflect on a structure they would like to try or any changes they would like to make to their current structure.

The last activity engaged the participants in getting to know their ELL students better. Teachers need to know the linguistic needs of their ELL students to inform the rest of TPACK (Harris et al., 2013; Swallow & Olofson, 2017). First, participants examined the most recent ELPAC data. The ELPAC data identify the students' overall language level and language level in four areas: speaking, listening, reading, and writing. Participants then reviewed the most critical ELD standards for their grade level based on the ELPAC assessment. Once that was completed, they began an analysis of the content area data. Finally, participants began working on filling out a data analysis sheet for their ELLs which walked them through the data collection process and included reflective questions to identify their students' linguistic strengths, areas of need, and any gaps in the data. Unfortunately, participants did not get to complete this analysis form for all of their ELLs, but the process elicited rich conversations among the participants regarding their students' needs.

***Workshop 2: Content***

Research on TPACK shows that planning should begin with the content or learning targets (Koh et al., 2017; Pareto & Willermark, 2019). Language development does not happen in isolation and is best when connected to content learning. Therefore, students need to receive language development across the curriculum areas as students use language in all areas (de Oliveira & Lan, 2014; Halle et al., 2012; Lyster, 2007). The learning targets should come from the language demands in content lessons. The

workshop introduced participants to language functions and demands (Zwiers, 2008). Language functions are how we use language or the purpose of language. Language demands, sometimes also referred to as forms, are the nuts and bolts of language at a lexical, syntax, and discourse level (Ranney et al., 2014). Table 3.3 provides examples of language functions and language demands.

**Table 3.3**

*Language Functions and Demands*

| Linguistic category | Description | Examples |
|---|---|---|
| Language function | A language function is what students do with language; the purpose of language use. | • Describe<br>• Compare<br>• Make a claim<br>• Explain<br>• Persuade |
| Language demand: lexical *(word level)* | The lexical level refers to specific words and phrases needed to comprehend and produce language for a particular function. This includes understanding figurative language, multiple-meaning words, general academic vocabulary, and subject-specific vocabulary. | • Vocabulary used across content areas such as justify, analyze, observe<br>• Multiple-meaning words: block. “The student ran around the block” vs. “I carried the block to my desk.”<br>• Analyzing the author’s word choice |
| Language demand: syntax *(sentence level)* | The syntax level is sometimes referred to as the grammar level and refers to how words and phrases are put together to make sentences. | • Creating complex sentences.<br>• Use of transitional phrases<br>• Using nouns and noun phrases to express ideas |

| Linguistic category | Description | Examples |
|---|---|---|
| Language demand: discourse level *(message level)* | The discourse level refers to how written and oral language is structured to convey meaning. | • Text structure of an informational text<br>• Coherence of a text |

After being introduced to each level, participants worked to identify content lessons' language functions and demands. We all worked through a provided content lesson and completed a graphic organizer developed by O'Hara et al. (2012) to guide the identification of the language demands of the content lessons. We then used the D-ELD standards to help us write language objectives from the language demands.

Participants then completed the same type of analysis of an upcoming content lesson they would be teaching. Although the participants did not all have the same content lesson they were analyzing, they worked with a partner to analyze their content lesson. This meant that each pair analyzed two content lessons. Finally, the group came back together to discuss how to identify the critical objectives or language demands to be instructed based on the previously identified needs of the students. In other words, analyzing language demands often leads to more language demands than can be addressed, so keeping the students' needs and priority standards in mind can help intentionally decide on the necessary language objectives.

***Workshop 3: Pedagogy***

Once the content has been identified, the next step in planning is to identify the appropriate pedagogy to teach the content (Koh et al., 2015; Koh & Chai, 2016; Pareto & Willermark, 2019). The third workshop began with a brief presentation of effective pedagogy for ELLs identified in the research. This included social constructivist

approaches in which students engage in authentic, collaborative language tasks (Gersten & Baker, 2000; Vygotsky, 2017; Walqui & Heritage, 2018). Additionally, the importance of teacher and peer feedback was highlighted (Shin, 2014; Zheng & Warschauer, 2019). Finally, participants had the opportunity to share effective practices or instructional strategies aligned with their implemented pedagogies.

Next, a brief overview of three instructional strategies was shared with the participants. These included stronger/clearer (Zwiers, 2022), I notice & I wonder routine for peer-to-peer feedback, and blogging. For each instructional strategy, a short video was shown in which the participants were able to see the instructional strategy in action in a classroom. The group then discussed what they noticed, how this instructional strategy would apply to their classrooms, and ideas for implementation.

Finally, participants developed a plan for instruction using the language/learning targets identified in the previous session. In this portion of the workshop, participants engaged in the Content and Pedagogical Knowledge (CPK) portion of the TPACK framework. Participants discussed how the learning targets impact the pedagogy and instructional decisions and how the pedagogies can best be leveraged to meet the learning targets (Koehler et al., 2013; Mishra et al., 2009). Participants shared how they would incorporate one or more strategies to support the learning targets and incorporate elements of effective instruction shared at the beginning of the session.

***Workshop 4: Technology***

Technology can be effective when paired with effective pedagogy for instructional purposes (Prince, 2018). However, technology does not drive instructional decisions but supports the pedagogy to meet the learning targets (Kolb, 2017). During the

fourth workshop, principles of technology integration were presented. The focus was on understanding that a technology tool does not drive instructional decisions. Instead, the content and pedagogy drive the decisions surrounding the technology. Then, we revisited the effective instructional practices from the previous workshop. Using Jamboard, the participants brainstormed technology tools they use or could use to facilitate the instructional practice. Based on the research, we wanted to leverage technology to promote collaborative learning opportunities, create authentic learning tasks, and facilitate opportunities for teacher and peer feedback (Gersten & Baker, 2000; Shin, 2014; Vygotsky, 2017; Walqui & Heritage, 2018; Zheng & Warschauer, 2019). Participants had an opportunity to share the technology they have utilized to provide opportunities for these effective instructional practices.

During the third workshop, the participants expressed an interest in learning more about leveraging technology to develop a blog during D-ELD to support students' language learning. Therefore, during this workshop, we explored how to create a class blog using Seesaw and edublogs. Again, connections were made to effective instructional practices and how the technology tools could help provide students with opportunities related to the practices. To wrap up the workshop, participants once again had some planning time. The task was to review their lesson plan and ask where and how technology could be leveraged to facilitate their students' language learning.

***Workshop #5: TPACK***

This workshop took place after participants had had an opportunity to teach the lesson they had planned as part of the workshop series. The purpose of this workshop was to provide an opportunity for the participants to synthesize their learning and reflect on

their lessons in relation to the TPACK framework. It started by revisiting a visual representation of the TPACK framework. The participants discussed their understanding of the framework and what it meant to them to be in the center, at TPACK. We then revisited the Jamboard from the previous session. Were there different ways technology could be leveraged for each instructional practice? How would the technology tool change the pedagogical approach? How did the content influence the technology tool? We discussed each in relationship to language needs.

Participants each received a TPACK reflection questions sheet. Then, they had some quiet processing time to review the reflection questions and think about the lesson they designed in the workshops and had recently implemented. Afterward, participants shared some of their reflections and takeaways from the professional development.

**Coaching Support**

As outlined in the literature about professional development, an element of effective professional development is the connection to the classroom, and the ongoing support teachers receive (Crawford et al., 2008; Darling-Aduana & Heinrich, 2018; Dillard, 2006; Endress, 2018; Heineman, 2016; Jenkins, 2013; Moore, 2013; Piña, 2019). Coaching is one way teachers can receive ongoing and intensive support (Gibbons & Cobb, 2017). In addition to participating in the workshops, each participant received one-on-one content-coaching (Desimone & Pak, 2017; Gibbons & Cobb, 2016), meaning the coaching focused on developing their capacity specific to D-ELD instruction. I met at least once per week with each participant beginning soon after the first workshop. The coaching cycle included six coaching sessions with each participant and included the

following steps: 1) set a goal/target, 2) co-plan, 3) co-teach/observe, and 4) reflect on learning (see Figure 3.1).


Figure 3.1 Coaching Cycle

During the first meeting, I worked with the participant to facilitate the development of a goal for our time together. This goal was a problem of practice the participant explicitly identified in the area of D-ELD instruction. Although the goal was determined by the participant (Gibbons & Cobb, 2016; West, 2009), it was also related to the content of the workshops.

Subsequent coaching sessions focused on co-planning for D-ELD instruction, emphasizing the identified goal. Co-planning meant that I was engaged in dialogical conversations with the participants (Knight, 2018; West, 2009) in which the participant and I were equally bouncing ideas off each other. During the coaching sessions, I co-planned weekly D-ELD lessons with the participants. These lesson plans incorporated learning from the workshops and was always guided by the individual coaching goal.

After each co-planning session, I either co-taught or observed the instruction of the co-planned lesson. These classroom observations were not a part of the data collection. The following coaching sessions always started with a quick lesson debrief. During the debrief, the participant could reflect on the lessons' successes and challenges and what changes they would have made to the lesson. This reflection time helped to facilitate the co-planning of the next lesson. During the final coaching session, I facilitated a reflective conversation with the participant in which each participant reflected on their learning during the workshops and the coaching. The participant identified if they had met their learning target and steps to continue their professional growth.

## Data Collection, Instruments, and Protocols

This qualitative action research case study employed four data collection methods to explore the presented research questions. The use of multiple qualitative data collection methods allows triangulation of the data. Table 3.4 provides an overview of all data collection methods employed during this study. Following the table, this section provides a more detailed description of data collection methods themselves: (a) teacher interviews, (b) co-planning field notes, (c) D-ELD lesson plans and instructional materials, and (d) D-ELD lesson observations.

**Table 3.4**

*Data Sources and Research Question Alignment Table*

| Research questions | Data sources |
|---|---|
| 1. How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK? | • Teacher interviews<br>• Planning think-alouds<br>• Pre- and post- D-ELD lesson plans |
| 2. How do in-service elementary teachers integrate technology into D-ELD instruction before and after attending instructional coaching and workshops on TPACK? | • Pre- and post- D-ELD classroom field notes<br>• Pre- and post-D-ELD lesson plans |
| 3. What are teachers' perceptions of professional development using the TPACK framework? | • Teacher interviews |

## Teacher Interviews

The participating teachers were interviewed one-on-one before the start of the workshops and again after the workshops and coaching to examine their experiences planning for D-ELD with technology integration and their perceptions of the professional development using the TPACK framework. As a case study, the design of this study sought to explore the experiences across teachers and have the flexibility to respond to emerging insights of each participant. A semi-structured approach ensured the same topics were covered in each interview but provided the flexibility to prevent "tunnel vision" as I conducted my research (Maxwell, 2005; Mertler, 2014; Tracy, 2020). Table 3.5 below provides an overview of the alignment of the interview questions and the related research questions. The interviews were conducted in-person in each participants' classroom during the participant's preparation time or after-school, depending on the

their preference. The initial interview was approximately 15-20 minutes in length. The final interview was about 30-40 minutes in length. The interviews were audio recorded using the Voice Record app for smartphones. I received verbal consent from the participant and established the purpose of the interview before I began with the interview questions. This helped to develop rapport with the participant before diving into interview questions. Additionally, this helped put the participant at ease, increasing the likelihood of receiving rich data from the interview (Johnson & Christensen, 2014). The entire protocol can be viewed in Appendix B.

**Table 3.5**

*Interview and Research Questions Alignment Table*

| Research question | Pre-Interview questions | Post-Interview questions |
|---|---|---|
| 1. How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK? | • Please describe how you plan for D-ELD.<br>• What factors do you consider when planning?<br>• How do you determine the learning objectives or focus of a lesson?<br>• Please describe how you select and plan instructional activities?<br>• What instructional materials do you use and why?<br>• How frequently do you plan for student use of technology during D-ELD lessons? | • Please describe how you plan for D-ELD.<br>• What factors do you consider when planning?<br>• How do you determine the learning objectives or focus of a lesson?<br>• Please describe how you select and plan instructional activities?<br>• What instructional materials do you use and why?<br>• How frequently do you plan for student use of technology during D-ELD lessons? |

| Research question | Pre-Interview questions | Post-Interview questions |
|---|---|---|
| | • Can you describe how you integrate technology into your lessons?<br>• How comfortable do you feel in your ability to plan for D-ELD?<br>• Please describe what you know about you ELL students.<br>• How does that knowledge impact your planning?<br>• Do you feel you have any gaps of your knowledge of your ELL students? If so, please explain.<br>• Please share what you know about language development for ELLs.<br>• How does that knowledge impact your planning?<br>• Do you feel you have any gaps in your knowledge of language development? If so, please explain.<br>• Please share what you know about effective instruction for ELLs. | • Can you describe how you integrate technology into your lessons?<br>• How comfortable do you feel in your ability to plan for D-ELD?<br>• Please describe what you know about you ELL students.<br>• How does that knowledge impact your planning?<br>• Do you feel you have any gaps of your knowledge of your ELL students? If so, please explain.<br>• Please share what you know about language development for ELLs.<br>• How does that knowledge impact your planning?<br>• Do you feel you have any gaps in your knowledge of language development? If so, please explain.<br>• Please share what you know about effective instruction for ELLs. |

| Research question | Pre-Interview questions | Post-Interview questions |
|---|---|---|
| | • How does that knowledge impact your planning?<br>• Do you feel you have any gaps in your knowledge of effective instruction for ELLs? If so, please explain.<br>• Please share what you know about technology integration during D-ELD.<br>• How does that knowledge impact your planning?<br>• Do you feel you have any gaps in your knowledge of technology integration for D-ELD? If so, please explain.<br>• How have the coaching and workshops impacted your planning process, if at all? | • How does that knowledge impact your planning?<br>• Do you feel you have any gaps in your knowledge of effective instruction for ELLs? If so, please explain.<br>• Please share what you know about technology integration during D-ELD.<br>• How does that knowledge impact your planning?<br>• Do you feel you have any gaps in your knowledge of technology integration for D-ELD? If so, please explain.<br>• How have the coaching and workshops impacted your planning process, if at all? |
| 3. What are teachers' perceptions of professional development using the TPACK framework? | • | • What elements of the professional development did you find to be the most impactful on your work?<br>• What elements of the professional development did you |

| Research question | Pre-Interview questions | Post-Interview questions |
|---|---|---|
| | | find to be the least impactful on your work?<br>• Do you feel you grew professionally by participating in the professional development? Why or why not?<br>• What if anything would you change about the design of the professional development?<br>• What, if anything, would you want to have in the design of your subsequent professional development? |

**Planning Think-Alouds**

I met one-on-one with each participant pre- and post-professional development to gain insight into their planning process.The pre-planning think-alouds took each participant approximately 8 to 10 minutes. The post-planning think-alouds took each participant approximately 15 to 20 minutes. During the think-aloud, participants planned for their D-ELD instruction. As they planned, participants verbally walked me through their planning. In order to make their decision-making process visible, I asked questions such as “Can you describe how you decided to focus on…?”. All think-aloud sessions were recorded using the Voice Record app for smartphones.

### D-ELD Lesson Plans

I collected D-ELD lesson plans from each participating teacher before the start of the workshop series and again after the end of the workshops and coaching. Participants submitted these materials in a digital format via email. The lesson plans were collected in the format the participant used to reduce the workload on the participants. I did not ask the participants to submit a lesson plan using a specific template, as I wanted to see their authentic lesson plans.

### D-ELD Classroom Field Notes

I observed two 45-minute D-ELD lessons per participating teacher. One classroom visit was conducted before the start of the professional development, and one was conducted after the professional development had concluded. The data collected from the classroom visits were used to answer RQ2: How do in-service elementary teachers integrate technology into D-ELD instruction before and after attending instructional coaching and workshops on TPACK? To answer this question, I recorded observations specific to TPACK using a field note recording sheet (see Appendix C). The recording sheet provided a space to note observations related to each element of TPACK. For example, I documented how content/language learning objectives are communicated to students and the alignment of instruction to these learning objectives, noted pedagogy (-ies) utilized, and observed how and when the students and the participating teacher engaged with instructional technology. See Table 3.6 for the categories found on the recording sheet along with a brief description of what I was looking for during each classroom visit

**Table 3.6**

*Classroom Field Note Observation Categories*

| Observation category | Description |
|---|---|
| Content | Observations related to learning objectives and alignment of the learning activities to the learning objectives. |
| Pedagogy | Observations of pedagogies and strategies utilized by the teacher. Ways in which the student engaged with the content. |
| Teacher Technology | Observations of how the teacher engaged with technology. |
| Student Technology | Observations of how the students engaged with technology. |
| Additional Notes | Any additional observations that don't fit into the other categories. |

## Data Analysis

Data were collected through a variety of qualitative sources to answer the research questions thoroughly. As shown in Table 3.7, qualitative data were analyzed utilizing an inductive coding process (Creswell & Creswell, 2018; Rossman & Rallis, 2003).The analysis needs to be systematic and thorough (Barbour, 2014; Lester et al., 2020), and transparent (Maher et al., 2018; Neale, 2016) to ensure the rigor and quality of a qualitative study. As Neale (2016) discusses, transparency of the process should include how the data were coded and managed and the intellectual process of making meaning from the data. This process was utilized to develop a thick, rich narrative. The iterative process of analyzing the data inductively and thematically (Bernard et al., 2017; R. B. Johnson & Christensen, 2014; Maxwell & Miller, 2008) will be described in this section through the phases outlined by Lester et al.(2020): (a) Phase 1: Preparing and organizing the data for analysis, (b) Phase 2: Transcribing the data, (c) Phase 3: Becoming familiar with the data, (d) Phase 4: Memoing the data, (e) Phase 5: Coding the data, (f) Phase 6:

Moving from code to categories and categories to themes, and (g) Phase 7: Making the analytic process transparent. When conducting the analysis, I began with the pre-innovation data sources (pre-D-ELD observations, lesson plans, and instructional materials).

**Table 3.7**

*Research Questions, Data Sources, and Data Analysis Alignment Table*

| Research Questions | Data Sources | Data Analysis |
|---|---|---|
| 1. How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK? | • Teacher interviews<br>• Planning think-alouds<br>• Pre-, and post- D-ELD lesson plan | • Inductive and thematic analysis |
| 2. How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK? | • Pre- and post- D-ELD classroom field notes<br>• Pre- and post-D-ELD lesson plans | • Inductive and thematic analysis |
| 3. What are teachers' perceptions of professional development using the TPACK framework? | • Teacher interviews | • Inductive and thematic analysis |

**Phase 1: Preparing and Organizing the Data for Analysis**

In this phase, I organized the digital data. I did not receive any data via physical copy. Each file was named using the same naming convention. The file name included the participant's pseudonym, code for the data source (see Table 3.8), and date collected (*ex. Vivian_Pre-IM_11.26.21*). Organizing the data in such a way meant it was easily

accessible and established the systemic way it would be approached during analysis (Lester et al., 2020).

**Table 3.8**

*Data Source Codes*

| Code | Data source |
|---|---|
| Pre-Int | Pre-Teacher Interview |
| Post-Int | Post-Teacher Interview |
| Pre-TA | Pre-Planning Think-Aloud |
| Post-TA | Post-Planning Think-Aloud |
| Pre-LP | Pre- D-ELD lesson plans |
| Post-LP | Post- D-ELD lesson plans |
| Pre-CFN | Pre- D-ELD classroom field notes |
| Post-CFN | Post- D-ELD classroom field notes |

Additionally, the organizational structure of the data can influence and impact the analysis (Tracy, 2020). For example, organizing first by pseudonym lent itself to an analysis that examined each participant across the data sources. However, including the data source in the name also provided an opportunity to examine each data source across different participants more easily. Each view of the data in such a way created a slightly different lens of the data.

**Phase 2: Transcribing the Data**

All one-to-one interviews and planning think-alouds with the participants were audio recorded. I transcribed the interviews and planning think-alouds with the assistance of the web-based tool Temi. As the content of the interview and planning think-alouds was the focus of the analysis, the interviews and planning think-alouds were not

transcribed verbatim, capturing every utterance. Instead, they were a 'denaturalized transcription' (Neale, 2016), or one in which utterances that do not contribute to the content (e.g. 'um,' 'uh,' etc.) were omitted for ease of reading (Roulston, 2014). In addition, I utilized transcription conventions, as shown in Table 3.9, to capture non-spoken elements of the interviews and planning think-alouds. Although the analysis focused on the content, noting these conventions provided more profound insights to capture non-verbal data. (Roulston, 2014).

**Table 3.9**

*Transcript Conventions*

| Symbol/notation | Action indicated |
|---|---|
| *Italics* | A non-word utterance (ex. *Sigh, laugh)* |
| <u>emphasis</u> | Underlined words indicate an emphasis |
| w- | Word cut off |
| [ ] | Brackets indicate an observation added |

### Phase 3: Becoming Familiar with The Data

Before beginning the coding process, it is important to read and reread the data to become familiar with the data (R. B. Johnson & Christensen, 2014; Lester et al., 2020; Maxwell, 2005; Neale, 2016; Tracy, 2020). In order to become familiar with the data, I journaled my initial thoughts, interpretations, and ideas as I read through each data source. This process revealed unanticipated gaps in the data, informed a more detailed analysis, and helped me be more aware of the limitations of the data. For example, this initial reading and rereading of the data before coding helped me recognize the lesson plans' limitations. Although I was able to code the lesson plans, they did not provide me

with the rich insight into planning I had hoped, as the lesson plans were too simple and did not contain much detail.

**Phase 4: Memoing the Data**

Similar to the previous stage, memoing is "in simple terms a 'conversation with ourselves about our data' (Clarke 2005, p. 202)" (Lester et al., 2020, p. 100). Reading through each piece of data and adding memos provided me the opportunity to capture emerging understandings and interpretations. Unlike initial journaling thoughts, however, memos are attached to specific points in the data instead of more general reflections of the data. Memos were made digitally through the use of comments on the word documents. The memos enabled me to comment on the intended purpose of the materials in the data (Coffey, 2014). For example, when looking at the instructional materials in the lesson plans, I made a memo of if the instructional material is a teacher tool (such as a slide deck presentation) or a student tool (such as a worksheet). The memos were comments, not codes. However, the process helped me identify codes I may not have noticed otherwise.

**Phase 5: Coding The Data**

This phase was an iterative process within the more extensive data analysis process. The coding process included multiple cycles within two phases: (a) primary-cycle coding and (b) secondary-cycle coding (Lester et al., 2020; Tracy, 2020). Throughout this phase, I used the web-based analysis tool Delve. The phases are introduced below, although a more detailed description is provided in chapter four.

### *Primary-Cycle Coding*

To start the primary coding cycle, I began with open coding. I did not start with pre-determined codes but let the codes develop out of the data. In this first iteration, I coded broadly for the *what* in the data (Neale, 2016; Tracy, 2020). These codes were descriptive and were generally not inferential (Lester et al., 2020). In the next cycle, data was coded using structural, processing, In vivo, and descriptive coding (Saldana, 2021). As I worked through this phase, the codes and a brief description were recorded in Delve. This codebook was a valuable auditing tool (Lester et al., 2020).

### *Secondary-Cycle Coding*

During this phase, I reviewed the codes and grouped these into focused codes as I noticed patterns in the data (Neale, 2016; Tracy, 2020). At this phase, the analysis shifted from *what* to *why* and *how* (Tracy, 2020). As the secondary codes were developed, the codes were recorded in the codebook in Delve. It was also noted which primary codes were enveloped under the second-level codes. These secondary codes became categories. During this process, it was necessary to reread data sources for emergent codes as the lens through which I read the data shifted as patterns emerged. I then re-evaluated the secondary codes and made any necessary changes throughout the process.

## Phase 6: Moving From Code to Categories and Categories to Themes

I analyzed the similarities, differences, and relationships across the identified categories during this phase. To do this, I examined the categories across participants and data sources. After identifying the similarities, differences, and relationships, I developed descriptive statements of the categories (Lester et al., 2020; Tracy, 2020). Finally, these statements were developed into qualitative themes aligned with the research questions.

### Phase 7: Making the Analytic Process Transparent

As mentioned previously, a critical component of quality qualitative research is the transparency of the analysis process (Barbour, 2014; Lester et al., 2020). This was accomplished through several means in this study. First, I developed a map of the process, moving from primary codes to themes (Lester et al., 2020). The codebook was a critical source for documenting this process. Additionally, I developed an audit trail documenting the analysis from codes to themes. In chapter four, I provided samples of the data that led to the decision of codes being grouped into categories and then themes to document and provide evidence of the process. Although an entire audit trail is not presented in the dissertation or other presentations of my findings, direct quotes from interviews, lesson plans, and thick descriptions from field notes provide transparency of the data and process (Mertler, 2014; Tracy, 2020).

## Procedures and Timeline

This was a thirteen-week innovation and consisted of the following four phases: (1) informed consent, (2) pre-innovation data collection, (3) innovation, and (4) post-innovation data collection, as presented in Table 3.10.

**Table 3.10**

*Study Procedures and Timeline*

| Phase | Activity | Timeline |
|---|---|---|
| Phase 1: Informed Consent | ● Beginning in January 2022, Informational meeting and informed consent | Two Weeks |
| Phase 2: Pre-innovation data collection | ● Teacher interviews<br>● Teacher Think-Alouds<br>● Collect D-ELD lesson plan<br>● Observe D-ELD lessons | Two weeks |

| | | |
|---|---|---|
| Phase 3: Innovation | ● Implement workshop series<br>○ Workshop 1: Overview and Context<br>○ Workshop 2: Language Demands of Content Lessons<br>○ Workshop 3: Effective Pedagogy for teaching English Language Learners<br>○ Workshop 4: Technology Integration to support English Language Learners<br>○ Workshop 5: Reflecting on TPACK<br>● Content-Coaching | Seven weeks |
| Phase 3: Final Data Collection | ● Teacher interviews<br>● Teacher Think-Alouds<br>● Collect D-ELD lesson plan<br>● Observe D-ELD lessons | Two weeks |

**Phase 1: Informed Consent**

During this phase, I presented the workshops and study to the staff at Sotomayor Elementary School via zoom. Due to COVID restrictions, all staff meetings were held via Zoom. After presenting to the whole staff, those interested in participating in the study stayed on, and those not logged off. I provided more information regarding the study, informing those interested that participation was voluntary and not required to participate in the workshops. I let them know they could discontinue their involvement at any time. I then answered their questions and shared the informed consent form electronically. After the meeting, I only received one consent form. Over the next week, I emailed those who had previously expressed interest in participating in the study. All informed consent forms were returned to me via email. This whole process took two weeks.

### Phase 2: Pre-innovation Data Collection

Once informed consent had been received, I collected the pre-professional development data. This included an interview and planning think-aloud. In addition, I observed one D-ELD lesson for each participating teacher. Participants emailed me a lesson plan by the end of this two-week phase.

### Phase 3: Innovation

Over the following seven weeks, participants attended and engaged in the Supporting D-ELD Across Content with Technology Integration workshop series. Participants attend five in-person workshops. All workshops were 1.5 hours in duration and were structured to provide opportunities for participants to build their knowledge of the TPACK components, collaboratively apply their learning to their classroom situations, and plan for instruction. In addition, beginning after the first workshop, I met with each participant for five to six content coaching sessions.

### Phase 4: Post-innovation Data Collection

After the professional development had ended, I moved into the study's final phase: post-innovation data collection. I conducted a final interview and planning think-aloud with each participant. I also collect a D-ELD lesson plan from all participants. Additionally, I conducted classroom observations during D-ELD in all participating teachers' classrooms.

## Rigor and Trustworthiness

What makes quality action research? This is a question that Herr and Anderson (2015) and Reason (2006) implore the action researcher to consider. As Herr and Anderson (2015) discuss, action research can be seen as less rigorous than more

traditional research. However, this perception can be countered with transparency and recognition of the choices we as the researcher make and their impact on the research. In seeking to establish trustworthiness, or what many researchers term validity, in action research, Reason (2006) argues:

> [We must] move away from validity as policing and legitimation toward a concern for validity as asking questions, of stimulating dialogue, making us think about just what our research practices are grounded in, and thus what are the significant claims concerning quality we wish to make (2006, p. 191).

A trustworthy and rigorous study is established through clear thought, intentionality, design, and process through which the study is conducted. In addition, reflexivity as the researcher and transparency of these processes build rigor and trustworthiness in a study (Herr & Anderson, 2015; Maxwell, 2005; Tracy, 2020). Drawing from the work of Lincoln and Guba (1985), this section will outline my plan for establishing rigor and trustworthiness through the criteria of credibility, transferability, dependability, and confirmability (Morse, 2015; Nowell et al., 2017).

**Credibility**

Credibility refers to aligning the researcher's interpretations of the data and the participants' views (Morse, 2015; Nowell et al., 2017). Credibility was accomplished through triangulation to strengthen my study's trustworthiness (Johnson & Christensen, 2014; Maxwell, 2005; Mertler, 2014). To answer each research question, data was collected through multiple sources. For example, teacher interviews, planning think-alouds, and lesson plans were collected to examine how participants planned for D-ELD instruction. An analysis of classroom field notes and lesson plans informed how teachers

integrated technology into their instruction. Using these multiple data collection methods provided deeper insight into each research question and strengthened the trustworthiness of the data.

Credibility is also established through what Tracy (2020) terms member reflection. The findings were presented to the participating teachers after the analysis had been conducted. The participants had an opportunity to provide oral and written feedback during the presentation of the findings (Creswell, 2017). The participants felt their voices had been accurately captured and presented.

The final technique I employed to establish credibility is the dialogue created through peer-review (Herr & Anderson, 2015). My work was peer-reviewed and debriefed with my dissertation chair and committee. As part of this process, I made reflective changes to my study as needed to ensure quality action research.

**Transferability**

Although qualitative research is not typically generalizable, transferability or applying the findings to a different locale is important (Nowell et al., 2017). The thick and rich description provides insight for those who may wish to transfer the findings to their own site. The innovation is described in detail. Additionally, the report of the findings are presented as a rich narrative, including direct quotes and examples from interviews, planning think-alouds, field notes, and lesson plans.

**Dependability**

Dependability is established through logical, clear, and transparent research design and data analysis processes. To ensure the dependability of the research design, an iterative and reflective cycle has been used to identify the problem of practice and design

of the professional development innovation and research design (Mertler, 2014). Throughout the design process, I continued to share and receive feedback from colleagues engaged in teacher professional development work and supporting D-ELD and from the director of curriculum and instruction. This feedback ensured that my analysis of the problem of practice was a credible problem of practice in the organization. Additionally, their feedback on the professional development design provided another lens of the workability of the professional development, not just in theory but in terms of practicality for the locale.

An extensive review of the literature was conducted to ensure the alignment of the problem of practice to the theory and practical development of the professional development innovation. In addition, the design of my research was reviewed by my dissertation chair and reviewed by a committee.

To ensure the dependability of the data analysis, the process was made transparent through an audit trail which included documentation of the coding process and development of themes. As with credibility, my data analysis process underwent peer-reviewing with my dissertation chair.

**Confirmability**

Confirmability refers to examining the researcher's interpretations of the data and providing transparency of how the researcher reached their interpretations (Morse, 2015; Nowell et al., 2017). To this end, I kept a research journal. In addition to identifying changes in thinking and understanding, the journal helped me better identify biases throughout the research and how that impacted my interpretations (Maxwell, 2005; Mertler, 2014).

## Plan for Sharing and Communicating Findings

Although traditional educational research can lead to changes in practice, the objective of traditional research is not on the action but rather the knowledge gained through the research (Johnson & Christensen, 2014; Mertler, 2014). On the other hand, action research is conducted by practitioners to inform real practical change (Mertler, 2014). Due to this impetus on the action, an essential component of action research is sharing findings with research participants and stakeholders. This section will discuss (a) the importance and impact of sharing my research findings and (b) how I shared my findings with stakeholders and the broader practitioner community.

### Importance and Impact of Sharing Findings

"[A]t the heart of action research is *tangible* benefits to people and communities" (Stonebanks, 2019, p. 6). As such, the findings and initial recommendations from this action research must be shared first and foremost with the participating teachers. It is essential to value the voice and contributions of the participants by sharing the findings. Having the opportunity to see trends in how they planned for D-ELD instruction and integrated technology, participating teachers were better able to know they are part of a school-wide community. Their voices informed recommendations that will have an impact on future professional development for classroom teachers.

Sharing the findings with the school site administrators and other teachers at the pilot site provided classroom teachers with practical ideas for their classrooms. The finding also helped inform the site's strategic action plan (SAP). Each school site in the district identifies a problem of practice or two, develops goals related to the problem of practice, and identifies action steps to work towards the identified goals. Sotomayor

Elementary School's SAP plan included improving support for ELL students, particularly through D-ELD instruction. The findings of this study related directly to their SAP and provided insights that will help them determine their next steps as a site.

The findings were shared with the elementary district academic coaches (DAC), the director and coordinator of the district's elementary Curriculum, Instruction and Assessment (CIA) department. It is the responsibility of the CI&A department, including the DACs, under the purview of the assistant superintendent of educational services, to provide professional development and support to all elementary classroom teachers. This research provided insight and recommendations into the future development of workshops, coaching, and other district-provided professional development for classroom teachers.

**How Findings Were Shared**

The findings were shared with the participants through an in-person presentation and discussion. Participants' questions and feedback regarding both the presentation of the findings and the recommendations were elicited through conversations during the presentation and an anonymous survey on Google Forms. Providing a space for dialogue and an anonymous means of providing feedback was essential to ensure all participants were comfortable sharing their honest thoughts. The participants felt their voices had been accurately captured and had no recommendations or requests for changes.

The findings and recommendations were presented to the DAC team, the CIA coordinator, and the director in person. These stakeholders had the opportunity to ask questions and engage in a conversation regarding the implication of the findings on our work as a team.

# CHAPTER 4
## ANALYSIS AND FINDINGS

The purpose of this qualitative action research case study was to examine the extent instructional coaching and workshops on TPACK affect in-service elementary teachers' instructional planning with technology integration in D-ELD at a school in the Central Valley in California. This study sought to examine the experiences of in-service elementary teachers in planning and teaching D-ELD after participating in instructional coaching and workshops on TPACK.

The data collection was aligned to the following research questions:

1. How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK?
2. How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK?
3. What are teachers' perceptions of professional development using the TPACK framework?

This chapter presents the data collected during the study relating to the research questions. In addition, a detailed description of the coding process and a presentation of the findings are provided. The chapter consists of the following three parts: (a)qualitative data analysis, (b) within-case analysis, and (c) themes.

## Qualitative Data Analysis

Qualitative data were collected from three participating teachers. All three participants were female. Pseudonyms have been used for each of the participants to protect their privacy. Heidi was a fifth-grade teacher in her first year of teaching. Juliana taught third grade. Although this was her third year of teaching, it was her first year teaching 3rd grade in person, as she taught her first year almost entirely online due to COVID-19 and had taught kindergarten the previous year. Sonja was a kindergarten teacher and had been teaching for five years. Julianna attended all five workshops and six coaching sessions. Sonja and Heidi each missed a workshop due to scheduling conflicts, so the I met one-on-one with each of them to make up the missed workshop. I met with Juliana and Sonja for all six coaching sessions. Due to scheduling conflicts, Heidi and I could not meet for one coaching session. Before the start of the workshops, I conducted an interview and planning think-aloud with each participant, visited each classroom to take classroom field notes, and collected a lesson plan. These same data were collected upon completing the workshops and coaching sessions.

### Data Sources

#### *Interviews and Planning Think-Alouds*

I met with each participant during a 45-minute preparation period to conduct the pre-interview and planning think-aloud. The post-interviews and planning think-alouds were conducted during separate meetings with each participant. The interviews and planning think-alouds aimed to gain insight into how the participant planned for technology-enhanced D-ELD instruction and the impact the workshops and coaching had on their planning. All interviews and planning think-alouds were recorded using my

iPhone. The audio recordings were uploaded to the web tool Temi for transcription. The transcriptions were downloaded as Word documents, reviewed by me, and edited for accuracy. They were then reviewed again, and memos were added to the Word documents to capture the my initial thoughts (see Figure 4.1 for an example of memoing). The finalized transcripts were then uploaded into the web-coding tool Delve for analysis.

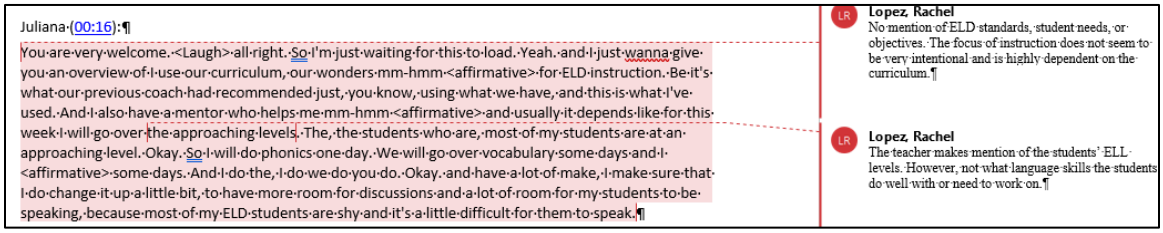

Figure 4.1 Example of memoing

***Classroom Field Notes***

I visited each classroom during D-ELD, both pre- and post-professional development. The purpose of the classroom field notes was to gain insight into the participants' use of TPACK elements during instruction. The field notes were recorded on the field notes collection sheet (see Appendix C). During the classroom visits, I specifically looked for and took note of observations related elements of TPACK including content, pedagogy, and teacher and student use of technology. I reviewed the classroom field notes in Word and used memoing to capture initial thoughts. For ease of uploading the information into Delve, the information was transferred to a Word document without a table. Finally, the new Word documents were uploaded into the web tool Delve for qualitative data analysis.

***Lesson Plans***

Lesson plans were collected from each participant before and after the workshop series. The lesson plans provided insight into participants' planning for D-ELD. The

participants provided the lesson plans in the format they typically use. They were submitted via Google Docs or Google Sheets. Once the lesson plan had been submitted, I transferred the information onto a simple Word document without any tables to ensure ease of uploading the documents into the web tool Delve for coding.

## Analysis

Qualitative coding was an iterative process consisting of two distinct cycles, the first and second cycles of coding. Within each of these cycles, multiple rounds of coding were conducted until data saturation was achieved (Saldana, 2021). Although occurring in cycles, previously coded data was often revisited within a round if new codes had been created. The first cycle consisted of open coding, structural coding, process coding, in vivo coding, and descriptive coding strategies (Saldana, 2021). The initial coding produced a total of 76 individual codes. Many codes were used for multiple data sources (see Table 4.1 for a summary of codes per qualitative data source). All data sources were reviewed line-by-line by each question or topic throughout the coding process. All codes, along with the descriptions, were recorded in Delve. In addition, the codes were linked to the specific data. A detailed description of each cycle of coding and the subsequent development of themes is described in the following sections.

**Table 4.1**

*Codes per Qualitative Data Sources*

| Data sources | Number of codes | Number of times codes applied |
|---|---|---|
| Interviews | *52* | 412 |
| Planning Think Alouds | 46 | 397 |
| Classroom Field Notes | 27 | 84 |
| Lesson Plans | 15 | 63 |

### *First Cycle of Coding*

The first coding cycle began with coding each data source using open coding to code what was in the data (Neale, 2016; Tracy, 2020). All pre-professional development data sources were coded first, and then the post-data sources were coded. The data were coded across cases during the initial coding, meaning all pre-interviews were coded, then all pre-planning think-alouds and in such manner until all data had been coded.

After this first round of open coding, all data were coded using structural coding and process coding. Structural coding utilized the research questions (Saldana, 2021) to provide the structure. Codes such as *technology integration, pedagogy, content, TPACK,* and *perceptions of professional development* came directly from the research questions. Process coding entailed developing codes that ended in –"ing". These codes were used to describe the planning process. Initial process codes included *opening, connecting,* and *closing.* The interviews and planning think-alouds were also coded using in vivo coding. In vivo coding provided an opportunity to capture the participants' voices through their direct words. For example, the code *I dunno if that's correct* captured the participant's lack of confidence in planning for and teaching D-ELD. The classroom field notes and lesson plans were also coded using descriptive coding, which provided an opportunity to describe what was happening during the lessons and in the lesson plans to capture a clear picture of the data.

I utilized these coding strategies simultaneously through each data source. In the description of the code in Delve, I included an abbreviation to indicate which type of coding had been applied. See Table 4.2 for a list of all coding abbreviations used and Figure 4.2 for an example of the coding description in Delve.

**Table 4.2**

*Coding Strategy Abbreviations*

| Coding strategy | Abbreviation used |
|---|---|
| Open | O: |
| Structural | S: |
| Process | P: |
| Descriptive | D: |
| In vivo | IV: |

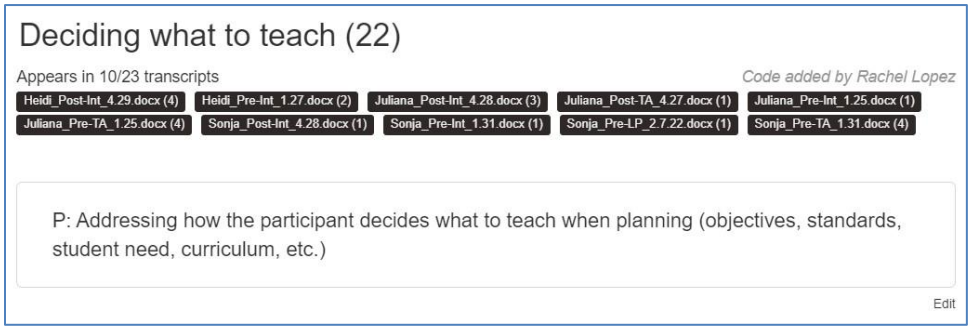

Figure 4.2 Example of code description with code strategy abbreviation

As part of this round of coding, the data were analyzed first by data source as with the previous round. All pre-interviews, pre-planning think-alouds, pre-classroom field notes, and pre-lesson plans were coded before conducting the same analysis with all post-data sources. After this had been completed, the data were reviewed within each case. For example, Heidi's data sources were reviewed and coded using the abovementioned strategies. This was then repeated for each participant. Coding initially across cases and then within cases provided an opportunity for a lens shift that sometimes developed different codes. As previously mentioned, previously reviewed and coded data sources were reviewed and coded again as new codes emerged.

The codes were reviewed at the end of each round within the first cycle. Codes that had been applied a single time were examined. Some were removed as it was decided that the code was not meaningful for the remaining data. Some codes were left to see if additional data would fit the code and were therefore reviewed again later. Furthermore, others were combined if it was felt the codes were describing similar content. See figure 4.3 for an example of coding in Delve.

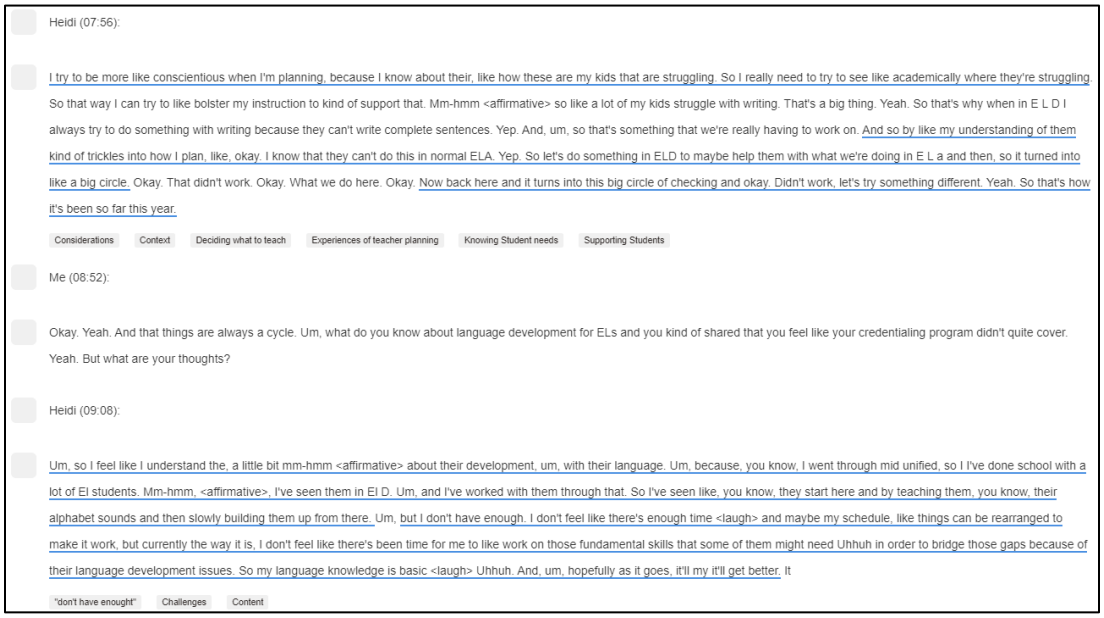

Figure 4.3 Example of coding in Delve

### *Second Cycle of Coding*

During the second cycle of coding, the codes were analyzed and reviewed to identify patterns or categories. As part of this cycle, codes were nestled under broader categories. The goal of this cycle was to begin to categorize and identify emerging patterns in relation to the research questions. For example, *"ELD standards, Use of Curriculum, Student needs,* and *Objectives* were all nestled under the category *Deciding what to teach.*.

I used the Delve Snippets tool to filter snippets by specific codes and data sources in order to look for similarities across codes and data sources. This process helped me to review data clusters together to determine if, and in what ways they were related. For example, to examine how technology was integrated duing D-ELD lessons (research question #2), I filtered first by codes related to technology use such as *technology integration, teacher use, student use, engagement, consumer,* and *producer*. I then looked at all those codes in the pre-lesson plans and classroom field notes. During this review, I noticed that codes such as *producer* and *collaborative* were not present. Additionally, a review of the snippets revealed that a commonality among them was that technology was teacher-centered. In other words, technology was used by the participants as a means to project information to the students or even by the students but solely as receivers of information. I repeated this process looking specifically at post-lesson plans and post-classroom field notes. This time the codes *producer* and *collaborative* were used. *Teacher use* and *consumer* were codes present in the post-data but only minimally applied and not across all three participants. This review of the coded snippets revealed that technology use was much more student-centered, meaning that students were using technology as producers of language often in collaborative ways. As a result of this analysis, the categories *Teacher use of technology, Student Consumers of technology* and *Effective instruction for ELLS* were established. I conducted this type of process to group various codes and data sources, examining the data for similarties and thereby creating the categories as can be seen in Table 4.3 later in this chapter.

### *Peer Debriefing*

Throughout the coding process, multiple meetings were held with the dissertation chair. During these meetings, the codes were reviewed, and data were discussed. This peer debriefing assisted me in looking at the data in different ways, such as looking more closely at the level of barriers to technology integration. The meetings also served as a means to check the coding process.

### *Identifying Themes*

Once the data had been grouped into categories, I began the inductive process of examining the data for themes to provide insight into the research questions. Again, I utilized the Delve Snippets filters to examine the data in categories. I also exported the codes into Excel, which provided a quick view of the levels of codes. Next, the categories were analyzed for similarities, differences, and relationships across the identified categories. As the first two research questions were looked at before and after attending the professional development, patterns were examined within pre- and post-data sources before comparing the two. For example, in the category *teacher feelings*, it was noted that the pre-data sources contained codes such as *unsure* and *don't like ELD* while post-data sources contained codes such as *feel better now, excited,* and *confident.* After identifying the similarities, differences, and relationships, descriptive statements were developed (Lester et al., 2020; Saldana, 2021; Tracy, 2020). Finally, these statements were developed into qualitative themes aligned with the research questions. For example, *Deciding what to teach, Deciding how to teach,* and *Knowing student needs* were all categories that described the participants' planning process. Examining the codes within each category showed that the *planning process became more intentional and distinct*

(theme 2). See Table 4.3 for a list of quotes/descriptions, codes, and categories by theme for each research question. In the “Codes” column of table 4.3, the labels “Before codes” and “After codes” are used to group codes. It should be noted that these labels were not used during the coding process. Rather, these labels have been added to this table solely for the ease of presenting the information in the table. During the analysis, it was noted that often different codes were present in the pre-data “Before codes” and the post-data “After codes”. Therefore the codes presented in table 4.3 have been grouped by these labels.

**Table 4.3**

*Themes, Categories, Codes, and Quotes*

| Themes | Categories | Codes | Quotes/responses |
|---|---|---|---|
| The barriers to technology integration shifted from second-order to first-order barriers RQ1) | • Second-order barriers (before)<br>• First-order barriers (after) | Before codes:<br>• Teacher use<br>• Lack of pedagogy<br>• Unsure/lack of confidence<br>• Content Knowledge (lack)<br>• Shared planning<br>• "I love technology"<br>After codes<br>• Device Access<br>• Shared planning | • Sonja: "I like to do a lot of technology, actually. Now that I'm thinking about it, but I use it throughout the whole day for other stuff[[..]. So yeah, not as much with ELD."<br>• Juliana: "I think it just comes back to my gap with, not really knowing how to use technology for ELD."<br>• Heidi: "I plan with my team partner. My team partner does not use technology. So with me not knowing that much about ELD instruction and relying a lot on her understanding of it." |
| The process of planning became more distinct and | • Deciding what to teach | Before codes<br>• "Process feels disconnected" | • Heidi: "I feel like I'm doing what that tells me to do. But for me, there's a big difference between |

| Themes | Categories | Codes | Quotes/responses |
|---|---|---|---|
| intentional (RQ 1) | • Deciding how to teach<br>• Knowing student needs | • "In the moment"<br>• Student needs<br>• Use of Curriculum<br>• Objectives<br>After codes:<br>• "Intentional as possible"<br>• ELD Standards<br>• Use of Curriculum<br>• Objectives | doing what it tells you to do and teaching it. Yeah. And so I want that bridge to connect because I don't like how it is right now."<br>• Juliana: "And then of course, the TPACK framework, making sure that everything is taken into consideration, I have everything in my binder, and I try to make sure that I am also focused on, on priority standards."<br>• Heidi: "it allows me to kind of make what I'm doing with them fit them better. Um, because before, it was just like, oh, here's the ELD book. We're just gonna do the ELD book. But now it's like, oh, well, I know that you guys, as a whole, based off what I've seen, are kind of struggling with this. So even though these are the standards included with this lesson that you guys are gonna be doing, um, we need to work on this and we need to work on this." |
| Participants became more knowledgable and confident in their ability to plan for D-ELD (RQ1) | • Teacher positive feelings<br>• Teacher negative feelings | Before codes:<br>• Unsure<br>• Don't like ELD<br>• "Am I doing it right?"<br>After codes:<br>• Excited<br>• Confident | • Heidi: "when I plan for ELD, I'm like, I guess this is what we're doing. I don't know. And I feel like that's, I don't feel like I was really taught in school."<br>• Sonja: "It feels more like I can do this.I definitely |

| Themes | Categories | Codes | Quotes/responses |
|---|---|---|---|
| | | • Like ELD | feel a lot more confident and just, it doesn't feel like a headache anymore." |
| Technology integration began to shift from teacher-focused to student-focused (RQ2) | • Teacher use of technology<br>• Student Consumers of technology<br>• Effective instruction for ELLS | Before codes:<br>• No student technology<br>• Teacher use<br>• Engagement<br>• consumer<br>After codes:<br>• Collaborative<br>• Engagement<br>• Producer | • Student use of technology was not observed in Heidi's pre-classroom field notes.<br>• During Sonja's classroom visit, four students shared one Chromebook and completed a collaborative presentation. |
| Effective professional development is specific and actionable (RQ3) | • Coaching<br>• Application<br>• Resources | • Value<br>• Strategies<br>• Perceptions<br>• "I liked it"<br>• Strategies<br>• Workshops<br>• Co-planning<br>• Co-teaching<br>• ELD companion<br>• framework | • Sonja: "I love the workshops too, but I love just the, individualized coaching, because then I can ask you questions that are specific to me and my students"<br>• Sonja: "we can actually take what you tell us and put it into practice and it's actually happening and changing the way we teach" |

## Within-Case Analysis

Throughout the coding process described above, the data were analyzed across cases and within each case. At times this analysis revealed trends relevant to some or all of the research questions that were unique to the individual participant. Therefore, diving deeper into each participant is beneficial before exploring the discovered themes more fully.

**Heidi**

Heidi is a Caucasian female in her mid-twenties. She was a first-year teacher. Her love of learning was very apparent. In addition to participating in the study, she is also working on a Master's in teaching. When Heidi and I started working together, she shared that she and her students thought ELD was boring. In fact, Heidi commented on it during her post-interview: "But I was just very like, just doing what was in the book. That's all we were doing. And I didn't really like ELD." When we began our coaching sessions together following the first workshop, Heidi was excited to move away from the district-provided ELD curriculum and co-plan for instruction across content areas. Although we eventually moved back to co-planning using the curriculum, our initial co-planning sessions impacted how she viewed D-ELD and her planning. She said, "They give you the curriculum to use as a tool, but you're in charge of what direction that goes." She was able to find her agency in planning to meet her students' needs, even when using the curriculum. As Heidi explained,

> It just seems like all you do is read, read, read, read, read, but now I'm able to see like, oh well now that I know that, you know, and I probably knew this but like not to the level I do now, like, you know, of course they need to know the language in the science book and the language in the math and how that relates to what they're doing in science and how that relates to what they're doing in math. And so we need to work on those things, and so it's made it, so I try to integrate things from other subjects, like when we were doing the one about the animals, we, I taught them words that were related to science that they needed to know to be able to understand what they were reading in the ELA. And so they were

> getting science, language development, and reading language development at the same time because I was integrating multiple subjects. And so I think that it's important that people everywhere realize that as long as if we only keep it English related, that's all that's gonna develop. They're gonna be really great in English, but they're not gonna be really great at understanding anything else. Yep. So we need to make sure that we're doing, you know, it across the curriculum with what they're expected to learn, not just English.

Heidi's most significant takeaway from the professional development was supporting students' language development across content. A component of the content workshop was learning to identify content lessons' language demands and connect those to student needs and ELD standards to develop instructional objectives. Heidi and I spent three of the five coaching sessions on this skill. These sessions were beneficial for her to develop a solid understanding of the purpose of D-ELD and the foundation for future planning.

**Sonja**

Sonja, a Caucasian female in her thirties, was in her fifth year of teaching. She and I have worked together as coach and coachee several times over the past four years. Having previously worked together played a critical role in Sonja's desire to participate in the study. During her pre-interview, she stated, "I am just so excited to get to work with you again. Every time I work with you, I learn so much. You just have so much great knowledge to share." Sonja has always been very eager to learn and take on new challenges and opportunities for professional development. Her willingness to take risks, even if it was scary and uncomfortable, stood out during this study. Sonja had been working on incorporating Seesaw activities into her D-ELD lessons in ways that provided

students opportunities for authentic language tasks and to give and receive feedback. In other words, she worked to integrate technology with effective ELL pedagogy.

However, the school began deploying for D-ELD part way through the study. As a result, she received students from other kindergarten classrooms. They came to her class without their devices, and not all teachers had been using Seesaw with their students. She was ready just to give up. She shared her disappointment during her post-interview and stated, "I started practicing what we've, what we talked about and learned with my own class. And so I'm getting excited about that. And then it came to like an abrupt end." She and I brainstormed some solutions and landed on having students complete one Seesaw task collaboratively. During her post-interview, she stated,

> But the good news is that it wasn't a waste. I was able to make my students a leader of each group in the ELD class because they already knew how to do it. Yeah. So that helped that transition go a lot because one of my fears was, well, some of these kids have never used Seesaw so I'm not gonna have to do this, but it's okay. Because they have somebody experienced in their group. So, that all worked out.

She was initially nervous about how this would work with kindergarteners. However, she was willing to take this risk because of her trust in me. She explained, "You've been just the biggest help in providing feedback. And it's just feedback that works. I can trust that. What you tell me, like I need to trust it, even if it's scary." The professional development helped build her knowledge, but it was the relationship between the two of us that made her comfortable and willing to step outside of her comfort zone and try new things.

**Juliana**

Juliana is a Hispanic female teacher in her third year of teaching. However, this was her first full year teaching in person and her second year teaching third grade. She had previously taught kindergarten. When asked what the most impactful part of the professional development was, Juliana responded that the TPACK framework was a helpful reference for herr when planning:

> I would say the understanding, the frame, like the framework of it, and keeping in mind that that pedagogy, um, has been so important when it comes to me, reflecting on my lesson plans, um, you know, going back to those, to those notes and making sure that, that I am, you know, accommodating each one of my students. I think that's, that's crucial and, and just so many aha moments through the process because it's, I lacked a lot of that, a lot of that knowledge and in the framework, in, the importance of pedagogy, in the importance of reflecting on, uh, you know, about a lesson and, and being more intentional about everything, everything we do.

During her post-planning think-aloud, Juliana pulled out a binder with all the workshop resources, including the TPACK framework. While pointing to the framework, she stated:

> I start with the outside [context], what do I know about my students? Then I think about what I want them to learn, what the lesson is focused on for their language. I work my way through, keeping in mind that I want to get to that sweet spot, that TPACK.

The TPACK framework provides her a structure for planning for D-ELD and is a helpful reminder of what to keep in mind when planning.

## Themes

Based on the analysis, the following themes emerged related to the participants' experiences planning for and teaching D-ELD with technology integration. Themes were developed from participants' interview responses, planning think-aloud, observations of classroom instruction, and analysis of lesson plans. As there were only three participants, themes represent common findings across all participants. Five themes emerged from the analysis. The themes are presented below per research question.

### RQ1: Technology Integration in D-ELD Planning

#### *Theme 1: Barriers to Technology Integration Shifted from an Internal Barrier to External Barriers*

During the pre- and post-interviews, participants were asked how they integrate technology into their D-ELD planning and lessons. As part of the follow-up questioning, I inquired about any challenges they faced when planning for technology integration. Additionally, although I did not prompt specifically for technology during the planning think-alouds, they were analyzed for evidence of technology integration. Upon analysis, it became clear that although barriers or challenges to technology integration existed both pre-and post-professional development, there was commonality across all three participants that the predominant barrier had shifted from internal barriers to external barriers.

**Pre-Professional Development: Internal Barriers**. During the interviews, the participants were asked to share what they know about technology integration during D-

ELD and how it impacts their planning for D-ELD. All three participants started by talking about technology integration in general. Heidi was the most excited about technology and shared,

> I love technology. I don't know if it's because I'm only 24, so I guess I was like an early adopter of technology. I've learned a lot of technology over the years, and then I'm also a Google-certified educator. So like, I'm really into that, and so I can implement technology, like nobody's business. It's really easy for me.

Heidi described how she had just introduced her students to Prezi, Google Slides, Google Sites, and Canva Prezi. Her face lit up as she talked about having her students complete projects utilizing different tools and how she slowly introduced the tools to her students, giving them ample opportunities to practice and become familiar with the tools. Sonja also had a lot to say about her students' use of technology throughout the instructional day to access the curriculum, digital books, a reading intervention program, and an interactive instructional platform:

> They're on Chromebooks a lot in my class. So they do Seesaw. I assign the activities on Benchmark. They do Epic. Those are the three like main ones that they do. Oh, and Lexia, of course, they do that every day. I like to do a lot of technology actually.

Juliana also shared that she integrated technology predominantly through the use of Google Slides to enhance the use of the curriculum:

> They can see the leveled readers on their computers. So, they use their computers. I also use Google slides a lot where I take screenshot, of the books. And then we also do strategies, um, like annotating the text, um, and things like that.

Despite all three participants describing regular integration of technology into lessons, only one of the three pre-lesson plans referred to the use of technology. Sonja listed the "Promethean Board" as part of the instructional materials but did not mention how the Promethean board would be utilized in the lesson plan. All three participants expressed little to no integration of technology when asked about technology integration, specifically during D-ELD. Sonja responded, "I mean the most technology I use is my ladybug does that count?" A ladybug is a document camera used to project a physical item onto a screen for the students to see. She went on to say, "Now that I'm thinking about it, but I use it [technology] throughout the whole day for other stuff […] so, yeah, not as much with ELD". Along these lines, Heidi concurred on the limited use of technology as she said, "During ELD? They use very little. Okay. And it makes me sad because I'm a big technology person. I use technology like crazy, and ELD is kind of like the one area where I haven't really integrated it." During the planning think-aloud, Juliana accessed the ELD curriculum digitally and planned for student use of technology by accessing Google Slides via Google Classroom. She explained "I have my students access the curriculum via Google Slides because not all of my students have access to the printed D-ELD materials." However, she expressed that she wished it could be more intentional. "And, that's usually how I go about using the technology for ELD. I mean, it's not is as, expanded as I wish it was where they're using it a lot more intentionally for ELD."

Given that all three participants were excited about technology integration and described how they integrated technology in other subject areas, the common barrier they experienced was a lack of knowledge on integrating technology during D-ELD. Juliana

specifically shared, "I think it just comes back to my gap with not really knowing how to use technology for ELD. I'm not sure how and what other ways to like, integrate it". Heidi shared a barrier due to planning with her grade-level partner, who was uncomfortable with technology. However, it primarily came down to her lack of knowledge specific to ELD.

> I plan with my team partner. My team partner does not use technology. She stays away from it as much as possible. So, with me not knowing that much about ELD instruction and relying a lot on her understanding of it, I kind of get like, I don't know where I could input it. I kind of just back away from it because I'm just like, okay, well, I don't even know what I'm doing. I'm just gonna follow what she's kind of doing. She doesn't really like using technology. So we're not using it in here. If I get more comfortable with understanding what exactly I'm supposed to be doing and what exactly is expected of me to do for ELD. And once we're, I'm able to kind of find where it would work in. Well, I would love to utilize the technology because it makes me sad not to use it cause it benefits them so greatly.

Sonja expressed that she is "excited about the workshops because I'll get to learn more about what D-ELD really is and how to teach it. Cause right now, I don't really know what I am doing." She identified this as a reason she did not integrate technology into her D-ELD lessons. In other words, all three participants shared that a barrier to planning for and implementing technology-enhanced lessons in D-ELD was due to their limited knowledge of D-ELD.

**Post-Professional Development: External Challenges.** After the professional development, two of the three participants referenced the use of technology in their

lesson plans, and all participants talked about technology integration during their planning think-alouds. However, during their interviews, they still expressed challenges or barriers to integrating technology. Although they were different from one another, the commonality was that they were all external challenges, meaning outside of their control.

Heidi's post-lesson plan still did not mention any use of technology, be it teacher or student use. The lesson plan document is a shared lesson plan created with her grade-level partner. As previously mentioned, shared planning is a barrier to technology integration. However, her lack of knowledge of D-ELD is no longer a primary barrier. When asked about the impact of her knowledge of technology integration on D-ELD, she stated, "So now that I know that, or now that I really understand that, you know, there's a time and there's a place for each piece [of technology] then I can really focus on, okay, well what piece is best gonna allow me to get them to understand what I want them to understand?" This was evidenced during her planning think-aloud when she planned for students providing feedback to one another via Chromebooks utilizing a "Notice and Wonder" routine introduced during the workshops.

At the beginning of the study, all D-ELD classes were self-contained, meaning all students stayed in the classroom for the D-ELD lessons. However, the teachers were directed to deploy part way through the study, meaning the language proficiency levels within each grade group ELL students. This mixing of classes had previously not been allowed due to COVID-related restrictions. However, it was determined that this was no longer necessary. Due to this change, the students coming to her class were not coming with devices. Additionally, not all of the other teachers in the grade level were using Seesaw, a district-provided platform. Sonja described the challenge during her interview:

> They're not my students so to do what I wanted to do, which was them to have their own assignment. I would've had to work with my team, and there's a process where we had to add to each other's classes, and then I would be able to create an assignment for all the students in my class. And it just seemed like a little bit of a hassle, and I wasn't sure how to get through all the steps of it, and not all my teammates use Seesaw so that was another little hiccup. So, um, I decided talking to you, well, maybe we could just do one assignment and assign it. I only have to assign five students instead of going through a long list of students. Right. So it's only five, so it's faster for me. and then for them, like it it's good. They're learning turn taking, which is also an ELD standard. And the collaborating and all that stuff. So I think it's the way to do it now. I like, and I wanna do it. I haven't started that yet, but I wanna do it with my own students. Okay. The turn-taking.

She described how she could still utilize Seesaw during D-ELD lessons despite not all students having their own device or their own Seesaw assignment. Despite this challenge, she could integrate technology because the barrier was no longer internal. When asked about planning for technology-enhanced lessons, she shared that she is "just getting a lot more ideas." This enabled her to work through external challenges like the one discussed here.

The participants still experienced barriers or challenges to technology integration. However, the challenges experienced by participants post-professional development were due to a lack of access to devices and shared planning, elements outside of the participants' control. The barriers were no longer internal due to their lack of knowledge and understanding of D-ELD.

### *Theme 2: The Planning Process Became More Distinct and Intentional*

When looking at how the participants described their planning process during the planning think-alouds and the interviews, it became clear that the participants' planning process was more systematic and intentional. When conducting the planning think-aloud, each participant was asked to plan a lesson out loud, to walk me through how they plan for a lesson. Each participant seemed nervous and unsure of what to do during the pre-planning think-aloud. As a result, each participant described how they generally plan for D-ELD instead of planning for a specific lesson. Participants spent almost twice as long describing their planning process for a specific lesson when provided the same prompt during the post-planning think-aloud. Their descriptions were more specific and detailed. Descriptions of their planning processes pre-and post-professional development are provided below.

**Pre-Professional Development Planning.** All three participants planned using the district-adopted ELD curriculum. However, two participants described a process using the curriculum with little to no discernment or intentionality. Instead, it was just used as a page-turner.

Heidi shared how she and her grade-level partner plan for D-ELD. "Um right now we kind of go unit by unit. Um, on Mondays we would be starting with vocab." She described the process of introducing the vocabulary in the ELD consumable and writing sentences for each word. Then, per the student workbook, they discuss the essential question for the week, "Then there's a graphic organizer in their ELD workbooks that kind of brainstorms off of the essential question." Heidi continued to describe what she would do from the curriculum each day of the week. Tuesday, she would start with a

picture walk of the weekly story. Her class would read and answer the questions in the workbook on Tuesday and Wednesday. Thursday was spent responding to the “Respond to text” questions after the story. On Friday, she stated, “I try to do something written with them." Throughout her description, she failed to mention the objective or language focus. Additionally, student needs were not considered. The driving determinant of instruction was the D-ELD workbook. Her planning was very mechanical. She wrapped it up well, "Um, so I kind of, what we've been sticking with is just whatever's in the consumable. Okay. So basically like that consumable is our guide. Okay. And that's how we plan it's based on whatever's in there."

Sonja shared that when she would use the ELD curriculum, she would "open up the TE that day and then produce it [the lesson]" although she admitted that the lessons did not turn out very well that way. During her pre-planning think-aloud, Sonja walked through planning that was not utilizing the ELD curriculum. Instead, she shared that, as a grade level, they selected topics based on upcoming district benchmark testing, not necessarily the language needs of her students. Sonja lamented, "I know that is not how we are supposed to do ELD, but that's just the reality right now. We have to get them ready for ESGI [the district kindergarten benchmarks]". When describing this process, she shared some strategies she implements, such as pair-sharing. When asked how she decides the instructional strategy, she said, "Definitely in the moment". In other words, the instructional strategies used were not planned but rather what she thought of in the moment of teaching.

Juliana was the most strategic in her use of the ELD curriculum when planning. She utilized the ELD curriculum with an emphasis on reading. However, she shared that

she looks through the lesson to anticipate the vocabulary with which the students may have trouble.

> I make sure that I go, I look through it first and look at any vocabulary. I think they might not understand. So I make sure I do that with our leveled readers and just jot notes to make sure that they're going to and, and ask them to, you know, what, what does this word mean? And just make sure that they do know the vocabulary, because that's, they're not going to understand the book if they don't understand all the vocabulary.

Juliana was the only participant to talk about identifying student needs during her pre-planning think-aloud and how that impacted her planning. Also missing from the planning were specific details regarding pedagogy or instructional strategies, reference to ELD standards and language objectives, and any technology integration.

Although all participants were using the district-adopted curriculum to plan for D-ELD, when describing the process of planning for D-ELD prior to the professional development, participants described it as disconnected and scattered. Heidi shared, "I feel like I'm doing what that tells me to do, but for me there's a big difference between doing what it tells you to do and teaching it. I want that bridge to connect because I don't like how it is right now." Sonja shared that her focus for ELD is often reading and writing, but the specific content is often scattered. She said, "So a lot of times my focus is aimed around that, but as far as like content goes, it's kind of all over the place." In other words, overall, participants planning prior to the professional development was unstructured and did not address students' language needs.

**Post-Professional Development Planning.** All participants used the district-provided curriculum during their post-professional planning, as with the pre-planning. However, their planning was much more systematic this time and incorporated elements of TPACK. To start their planning, Heidi and Juliana shared that they look at the curriculum and consider the ELD standards being taught. Heidi said, "And so I look at those, I try to look at those in the book and say, okay, well this is what it says they should be able to do with that standard." Juliana was a bit more descriptive as she shared:

> I use the wonders resources to decide what my focus standard will be. What my language objectives will be and what my content objectives will be. And then I also use my E L D companion to make any modifications, if like I'm going to modify this, the, the wonders lesson to, because I have students who, who are still struggling with speaking skills.

Juliana used the curriculum to identify the objectives and standards and also explained how she used the ELD Companion, a resource book for the California ELD standards, to select a focus based on her students' needs. Although Sonja did not reference ELD standards in her planning think-aloud, she did reference an ELD standard when discussing her planning post-interview: "They are learning turn-taking, which is also an ELD standard." This awareness of the standards was not previously present and demonstrates that awareness of focusing on language learning is present for all three participants when planning instruction.

Another difference that highlights the more intentional planning is how the participants spoke of providing scaffolds and language support for their students. During pre-planning, all participants mentioned scaffolding for students but were never specific

as to how they did so to support student language learning. In the post-think-aloud, the participants were specific and tied the support to what they knew about their students. For example, Juliana shared, "from knowing my students, I know they will not know what a glider is. So, I will provide a video for them to have that extra visual so they can understand what a glider is." Heidi planned for language support by having "sentence starters up" and beginning the lesson with a "video to build background knowledge." Sonja also discussed instructional strategies that provided support based on the task in the curriculum, teacher's edition (TE), and knowing her students' needs. She explained how she planned for the language support:

> The anchor chart is not [in the teacher edition]. I just, when I was reading through the TE and how they were to describe the seasons using words ending with -est or adjectives ending with -est, I figured that showing them the adjective and then adding -est would be a helpful visual tool for them, but I didn't get that in the TE.

These kinds of support and curriculum planning did not occur before the professional development.

### *Theme 3: Participants Became More Knowledgeable and Confident in their Ability to Plan for D-ELD*

When discussing planning for D-ELD before the professional development, all three participants expressed a lack of knowledge and confidence in their ability to plan D-ELD. When asked during the interviews about their knowledge of how students learn language, or effetive pedagogy for ELLs during the pre-interviews, the participants shared that they had limited knowledge. Heidi expressed, "So my language knowledge is basic". Juliana similiarly shared, "I feel like that [knowledge of language development] is

another one of my gaps, where I feel like I need more knowledge.[…] I still need to understand it in more depth. How exactly do we teach them language?" Sonja expressed being somewhat knowledgeable and shared, "Effective Instruction, I know that they want the kids talking. I remember hearing that a lot. I think it's 80% kids, 20% kids [talking]. Is that acccurate? I don't know." Sonja was referring to a previous district ELD instructional strategy initiative. However, even then, she was unsure about her knowledge.

This lack of knowledge impacted the participants confidence in their ability to plan for D-ELD. As a new teacher, Heidi expressed, "When I plan for ELD, I'm like, I guess this is what we're doing. I don't know. And I feel like that's, I don't feel like I was really taught in school." However, this sentiment was not unique to her. In her interview, Juliana said, "I don't feel like I'm, you know, knowledgeable." Despite having more years of experience teaching than the other participants, Sonja also shared her lack of confidence, "I always feel like I struggle with ELD, like I'm not doing enough. I'm not very comfortable cause I feel like every year it's been different". During the planning think-aloud, Heidi described the process of using the ELD consumable as the guide to planning with her veteran colleague and stated, "I dunno if that's correct or not, but that's just what we've been doing."

After the professional development, the participants recognized that they still had gaps in their knowledge, but felt much more knowledgeable and had a more positive view of ELD and their ability to plan for instruction. Juliana shared, "I feel a lot more comfortable than at the beginning of this study. I felt like I lacked a lot of resources. It's not that I lacked. I just, I was not aware that we had all of these resources." Becoming

more aware of the resources in the curriculum and other district-provided resources and how to use them gave her more confidence in planning for D-ELD. Sonja also discussed having more confidence, "It feels more like I can do this. I definitely feel a lot more confident, and just, it doesn't feel like a headache anymore." Heidi expressed she even sounds more like a teacher,

> I just remember like when we first did this, I was like, I don't know what I'm doing. I have no idea. I was hoping that I would learn something because, honestly I didn't know what the heck's going on and now I feel like a lot more comfortable. Good. Like I actually have an idea. I sound like a teacher actually, instead of just, I don't know what I'm doing.

Heidi went on to describe her knowledge and understanding of D-ELD as a little rock at the beach:

> Compared to how it is now, I was telling my mom, cause she's a teacher that, you know, those rocks that they have at the beach with all the little holes in it. I said, and you know, when you find one of those ones that has a really big hole and it's like all the way through in the center, I said, that was me at the beginning of the year, there was like little, tiny bit of rock around. And that was really it. And there was just like this giant hole. And I said, now when you find the ones with like the little holes in it, that's me feeling like how I feel now. It's like less holes, than at the beginning.

In other words, prior to the professional development, Heidi felt she had significant gaps in her understanding of D-ELD, effective ELL pedagogy, and how to best support language learning for her students. One cannot effectively plan for D-ELD with

significant gaps, or holes, of knowledge. However, as a result of the professional development, the participants' holes got smaller in the areas of TPACK, therefore impacting their confidence in their ability to plan for technology-enhanced D-ELD.

## RQ2: Technology Integration during D-ELD Lessons

### *Theme 4: Technology Integration Began to Shift from Teacher-Focused to Student-Focused*

Visiting the participants' classrooms provided an opportunity to gain insight into their planning for D-ELD and observe the participants' implementation of the TPACK elements during technology-enhanced D-ELD. It can be seen in these classroom visits that, although not entirely, the technology integrated into lessons began to shift from teacher-focused to student-focused. Below is a snapshot of each of the observed lessons, followed by a synthesis of how TPACK was observed in the pre-and post-lessons.

**Pre-Classroom Field Notes.** In Heidi's fifth grade class, the students had been working on writing a persuasive letter to the school site administrators explaining why they should have better cafeteria food for lunch. During the observed lesson, they were going to be working on taking their brainstorming and begin writing the letter. The large promethean TV was at the front of the room, and students all had their Chromebooks closed on their desks. The lesson began with Heidi reminding the students of their task and connecting it to the weekly story they had read. Next, she projected a large circle map on the promethean TV. Next, students took out their maps and took a moment to quietly add their reasons before sharing them with a partner. Heidi then called on students to share their reasons and recorded them on the promethean TV with a quick moment to add any ideas to their map if they wanted to. The lesson continued in this manner as she

modeled how to select the most powerful reasons to persuade the site administration. Next, students had some quiet work time, time for pair share, and then group share out with their responses recorded on the Promethean TV.

This lesson activity allowed students to create authentic writing that would be shared with an authentic audience besides the teacher. These are both elements of effective pedagogy for ELLs. Although this was a writing task, the lesson did not have a clear language focus and was not connected to any of the ELD standards. Neither did the lesson provide appropriate language support or scaffolds. Although the lesson integrated technology, it was not technology-enhanced. Technology was utilized solely by the teacher to present and convey information to the class, not as a means to further enhance the pedagogy or language acquisition of the students.

The third graders entered Juliana's classroom after lunch. The Google Slide for the day's lesson was already on the Promethean TV with the objective being projected. Juliana used the slide deck to present the word *bounce*, a new vocabulary word. The slide contained the written word, picture, and example. She then had the students interact with the word through various means, such as choral reading, raising their hand if they had ever bounced a ball, and sharing an example. After sharing several examples, Juliana asked the students to access the slide deck by clicking on the link posted to their Google Classroom. Students then went to the appropriate slide with a designated space to write their own sentence using the word bounce and a space to add a picture. Students worked independently to complete the task, although they were allowed to help one another if they were stuck. This process was repeated with two additional words.

The lesson's objective was language focused, "I can answer questions to demonstrate understanding of the meanings of the words." However, it was not connected to any of the California ELD standards. The lesson engaged students in isolated vocabulary learning. Juliana had the students engaged through various means of acting out words, answering questions, and pair-sharing with one another. However, the lesson did not engage students in authentic collaborative learning, in which they had to work together to complete a task. As with the first lesson, technology was integrated by the teacher as a means to present information to the class. However, unlike the previous lesson, students also engaged with technology. That said, the technology did not enhance students' language acquisition or pedagogy. Although students were engaged in writing sentences in Google Slides, it was a language task that could have just as easily been completed with paper and pencil.

In Sonja's kindergarten classroom, the students sat around the carpet. Sonja showed them a large book and told them they would read a story and learn about bears. She read the story, stopping periodically to ask them a question. With every question, Sonja had them turn knee to knee to share with a partner. Then she used sticks to call on a random student to share out. After the story had been read, she asked the students to share one key detail from the text. Again, students shared with a partner, knee to knee, before a student was called on. Sonja repeated this process, using the pictures in the story to help prompt the students. Then, she asked the students to turn and face the promethean board, where she projected their Seesaw assignment. The assignment included three pages, each with a picture from the book. She instructed them, "On this assignment, I want you to tell me everything you remember about this story. You are going to record yourself on each

page." When excused, students got up, got their Chromebook and headphones from their cubbies, used their QR codes to log into Seesaw, and then individually recorded themselves retelling the story. Most, but not all, students finished before the lesson ended.

The lesson's objective was an English Language Arts (ELA) objective, retelling a story instead of an ELD objective, which would have focused on the language needed to retell a story. That said, the lesson provided many opportunities for students to engage in and stretch their language. The teacher provided opportunities for students to construct the language by answering questions. Scaffolds were used through the use of model sentences and choral responses. Technology was used strategically at the end to allow students to record and listen to themselves retelling a story. The technology was used to enhance the lesson as this was not a task the students could have completed efficiently without technology.

In each of these lessons, technology was integrated into the lesson. In the first lesson, technology was integrated solely as a teaching tool to project information to the class. In the second and third examples, the participants also used technology to present information to the class. However, students also engaged with technology to independently demonstrate their understanding of the lesson. It was only in the third lesson, however, that technology was integrated in a way that enhanced students' language learning.

**Post-Classroom Field Notes.** Heidi's class was wrapping up a unit in which they had been learning about the environmentalist, Rachel Carson, and a call to action. The students were going to be collaboratively writing their own call to action. Using the

promethean TV, Heidi projected the previously completed brainstorming and explained that they would begin writing today. She explained that she would be providing a model with starter sentences. They were welcome to use the same frames or create their own. She asked the students how to start their letters and called on a few to share. Heidi recorded a frame to start on the Promethean TV. Students then opened up a new Google Doc on their Chromebooks and started their letters. Heidi repeated that process providing a frame for the first, second, and third examples the students would be writing about to explain the problem. After each example, students had some time to write on their own document.

Like Heidi's first lesson, the students completed a writing task for an authentic audience, the school site administration. There were some critical shifts in this lesson as compared to the pre-lesson. The lesson's content was connected to an ELD standard in which students produce writing "collaboratively and with increasing independence" (California Department of Education, 2012). As the class went about creating the collaborative writing, the focus was on the language of persuasive writing. Appropriate language supports were provided through the use of sentence frames and models. In other words, the content focused on language development and incorporated some elements of effective instruction for ELLs. This brings us to the integration of technology. Unlike the initial lesson, students were utilizing technology themselves. However, they used the technology to write independently despite the opportunity to enhance their collaborative writing. This could have just as easily been accomplished with paper and pencil. Although it was a step in the right direction, the lesson did not integrate technology in a student-focused way and enhance their language learning.

Juliana's ELD class now consisted of eight emerging students from all third-grade classes. She had planned to use Pear Deck for today's lesson to create an interactive lesson with the students utilizing technology. However, not all of the students brought their Chromebooks. So, Juliana projected the Pear Deck for the class instead. The lesson started with foundational skills, specifically phonological awareness activities in which the students identified the sounds in words. As the students could not use Pear Deck, Juliana called on students to go up to the TV to move the markers on the screen into the Elkonin boxes to mark each sound. Next, the other students showed the number of using cubes Juliana had passed out. She planned to project each student's work, without names attached, to error correct together as needed and have student models. After the opening activity, Juliana posted a picture of a glider and asked students to share ways in which people can fly. Students were able to respond in both English and Spanish. Next, she showed a video of a glider to help build background knowledge for the students and facilitate a discussion of how people fly.

Unlike the Juliana's pre-professional development lesson, in which the content came directly from the curriculum and was not based on student needs, the post-professional development lesson began with foundational skills, part of the ELD part three standards. Although students could not use the Pear Deck the way Juliana had planned, she utilized it to present information and still provide student feedback as best as she could. Unlike the initial lesson, the technology was implemented in a way to enhance feedback opportunities for the students, incorporating a practice of effective instruction for ELLs. Although the sweet spot of TPACK was not achieved, it was clear the lesson was more specifically designed for the needs of the ELL students, and that thought had

gone into how the students would engage with technology to enhance their language learning opportunities.

Sonja's D-ELD class was now mostly students from other kindergarten classes. The lesson started with a pantomime of building a snowman. Students then had to brainstorm other things they could do in the snow. With a partner, they then acted out one of the things they could do in the snow. The participant then used the promethean TV to project the following sentences "We all love a snowy day. Especially when we get to play" The class identified the rhyming words, and some more examples of rhymes were given orally. After practicing making rhyming words, the participant explained that they were going to write rhyming poems with a partner. The first would say something they could do in the snow, and the second person would make a rhyming sentence. This ended up being too difficult for the students. So instead, they wrote two sentences telling what they could do in the snow (did not have to rhyme) and recorded themselves performing their sentences in Seesaw. The students had to practice their sentences and take turns.

Sonja's lesson was the most student-focused technology-enhanced lesson of the participants. Her lesson focused on language skills and had students utilize technology collaboratively as active language constructors. These are all elements of effective instruction for ELLs. That said, although the technology-enhanced was student-focused, it did not hit the sweet spot of TPACK. During our coaching times together, Sonja discussed the desire to utilize Seesaw to teach students how to provide feedback to one another. In other words, Seesaw was used to create an authentic language community in which students could use technology to engage with one another in ways they otherwise could not.

Although two out of the three lessons did not go as planned, the post-lessons utilized technology for more than just the presentation of information. Additionally, the final lesson used technology for students to perform collaboratively. In Juliana's class, technology was going to enhance the ability to provide quick and actionable feedback, although this did not occur. The fifth graders used technology to complete a task with an authentic audience. In other words, these lessons demonstrated the beginning of a shift from technology as a teaching tool to focusing on the effective student use of technology to enhance their language learning.

**RQ3: Perception of Professional Development**

***Theme 5: Effective Professional Development is Practical and Applicable***

All three participants felt very positive about their experiences with the professional development. Juliana shared, "I feel like the whole workshop was beneficial." Sonja also conveyed similar sentiments when asked about the professional development, 'I think it was wonderful. 100% wonderful. It was just really, really helpful." Heidi said, "I'm very happy that I did decide to do this." She felt that despite the commitment, it was well worth the learning. Although the takeaways for each participant were slightly different, there was a commonality in why they felt the professional development was so beneficial: it addressed real practical needs in their classrooms. In addition, it was actionable, meaning they could immediately make relevant changes to their practice.

The individualized nature of coaching played a large part in the participants' feelings of applicability to their classrooms. When asked what the most impactful component of the professional development was, Juliana stated,

> The co-teaching and the co-planning I feel like that was such a great support, um, because you are so knowledgeable and, and you were able to help me, um, in those areas that, that I struggled with. When I was planning, I was able to ask you questions. Um, so just making sure that there's that type of support, um, and of course, all the resources you gave, I mean, resources, you know, resources, and then even thinking back about, you know, thinking back to, um, to the resources you gave us like that ELD companion, like knowing how to use our curriculum, too, knowing how to use our, our books, um, and how to, you know, find those areas and, and stuff. So that was important.

Juliana spoke about the usefulness of the shared resources as part of the workshops. These resources were valuable because they were immediately helpful to planning and assisted with the process. Additionally, as Juliana pointed out, we could use them together during co-planning, providing an opportunity for the participants to become more familiar and comfortable with the resources.

Heidi benefited from the coaching but felt the workshop focused on pedagogy and specific instructional strategies were the most beneficial. "Um, and I feel like maybe the one, if I had to like narrow it down, I think one of the ones that like really helped was like the different strategies that you can do." Unlike Sonja and Juliana, Heidi and I were only able to meet for five coaching sessions, and several of those sessions had to be rescheduled due to last-minute changes such as her preparation time being canceled or being notified the same day of an on-site "field trip". These last-minute schedule changes were outside of our control but did interfere with our ability to meet for coaching sessions when originally planned. Heidi felt the strategies were the most helpful because they

were the most applicable, and she could turn around and apply her learning immediately to her classroom.

# CHAPTER 5

## DISCUSSION, IMPLICATIONS, AND LIMITATIONS

The purpose of this qualitative action research case study was to examine the extent to which instructional coaching and workshops on TPACK affect in-service elementary teachers' technology integration in D-ELD at a school in the Central Valley in California. The study sought to explore the following research questions: What are the experiences of in-service elementary teachers in planning and teaching D-ELD after participating in instructional coaching and workshops on TPACK? (1) How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK? (2) How do in-service elementary teachers integrate technology into D-ELD before and after attending instructional coaching and workshops on TPACK? (3) What are teachers' perceptions of professional development using the TPACK framework? This chapter consists of the following sections: (a) discussions, (b) implications, (c) limitations, and (d) closing thoughts.

### Discussion

The study found that teachers' knowledge, confidence and ability to plan for D-ELD with technology integration improved with the TPACK professional development. Additionally, due to participating in professional development, there were shifts in their reported barriers to technology integration and how they used technology during instruction. Finally, the study found that teachers had a positive experience with

professional development because it could be immediately applied to their classroom. The study's results will be discussed in further detail with the extant research in the following sections.

**Research Question 1: How do in-service elementary teachers integrate technology in D-ELD lesson planning before and after attending instructional coaching and workshops on TPACK?**

To understand the impact of the TPACK professional development on teachers' planning for technology-enhanced D-ELD lessons, one must first revisit the definition of technology integration presented in chapter two. Technology integration is the process of planning for and utilizing technology tools, emphasizing the best tools and utilization to support student learning (Bitner & Bitner, 2002; Okojie et al., 2005). Therefore, instructional planning for technology integration is not just about a technology tool. Instead, it is about the learning objective and instructional context in which the technology tool(s) is/are utilized. In other words, technology integration is not the focal point, but content and effective instruction are at the forefront, and technology integration helps provide support.

In line with extant research on barriers to technology integration, this study found that participants experienced first- and second-order barriers. Second-order barriers are the individual teacher's attitudes, feelings, and knowledge (Ertmer & Ottenbreit-Leftwich, 2013). A teacher's confidence and self-efficacy often determines their willingness to integrate technology into their classrooms (Heineman, 2016; Liu et al., 2017; Swallow & Olofson, 2017). A lack of technology integration can also be due to teachers' pedagogical knowledge and beliefs (Durff & Carter, 2019; Ertmer & Ottenbreit-

Leftwich, 2013). In this study, participants' lack of confidence negatively impacted their planning for technology-enhanced D-ELD lessons. However, the reason for the lack of technology integration before the professional development diverged slightly from these studies. Unlike the findings of these studies, it was not the participants' confidence in their ability to utilize technology nor their belief in the role of technology in learning that led to a lack of technology integration. Instead, it was the participants' lack of knowledge in effective pedagogy for ELLs, specifically during D-ELD instruction. This lack of knowledge and confidence in teaching D-ELD led study participants to not integrate technology during D-ELD lessons despite feeling comfortable planning for technology-enhanced lessons in other subject areas.

In line with the definition of technology integration, technology integration was not at the forefront of this study. Instead supporting and developing the participants skills and knowledge of language learning and effective instruction for ELLs were the focal points and technology integration was secondary. Teacher training in which participants can build their knowledge and skills and collaborate with other teachers has been shown to effectively address second-order barriers such as a lack of knowledge, skills, and confidence (Durff & Carter, 2019; Ertmer & Ottenbreit-Leftwich, 2013). Although Juliana was the only study participant to specifically comment on the value of the TPACK framework for providing a guide and structure for her lesson planning, all participants gained more knowledge about effective pedagogy for D-ELD and felt more confident in their ability to plan for technology-enhanced D-ELD. Had the professional development only been focused on technology tools and how they could be utilized during D-ELD instruction, the professional development may not have had the same

impact given that the barrier was their general knowledge of D-ELD and effective pedagogies for ELLs.

Other studies have shown that teachers need to learn how to leverage technology tools for student learning (Al-Qallaf & Al-Mutairi, 2016; Anglin, 2017; Prince, 2018; Swallow & Olofson, 2017; Tondeur et al., 2017). Utilizing the TPACK framework as the foundation of the professional development provided the structure to build teachers' knowledge, skills, and confidence in the content of D-ELD and effective pedagogies, supporting their ability to plan for technology-enhanced D-ELD lessons. After all, as Ertmer and Ottenbreit-Leftwich (2013) wrote, "promoting best practice and effective pedagogy are at the very core of technology integration" (p. 181). The professional development allowed the participants to learn about best practices and effective pedagogy for D-ELD. As a result of the professional development, the study participants no longer experienced second-order barriers to technology integration.

The participants reported that they continued to experience first-order barriers. These are typically logistical barriers or those outside the specific realm of teacher control, such as access to devices, and lack of time for planning and implementation. (Ertmer, 1999). Sonja and Juliana both experienced issues with all students having access to a device as students were coming to their D-ELD class from other grade-level classes. Heidi and Sonja experienced challenges due to shared planning with their grade-level colleagues who were not as comfortable using technology. Although these barriers were experienced before and after the professional development, participants managed these barriers differently. Professional development incorporating design thinking can help teachers overcome first-order barriers (Makki et al., 2018). After attending the TPACK

professional development, Heidi, Sonja, and Juliana were all able to creatively approach the first-order barriers. In other words, the lack of access to devices and shared planning became challenges instead of barriers. The participants overcame these challenges in their planning for technology-enhanced lessons as they were more knowledgeable in the content of D-ELD, effective instructional practices, and how technology could support their students' language learning. As a result of their increased knowledge, the participants were more confident in their ability to plan for instruction. These findings support extant literature that shows by improving teachers confidence, they are more likely to integrate technology (Andrei, 2017; Heineman, 2016; Liu et al., 2017; Swallow & Olofson, 2017).

In addition to improving participants' confidence and ability to overcome barriers to technology integration, the professional development impacted how participants planned for D-ELD with technology integration. In line with Hoare et al.'s (2008) definitions of instructional planning, the participants' planning became a more systematic and deliberate process. This study adds to the growing body of research that the TPACK framework can be utilized to develop professional development to guide teachers through intentional planning (Beschorner & Woodward, 2019; Harris et al., 2013; Hutchison & Woodward, 2018; Pareto & Willermark, 2019). Incorporating content, pedagogy, and technology in the professional development helped the participants to systematically incorporate these elements into their thinking and planning (Greene & Jones, 2020; Koehler et al., 2013).

**Research Question 2: How do in-service elementary teachers integrate technology into designated ELD before and after attending instructional coaching and workshops on TPACK?**

Teachers' pedagogical beliefs are closely associated with how technology is integrated into instruction (Durff & Carter, 2019; Ertmer & Ottenbreit-Leftwich, 2013; Tondeur et al., 2017). Initially, the study participants utilized technology in teacher-centered ways to communicate information to the students. This was largely due to their lack of familiarity with effective pedagogy for ELLs during D-ELD instruction. However, after the professional development, the participants made greater attempts to leverage technology as a means to support research-based language learning practices and strategies. For example, technology was used to facilitate collaborative language learning (Chen & Brown, 2012; Kaya, 2015; Reyes & Vallone, 2008) and provide opportunities for students to be active producers of authentic language learning (Bofill, 2013; Walqui & Bunch, 2019). As a result, the participants began to shift their utilization of technology in student-centered ways that aligned with effective instruction for ELLs. In line with extant research, their shift in pedagogical knowledge allowed the participants to seek to integrate information and communication technology (ICT) tools such as Pear Deck, Seesaw, and Google Docs for collaborative writing (Koh et al., 2015; Parris et al., 2017; Uslu & Usluel, 2019).

That said, although a shift was noted in the use of technology in the classroom instruction of all the study participants there continued to be additional ways in which the technology could be levereaged for effective instruction for ELLs.. For example, Heidi used Google Docs in her lesson to create a collaborative piece of writing. However, the

students did not collaborate on Google Docs; each had an individual document despite multiple students' ability to edit a single document. Juliana used Pear Deck to engage her students and provide more opportunities for error analysis and immediate feedback. However, she had not yet reached the point of using Pear Deck collaboratively. Sonja's lesson utilized Seesaw as a means for students to collaboratively record their performance of a shared piece of writing. However, she had also expressed the desire to use the platform for students to be able to provide authentic feedback to their peers. It is possible that a longer professional development program for these study participants could have resulted in greater shifts towards student-centered technology integration.

**Research question 3: What are teachers' perceptions of professional development using the TPACK framework?**

This study found that the participants received professional development well and produced a change in practice because it was specific to a current need they were experiencing and was immediately actionable. These two findings are consistent with the extant research on effective professional development for technology integration and teaching ELLs. Teachers are most receptive to professional development addressing specific and current classroom needs (Burstein et al., 2014; Darling-Aduana & Heinrich, 2018; Dawson et al., 2008; Markham et al., 2017; Nasongkhla & Sujiva, 2015). At the beginning of the study, the three study participants expressed a desire to learn more about teaching D-ELD. However, they were unsure if how they planned and implemented instruction was "correct". They recognized a need in their knowledge and skills. The professional development implemented as part of the present study addressed these gaps.

Additionally, the learning was immediately applicable. As Heidi shared, the strategies were most impactful for her because she could apply her learning immediately. The strategies learned, be they instructional strategies or strategies for strategic planning, did not involve laborious preparation time, nor were they complex. As a result, all three participants felt the professional development was powerful because they could immediately see valuable changes in their planning and practice.

Sonja and Juliana found the coaching support to be most valuable to them. This on-going job-embedded professional development provides an opportunity for individualized support. Each participant was able to get support specific to their needs and goals. A growing body of research shows coaching to be an effective form of professional development that leads to changes in practice (Cavazos et al., 2018; Crawford et al., 2008; Endress, 2018; Heineman, 2016; Piña, 2019). Although Heidi valued the coaching experience, it was not as impactful for her. However, this may have been in part due to the scheduling challenges experienced during the study. Coaching is effective but it can also be challenging due to the time demands.

## Implications

This research has implications for me as a researcher and practitioner, for those who train and support classroom teachers, and for scholarly researchers. Action research is meant to be contextual and provide practical recommendations. The study implications will be discussed in detail in the following sections: (a) personal implications, (b) recommendations for the Curriculum, Instruction, and Assessment Department, and (c) implications for future research.

## Personal Implications

### *As a Researcher*

While conducting this research, I have learned the value of flexibility, but only in ways that honor and facilitate the study. Selective flexibility was necessary from the beginning of the research design all the way to the analysis. Initially, I wanted to design this study as a mixed methods study. However, as a researcher, I had to be open to recognizing that the design was not about what I wanted but instead was about the design that made the most sense to answer the research question and fit the study's context, location and limitations. For example, conducting professional development at a single school site was not conducive to the number of participants needed for quantitative analysis. The research questions could be answered through qualitative means.

During the implementation of the study, I had to be flexible with the workshops and coaching session dates. Due to circumstances outside of the control of myself and my participants, mandatory training for Heidi and Juliana was scheduled on the same day and at the same time as one of the workshops. This necessitated a change in the workshop dates. Additionally, both Heidi and Sonja missed a workshop session. Completely missing out on the content of the workshop, however, was not something with which I could let slide as it would potentially negatively impact the study. Therefore, I met individually with Sonja and Heidi to cover their missed workshop content. Although this still possibly impacted the study, the impact was minimized. Again, I had to be selectively flexible.

During data analysis, I had to be flexible in my thinking about the data. During my initial data review, I felt I had missed the mark with my research questions. I even

had a discussion with my dissertation chair to this end. I noticed that the richness of the data pointed not to the participants' planning or implementation of technology-enhanced D-ELD lessons but rather to their overall excitement and confidence in teaching D-ELD. However, after revisiting my definition of technology integration and sitting with the research questions, I was able to flex the lens through which I was viewing the data. These findings were valuable to understanding the professional development's impact on the participants' planning and implementation of technology-enhanced lessons.

These are just a few examples of selective flexibility needed as a researcher. Throughout the study, it is critical to question changes made. It is not that changes and adjustments cannot be made. In fact, sometimes changes must be made. However, the flexibility as a researcher must be intentional. I found that I had to ask myself, 'How do these changes impact the study? Will the changes detract from answering the research questions? Will they enhance the insight into the research questions? Are the other options to overcome barriers throughout the process?

***As a Practitioner***

As a coach of classroom teachers, the biggest implication for me was the value of trust between coach and coachee. Although trust was not identified as a theme of effective professional development through the data collected, trust certainly had a hand in the success of recruiting participants. During the presentation to the staff to recruit participants, Sonja stood up and spoke on my behalf, encouraging others to take advantage of an opportunity to work with me. She did this because she found value in our past working relationship and trusted that the time invested would be valuable. During one of our coaching sessions, Heidi mentioned that she had heard from several staff

members that they recommended working with me if she needed assistance with D-ELD. The trust built with the staff was established over time. In moving forward, establishing trust from the beginning will be critical.

## Recommendations for the Curriculum, Instruction & Assessment Department (CI&A)

### *Designing Professional Development*

One of the district academic coaches (DACs) responsibilities in the CI&A department is to design and implement professional development for K-6 teachers in all content areas. Based on the findings of this research, it is recommended that the DACs design professional development that is specific to a problem of need in teachers' classrooms, and outcomes of professional development should be immediately applicable. This means that although the design of the professional development and content should be based on best research practices, it is the responsibility of the DAC team to translate the research and theory into actionable and practical professional development for teachers.

As such, teachers should have an opportunity to plan collaboratively for instruction. In other words, they should leave the training with a plan for implementation so that professional development is not just knowledge for knowledge's sake. Additionally, the professional development design should incorporate opportunities for job-embedded support through some coaching. The DAC team, which currently consists of 12 teachers on special assignment, cannot realistically provide the level of one-on-one support for all 500 elementary teachers in the district. Therefore, more research will need to be conducted for a job-embedded professional model that can be realistically scaled up

to fit the limitations and demands of the DAC team. Additionally, the DAC team may need to be more strategic in which professional development opportunities provide classroom-level support. It may be that the DAC team will need to focus on key district initiatives in order to provide this level of support.

Another recommendation for the team when designing professional development is to incorporate elements of design thinking to help support teachers' instructional planning. In this case study, the TPACK framework was beneficial for both the professional development design and to structure teachers' planning. However, more research is needed to ascertain its usefulness in other subject areas or if another instructional design model would be beneficial. The takeaway for the DAC team is that design thinking should be attended to support teachers' instructional planning.

Finally, content professional developments should incorporate technology. In years past, the district had technology coaches who worked with teachers on how to best integrate technology. However, that team was disbanded a few years before I joined the district. As such, teachers have no support in designing and implementing technology-enhanced lessons, even though teachers and students have increasing access to technology tools. Technology integration should not be supported in isolation. It should be supported alongside continued learning about content and effective pedagogy. Technology tools do not drive content and pedagogical decisions. I would recommend that the integration of technology be incorporated into relevant content professional developments.

### *Supporting D-ELD*

When designing professional development specifically to support D-ELD, the recommendations as mentioned above also adhere to D-ELD. Additionally, the messaging from the district should be consistent. All three participants expressed a lack of confidence in knowing how to appropriately plan for and teach D-ELD. Sonja shared that the district direction has been different all five years she has been teaching with the district. If the messaging and direction continue to change and is inconsistent across departments, it will erode the teachers' trust in professional development from the CI&A department.

## Implications for Future Research

This study has several implications for future research. First, this study demonstrates that TPACK can be a helpful framework for studying teachers' knowledge and a useful framework to assist teachers in developing their knowledge and structuring their planning. However, additional research is needed. Future research can build upon and provide new insights by increasing the size of the study and utilizing different methodologies.

### *Increasing the size of the study*

The case study was small, with only three participants. Given the size of the study, it would be beneficial for future research to have more participants in the workshops and coaching and in the study to ascertain if the findings will be consistent. It would be interesting to note if the professional development impact would have been the same if there had been more participants. Would there have been a difference if more teachers of the same grade level had been able to collaborate in planning?

Additionally, as previously mentioned, more research is needed on designing job-embedded professional development on a larger scale to make more specific recommendations for the DAC team given the small number of DACs who support elementary teachers across the district. Future research could examine the impact of adjusting the professional development design for scalability.

### *Methodologies*

This qualitative case study provided an opportunity to dig deep into a few teachers' experiences. However, utilizing a mixed-method approach with more participants would benefit future studies. Specifically, a mixed method approach would provide an opportunity to explore professional development utilizing TPACK as a planning framework for technology integration through a different lens. Would all or most participants in a workshop such as this express the same opinions as these three participants? Would professional development still be effective on a larger scale? Teacher surveys of their experiences may have also provided different insights for developing interview questions.

### *TPACK as a Planning Tool in Other Subject Areas*

More research is needed for TPACK as a planning tool. Much of the current research surrounding TPACK exists as a tool to ascertain teachers' knowledge of pedagogy, content and technology. This research adds to the work of Pareto (2019) in which TPACK is used as a design framework for collaborative teacher planning. However, research in this area is limited. More research utilizing various methodologies and with various content areas is needed.

## Limitations

### Time Demands

Time demands on teachers as well as the impact of COVID-19 limited this study. In the fall when I first introduced these upcoming workshops and the study to the staff, 10 teachers said they were very interested in attending and participating and five more said they might participate. However, by the spring when I recruited for the workshops and study, only three teachers volunteered. Several teachers approached me privately and told me they were sorry they could not participate despite their interest. Many said they were just too busy. There was just too much going on. Time, particularly for teachers, is in very high demand. Additionally, burnout due to COVID-19 was a real issue. Many of the teachers expressed that they were just exhausted. Although the schools were no longer shut down, teachers were dealing with many behaviors and challenges they had not previously experienced. By the spring semester, these teachers said they could not do one more thing. As a result, the study did not have as many participants as had been previously hoped for.

Time was also a limiting factor in two ways for the study participants. First, the workshops were not all offered when originally planned. We had to shift the timeline back slightly after a school training was scheduled at the same time as one of the workshops. Despite clearing the workshop dates with the school principal, mandatory training for third through sixth-grade teachers was scheduled during one of the workshops. Our workshops, therefore, had to be pushed back a week. A similar type of time conflict also occurred when planning coaching time. For example, when scheduling a coaching time with Heidi, she did not find out until that morning that an on-site field

trip for her students had been scheduled. Therefore, we could not find another time to meet that week. The loss of a coaching session may have impacted Heidi's identification of strategies as the most beneficial aspect of the professional development. Heidi was the only participant who missed a coaching session and was the only one of the three who did not identify coaching as being the most impactful element.

**Small Sample Size**

As previously mentioned, the number of participants was smaller than anticipated. Having only three participants in the study limited the study in several ways. First, the workshops were designed to provide the participants with time for collaborative planning. With only four workshop participants across three grade levels, Kindergarten, third and fifth grades, participants could share their plans and ideas with one another; however, their ability to collaboratively plan with one another was limited as they had different curricula and standards. This meant that the participants were really only able to collaboratively plan with me during our coaching sessions as opposed to also being able to collaboratively plan with other classroom teachers.

Additionally, only having three participants made it challenging to identify themes within the data. In conducting the thematic analysis, I looked for commonalities across all three participants. Had there been more participants, there may have been more variability in the data as well as themes present in most but not all participant data. Therefore, it is possible that the findings from this study are more limited in their scope given the small sample size.

### Change from Self-Contained to Deployment D-ELD Model

All D-ELD classes were self-contained when the study began due to COVID restrictions. This meant that all study participants had their own students and had all ELL levels and English only students during D-ELD. This also meant that, although all participants conducted shared planning with their grade-level colleagues, there was more autonomy in what and how they planned for and taught D-ELD. About halfway through the professional development, the COVID restrictions limiting student movement were lifted, and all grade -levels were required to deploy for D-ELD by ELL level. This meant that all study participants had new D-ELD classes of ELL students from other classes. As a result, the participants were more tied to the shared planning of their grade level. This meant that all participants were utilizing the district-provided D-ELD curriculum. However, they did have the autonomy to integrate technology. This change also meant that the participants had to spend some time getting to know the linguistic needs of their new D-ELD students. This change impacted the focus of our coaching sessions and may have impacted the change in participants' planning and technology integration.

### Methodological Limitations

Firstly, a case study typically involves a small sample size, often a single individual or a small group of individuals, and this small sample may not represent the larger population. This case study's findings may not apply to other populations or contexts due to demographic, cultural, and social variations. Additionally, this case study relied heavily on my interpretation of the data, which can introduce bias and subjectivity. My background, beliefs, and experiences can influence how I interpreted and analyzed the data, which can affect the generalizability of the findings.

Moreover, this study is exploratory in nature and did not involve hypothesis testing or statistical analysis. This can make it difficult to generalize the findings to a larger population, as statistical tests are not used to determine the significance of the results. Therefore, while this case study can provide valuable insights into teachers planning for technology-enhanced D-ELD, the findings should not be used to make generalizations about a larger population or context.

## Closing Thoughts

Based on the research findings, it can be concluded that professional development can be an effective approach to addressing the problem of practice of teachers being underprepared to teach English Language Learners (ELLs) and the lack of instructional planning for Designated-English Language Development (D-ELD). The study found that after participating in professional development, teachers gained confidence in their ability to plan for technology-enhanced D-ELD, were more intentional in their planning, overcame first-order barriers to technology integration, and began to use technology in more student-centered.

The TPACK framework was valuable as a framework to guide instructional planning as well as the design of the professional development. Furthermore, the study found that effective professional development is practical and provides classroom-level support opportunities. This highlights the importance of providing targeted professional development to support teachers in integrating technology into their instruction for ELLs. Providing effective instruction for our ELLs is crucial. However, it starts by supporting the knowledge and skill of our teachers to plan for their instruction.

Overall, this study underscores the importance of providing ongoing professional development to help teachers effectively support the needs of ELLs and leverage technology in D-ELD instruction. By doing so, teachers can be better prepared to provide high-quality instruction that meets their ELL students' needs.

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# APPENDIX A
# CONSENT FORMS

## UNIVERSITY OF SOUTH CAROLINA

## CONSENT TO BE A RESEARCH SUBJECT

Preparing In-Service Elementary Teachers to Support English Language Learners: A Qualitative Case Study of a Job-Embedded Professional Development using TPACK

### KEY INFORMATION ABOUT THIS RESEARCH STUDY:

You are invited to volunteer for a research study conducted by Rachel Lopez. I am a doctoral candidate in the Department of Education, at the University of South Carolina. The University of South Carolina, Department of Education is sponsoring this research study. The purpose of this study is to examine the extent to which instructional coaching and workshops on TPACK affect in-service elementary teachers' technology integration in Designated English Language Development (D-ELD). You are being asked to participate in this study because you are a general education teacher. This study is being done at Sierra Vista Elementary School and will involve approximately five volunteers.

The following is a short summary of this study to help you decide whether to be a part of this study. More detailed information is listed later in this form.

*As a participant in this study, you will participate in a job-embedded professional development to build your knowledge of planning for D-ELD instruction with technology integration. The study will consist of three phases, (1) pre-PD data collection, (2) PD, and (3) post-PD data collection. The study will last ten weeks. The PD will consist of five 90 minute after-school workshops to be offered over six weeks The workshop topics are:*

1. *Overview and Context*
2. *Language Demands of Content Lessons*
3. *Effective Pedagogy for Teaching English Language Learners*
4. *Technology Integration to Support English Language Learners*

5. *The Interplay of Technological Pedagogical and Content Knowledge Along with the workshops, you will receive weekly one-on-one coaching with me. Coaching will include co-planning and co-teaching or lesson observations and lesson debriefs. Coaching provides an opportunity for you to receive support specific to your professional learning goal related to planning for D-ELD. By participating in the study, you will increase your ability to plan for instruction to support the linguistic needs of your ELL students across content areas in D-ELD.*

**PROCEDURES**:
If you agree to participate in this study, you will do the following:

1. Complete all pre-PD data collection tasks including:
    1. Interview (approx. 30 min)
    2. Planning Think-Aloud session (You and I will meet as you plan for D-ELD instruction. You will think out-loud as you plan, providing explanations of your planning process) (Approx. 30 min)
    3. D-ELD lesson observation (I will observe a D-ELD lesson in your classroom)
    4. Submit a D-ELD lesson plan and instructional materials (this can be of the lesson you planned during the Think Aloud session)
2. Attend all five after-school workshops
3. Participate in all coaching activities
    1. One co-planning session per week (for 6 weeks) (approx. 45 min.)
    2. I will co-teach or observe the co-planned lesson each week (for 6 weeks)
4. Complete all post-PD data collection tasks including:
    1. Interview (approx. 30 min)
    2. Planning Think-Aloud session (You and I will meet as you plan for D-ELD instruction. You will think out-loud as you plan, providing explanations of your planning process) (Approx. 30 min)
    3. D-ELD lesson observation (I will observe a D-ELD lesson in your classroom)
    4. Submit a D-ELD lesson plan and instructional materials (this can be of the lesson you planned during the Think Aloud session)

**DURATION**:
Participation in the study will last for 10 weeks. The time commitment will vary depending on the phase of the study.

- **Phase 1: Pre-PD Data Collection** ○ Duration: Approximately 2 weeks ○ Time commitment outside of instructional time: 1 hour – 1 ½ hour (during prep time or after-school depending on your preference)
- **Pase 2: Professional Development**
  ○ Duration: 6 weeks ○ Time commitment outside of instructional time
  § Workshops: 90 minutes/week after duty day (no workshop in week 5) § Coaching: 45 min/week (during prep time or after-school depending on your preference)
- **Phase 3: Post-PD Data Collection** ○ Duration: Approximately 2 weeks ○ Time commitment outside of instructional time: 1 hour – 1 ½ hour (during prep time or after-school depending on your preference)

**RISKS/DISCOMFORTS**:
Loss of Confidentiality:

There is the risk of a breach of confidentiality, despite the steps that will be taken to protect your identity. Specific safeguards to protect confidentiality are described in a separate section of this document.

**BENEFITS**:
You may benefit from participating in this study by receiving one-on-one coaching to further develop your knowledge of content language demands, pedagogy for teaching ELLs, and best practices for integrating technology to support English Language Learners.

**COSTS**:
There will be no costs to you for participating in this study other than possible costs related to transportation to and from the research site.

**PAYMENT TO PARTICIPANTS**:
You will not be paid for participating in this study.

**CONFIDENTIALITY OF RECORDS**:
Information obtained about you during this research may be published, but you will not be identified. Information that is obtained concerning this research that can be identified with you will remain confidential to the extent possible within State and Federal law. The investigators associated with this study, the sponsor, and the Institutional Review Board will have access to identifying information. All records in South Carolina are subject to subpoena by a court of law. Study information will be securely stored in locked files and on password-protected computers.

**VOLUNTARY PARTICIPATION**:

Participation in this research study is voluntary. You are free not to participate, or to stop participating at any time, for any reason without negative consequences. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner. If you wish to withdraw from the study, please call or email Rachel Lopez.

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. **If I have any more questions about my participation in this study or a study-related injury, I am to contact Rachel Lopez at (559) 824-8118 or email rblopez@email.sc.edu.**

Concerns about your rights as a research subject are to be directed to, Lisa Johnson,

Assistant Director, Office of Research Compliance, University of South Carolina, 1600 Hampton Street, Suite 414D, Columbia, SC 29208, phone: (803) 777-6670 or email: LisaJ@mailbox.sc.edu.

I agree to participate in this study. I have been given a copy of this form for my own records.

If you wish to participate, you should sign below.

Christina Vasquez-Coy

Signature of Subject / Participant Date 1/11/22

UNIVERSITY OF SOUTH CAROLINA

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The following is a short summary of this study to help you decide whether to be a part of this study. More detailed information is listed later in this form.

As a participant in this study, you will participate in a job-embedded professional development to build your knowledge of planning for D-ELD instruction with technology integration. The study will consist of three phases, (1) pre-PD data collection, (2) PD, and (3) post-PD data collection. The study will last ten weeks. The PD will consist of five 90 minute after-school workshops to be offered over six weeks The workshop topics are:

1. Overview and Context
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3. Effective Pedagogy for Teaching English Language Learners
4. Technology Integration to Support English Language Learners
5. The Interplay of Technological Pedagogical and Content Knowledge Along with the workshops, you will receive weekly one-on-one coaching with me. Coaching will include co-planning and co-teaching or lesson observations and lesson debriefs. Coaching provides an opportunity for you to receive support specific to your professional learning goal related to planning for D-ELD. By participating in the study, you will increase your ability to plan for instruction to support the linguistic needs of your ELL students across content areas in D-ELD.

## PROCEDURES:

If you agree to participate in this study, you will do the following:

1. Complete all pre-PD data collection tasks including:
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    4. Submit a D-ELD lesson plan and instructional materials (this can be of the lesson you planned during the Think Aloud session)
2. Attend all five after-school workshops
3. Participate in all coaching activities
    1. One co-planning session per week (for 6 weeks) (approx. 45 min.)
    2. I will co-teach or observe the co-planned lesson each week (for 6 weeks)
4. Complete all post-PD data collection tasks including:
    1. Interview (approx. 30 min)
    2. Planning Think-Aloud session (You and I will meet as you plan for D-ELD instruction. You will think out-loud as you plan, providing explanations of your planning process) (Approx. 30 min)
    3. D-ELD lesson observation (l will observe a D-ELD lesson in your classroom)
    4. Submit a D-ELD lesson plan and instructional materials (this can be of the lesson you planned during the Think Aloud session)

## DURATION:

Participation in the study will last for 10 weeks. The time commitment will vary depending on the phase of the study.

- Phase 1: Pre-PD Data Collection o Duration: Approximately 2 weeks o Time commitment outside of instructional time: 1 hour — 1 1/2 hour (during prep time or after-school depending on your preference) . Pase 2: Professional Development o Duration: 6 weeks o Time commitment outside of instructional time

S Workshops: 90 minutes/week after duty day (no workshop in week 5) S Coaching: 45 min/week (during prep time or after-school depending on your preference)

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## RISKS/DISCOMFORTS:

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## BENEFITS:

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Signature of Subject / Participant

Date 11/10/22

UNIVERSITY OF SOUTH CAROLINA

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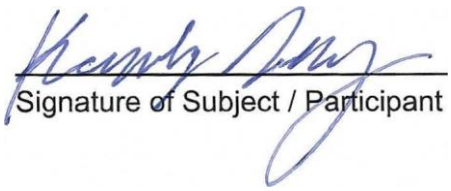
I agree to participate in this study. I have been given a copy of this form for my own records.

If you wish to participate, you should sign below.



Signature of Subject / Participant

Date 1/14/22

# APPENDIX B
# INTERVIEW PROTOCOLS
## Initial Teacher Interview Protocol

**Say to the participant:** *Thank you very much for taking the time to meet with me today. I am going to record today's interview to help me with transcribing the interview and ensure that I capture your voice accurately. The recording will not be shared with anyone else, and your name will not be attached to the recording. Is that ok with you?* (If the participant does not consent to being recorded. Turn off the recording. Ask if it is still ok to proceed with the interview. If so, take copious notes. If not, thank them very much for their time and end the data collection). If the participant consents, proceed with the interview. *The interview today will provide insight into how you plan for instruction. Please keep in mind that there are no right or wrong answers. I appreciate your genuine feedback and thoughts. All responses will be kept in complete confidence. You can skip any questions you would rather not answer, and you can stop the interview at any point. Do you have any questions for me before we begin?*

**Interview questions**

Note: The questions do not have to be asked in the specific order and can be rephrased as needed for each interview. However, all interviews should cover the content as is outlined by these questions.

**Planning**

- *Please describe how you plan for D-ELD.*

    - *What factors do you consider when planning?*
    - *How do you determine the learning objectives or focus of a lesson?*
    - *Please describe how you select and plan instructional activities?*
    - *What instructional materials do you use and why?*
    - *How frequently do you plan for student use of technology during D-ELD lessons?*
    - *Can you describe how you integrate technology into your lessons?*
- *How comfortable do you feel in your ability to plan for D-ELD?*
    - *Please describe what you know about you ELL students.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps of your knowledge of your ELL students? If so, please explain.*
    - *Please share what you know about language development for ELLs.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps in your knowledge of language development? If so, please explain.*
    - *Please share what you know about effective instruction for ELLs.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps in your knowledge of effective instruction for ELLs? If so, please explain.*
    - *Please share what you know about technology integration during D-ELD.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps in your knowledge of technology integration for D-ELD? If so, please explain.*
-

**Prompts to Elicit Additional Information**

Note: Use the following prompts as needed to elicit more information

- *Repeat the question*
- *Anything else?*
- *Any others?*
- *Could you tell me more about your thinking on …?*
- *Can you explain that further?*

## Final Teacher Interview Protocol

**Say to the participant:** *Thank you very much for taking the time to meet with me today. I am going to record today's interview to help me with transcribing the interview and ensure that I capture your voice accurately. The recording will not be shared with anyone else, and your name will not be attached to the recording. Is that ok with you?* (If the participant does not consent to being recorded. Turn off the recording. Ask if it is still ok to proceed with the interview. If so, take copious notes. If not, thank them very much for their time and end the data collection). If the participant consents, proceed with the interview. *The interview today will provide insight into how you plan for instruction and your thoughts on the design of the professional development. Please keep in mind that there are no right or wrong answers. I appreciate your genuine feedback and thoughts. All responses will be kept in complete confidence. You can skip any questions you would rather not answer, and you can stop the interview at any point. Do you have any questions for me?*

**Interview questions**

Note: The questions do not have to be asked in the specific order and can be rephrased as needed for each interview. However, all interviews should cover the content as is outlined by these questions.

**Planning**

- *Please describe how you plan for D-ELD.*
    - *What factors do you consider when planning?*
    - *How do you determine the learning objectives or focus of a lesson?*
    - *Please describe how you select and plan instructional activities?*
    - *What instructional materials do you use and why?*
    - *How frequently do you plan for student use of technology during D-ELD lessons?*
    - *Can you describe how you integrate technology into your lessons?*
- *How comfortable do you feel in your ability to plan for D-ELD?*
    - *Please describe what you know about you ELL students.*

        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps of your knowledge of your ELL students? If so, please explain.*
    - *Please share what you know about language development for ELLs.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps in your knowledge of language development? If so, please explain.*
    - *Please share what you know about effective instruction for ELLs.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps in your knowledge of effective instruction for ELLs? If so, please explain.*
    - *Please share what you know about technology integration during D-ELD.*
        - *How does that knowledge impact your planning?*
        - *Do you feel you have any gaps in your knowledge of technology integration for D-ELD? If so, please explain.*
- *How have the coaching and workshops impacted your planning process, if at all?*

**Professional Development**

- *What elements of the professional development did you find to be the most impactful on your work?*
- *What elements of the professional development did you find to be the least impactful on your work?*
- *Do you feel you have grown professionally by participating in the professional development? Why or why not?*
- *What if anything would you change about the design of the professional development?*
- *What if anything would you want to have in the design of your next professional development?*

**Prompts to Elicit Additional Information**

Note: Use the following prompts as needed to elicit more information

- *Repeat the question*
- *Anything else?*
- *Any others?*
- *Could you tell me more about your thinking on …?*
- *Can you explain that further?*

# APPENDIX C
# CLASSROOM VISIT RECORDING SHEET

*Observations will be conducted during a 45-minute D-ELD lesson. The observer will simply be an observer and will not co-teach. Utilize the following form to collect data during the observation.*

<table>
<tr><td>Grade Level:</td><td>Date and Time:</td><td colspan="2">Teacher (pseudonym):</td></tr>
<tr><td colspan="4">Content: Record observations related to learning objectives and alignment of the learning activities to the learning objectives.</td></tr>
<tr><td colspan="4">Pedagogy: What pedagogies is the teacher utilizing? How are students engaging with the content?</td></tr>
<tr><td colspan="2">Teacher Technology: How is the teacher engaging with technology?</td><td colspan="2">Student Technology: How are the students engaging with technology?</td></tr>
<tr><td colspan="4">Additional Notes:</td></tr>
</table>