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Teachers' and Education Leaders' Perspectives on Using Technology to Develop Vocabulary Among Kindergarten English Learners

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Abstract

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MA, California State University, San Bernardino, 2015

BS, University San Buenaventura, 1995

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Research has shown that technology-mediated interventions in education can increase students' understanding of academic vocabulary. However, it is not known how teachers provide opportunities for kindergarten English learners (ELs) to learn vocabulary using technology, and school leaders support teachers in this endeavor. The purpose of this basic qualitative study was to understand teachers' and school leaders' perspectives on opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school in the southwest United States. The theoretical framework for this study was based on Cummins's theory of basic interpersonal communication skills and cognitive academic language proficiency. Using purposeful sampling, 14 participants, who were kindergarten teachers, principals, assistant principals, and English language development coordinators in the southwest United States, participated in semistructured interviews and focus groups via Zoom. Data were analyzed using Braun and Clarke's six-step thematic coding. Findings indicated that teachers implement five kinds of technology. Results also show that technology integration and educational leaders' support are directly linked to ELs' academic success. Recommendations included using a different study design, a larger sample size, and different student population. The results of this study may have implications for positive social change by helping education leaders and teachers understand the need for technology integration in instruction and its impact on ELs' academic success, preparation for civic life, and competing successfully in the workforce in the 21st century.

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Dedication

I dedicate this research study to my parents, Ramiro and Edelmira, who are in heaven. They sacrificed their lives for me to have an education and become a professional. My parents believed education was the ticket to a better life. They felt that I needed to be the best and reach the pinnacle. Today, I can say, Mom and Dad, I made it! Thank you for showing me the path to success. I love you forever.

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Thank you, God, for giving me the knowledge to complete my doctorate and helping me throughout the journey. I would not have done it without your help. Thank you, Committee Chair Dr. Robert Voelkel, for guiding me throughout this process and helping me reach the finish line. Thank you, Dr. Donna Thomas, for your input and for helping me become a scholar. Thank you, Dr. Todd, for being my mentor.

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Chapter 1: Introduction to the Study

Introduction

In this study, I explored how teachers provide opportunities for English learners (ELs) to use technology to develop vocabulary and how education leaders support that endeavor in an urban school system in the southwest United States. Students need to be educated about the use of technology to be prepared for the 21st century. Nonetheless, technology implementation in the classroom has been hampered for various reasons (Baker & Irwin, 2021; Gondwe, 2021).

In this chapter, I explain some of the issues about educators and technology. The significance of this study and the background of the problem is then presented. The framework of the study is also discussed because it is the foundation of the study. The research questions are stipulated, along with the nature of the study. To understand the use of key terms, definitions are provided. The assumptions, delimitations, and limitations are then discussed. The chapter ends with a summary.

Background

In this study, I was focused on understanding how teachers provide opportunities to use technology to enhance vocabulary in kindergartner ELs and how education leaders support that endeavor in an urban school system in the southwest United States. ELs are the fastest-growing population in the United States that attend public schools, increasing from 4.5 million in 2010 to 5.0 million in 2018 (National Center for Education Statistics, 2022). In 2015, 15.1% of ELs were in kindergarten, while in Grade 6, there were 8.9% (National Center for Education Statistics, 2022). Most were in California (19.4%), and in

Texas, the enrollment was 18.7% (National Center for Education Statistics, 2022). However, there is a significant number of ELs throughout the country (Wang, 2021). ELs tend to perform lower than non-ELs in math and reading (U.S. Department of Education, 2018). ELs not only perform lower on the National Assessment of Educational Progress (NAEP) but also have a lower graduation rate in high school (Fisher & Frey, 2018). Early language education development plays a substantial role in the academic lives of students (Yin et al., 2021). The link between ELs' first language and second language development has attracted many studies (Lucero, 2018).

The Every Student Succeeds Act (ESSA) mandates an annual assessment of students' language proficiency (U.S. Department of Education, 2018). States must provide all ELs with accommodations for the assessment (U.S. Department of Education, 2018). The outcomes of ELs are highly dependent on both the quality of instruction and the quality of the intervention (Tong et al., 2017). ELs have opportunities to participate in language assistance programs (Redford, 2018). For example, an English as a second language (ESL) program is offered in Texas. Still, many states do not provide dual language support programs due to the lack of resources and policy issues (Boyle et al., 2015). Professional development benefits kindergartners' oral language development and improves teachers' instructional approach and pedagogical behavior (Kidd & Rowland, 2021). Teachers need to teach vocabulary at the elementary level and give young students fun ways to learn (Biesaga, 2017; Cahyati & Madya, 2019; Khan et al., 2018; Vitasmoro et al., 2019).

English vocabulary is taught in elementary schools to ELs and students who live in countries where English is not the primary mode of communication (Permana, 2020). In the United States, English is taught as a second language to students who speak another native language at home (U.S. Department of Education, 2018). To understand the message, vocabulary mastery is required (Khan et al., 2018). Young children must learn the correct meanings of words because this impacts their academic lives and how they are taught (Alqahtani, 2015). Therefore, teachers need to focus on grammar and vocabulary (Permana, 2020). According to Cahyati and Madya (2019), vocabulary teaching must begin early in elementary school. Young children learn best by using interactive media such as songs, games, videos, and singing and dancing (Biesaga, 2017; Pratama & Permana, 2018; Vitasmoro et al., 2019).

One effective way of teaching vocabulary is the picture word inductive model (Zhao & Lornklang, 2019). Pretests and posttests taken in this model showed that posttest scores were significantly higher, and picture word content encourages students to think inductively (Zhao & Lornklang, 2019). Songs were beneficial in enhancing vocabulary mastery as students are exposed to the language they are learning, and songs help them recognize the meaning of words (Ma'rifat, 2017; Pavia et al., 2019). Permana (2020) found that games, pictures, and songs are three effective strategies for teaching children vocabulary in elementary school and increasing motivation to learn English. These three ways of learning create fun ways to learn and a positive learning environment (Permana, 2020).

Technology is used in schools to teach students English in pre-kindergarten and kindergarten. Several toys and games are used to teach ESL. Abdi and Cavus (2019) developed a cost-effective, sustainable, and educational toy for pre-kindergarten children ages 4–5 years to teach ESL in developing countries. However, danger-free is never defined. This toy was designed with Raspberry Pi, which uses radio-frequency identification (RFID) technology (Abdi & Cavus, 2019). Five games contained within the toy were tested. Developers deemed the game user-friendly because children were observed enjoying it as they learned. Furthermore, the results indicated that the toy could be used to help children between ages 4 and 5 learn English, which is especially useful in developing countries due to the low cost.

Lee et al. (2019) developed a mobile multiplayer word-guessing game in which a player can construct a virtual figure for an English word using an AR block builder. Other players can guess the correct word from the virtual figure using their imagination. A preliminary user evaluation demonstrated that the game facilitated players' learning of English vocabulary while fostering creativity. Lee et al. (2019) suggested that this mobile game would help form a learning community and could serve as a stepping stone for more involved collaborative learning activities in English learning.

Digital screen sharing and using e-books to enhance learning can benefit young students. Seventy-seven kindergarten students at risk for learning disabilities were pretested and posttested using e-books with and without metacognitive guidance to determine the effects of e-books on vocabulary acquisition (Shamir et al., 2018). The results of the study indicated that the use of e-books had a long-term impact on

vocabulary acquisition, affirming the advantages of incorporating technology to support vocabulary acquisition into pedagogy to ensure effective learning (Shamir et al., 2018). Meskill et al. (2020) focused on kindergarten students to examine teachers' mediation on using digital screens in teaching a second language. Teacher mediation involves guiding the child through a game when they have difficulties and want support. The findings revealed that with teacher mediation and digital screen sharing, students enjoyed the shared screen experiences and expanded their vocabulary and richness of conversation (Meskill et al., 2020).

Teachers face challenges integrating effective technology into their work partly due to a lack of technology competencies (Gondwe, 2021). According to Gondwe (2021), professional development aimed at providing technology information for teachers would help as technology has become prominent internationally. Research has shown that technology-mediated interventions can increase students' understanding of academic vocabulary (Fogarty et al., 2020). The participants in this study were 100 third graders from two different states. Another criterion for being a participant was having difficulty reading, so they went through 29 additional lessons in vocabulary instruction. The regression analysis findings showed significant differences using the vocabulary technology compared to their reading ability before the extra lessons. Therefore, vocabulary technology could be effective in additional instruction (Fogarty et al., 2020).

Wright-Odusoga (2020) created a 3-day professional development for K–12 school principals, which included strategies to help K–12 school principals with ways to support teachers who teach ELs. Teachers need to be supported by school leaders, such as

principals, who also need to be proficient in using technology in education (Wright-Odusoga, 2020). Wright-Odusoga found that K–12 school principals needed professional development in supporting teachers who teach ELs. The findings also revealed that school principals needed to focus on helping ELs reach their highest potential. Both principals and teachers need to learn how to integrate educational technologies into the curriculum (Wright-Odusoga, 2020). Resources also need to be directed to literacy teachers and mentoring principals and teachers. The study site was limited because only principals in one school in the Middle East received professional development. A weakness of this study was the small number of interviewed participants, limited to principals, and no teachers were interviewed. A strength was the positive social change brought about by the study about how principals can better support teachers who teach literacy to ELs.

Dodson et al. (2020) surveyed 8,535 K–12 active principals in eight states regarding what drives instruction, educational goals, technology, or a combination of both. Most surveyed principals indicated that technology enhances educational attainment in the classroom. The findings of this study illustrate the effectiveness of technology in driving instruction, including vocabulary development (Dodson et al., 2020). However, Esplin et al. (2018) found that principals need more technology preparation to lead and support their schools, as did Wright-Odusoga (2020). This study shows how principals' lack of technology knowledge and leadership can hinder technology integration into teaching and learning, essential for student readiness in the 21st century. Researchers have also found that implementing one-to-one laptops in classrooms has several

challenges, including funding, teacher reluctance, and expectation (Gondwe, 2021). Gonzales (2020) recommended that future researchers explore school leaders' perceptions about implementing technology in language instruction and the influence of school leaders on teachers. Therefore, technology needs to be integrated into the classroom curriculum, and greater understanding is required regarding how teachers and school leaders provide opportunities for kindergarten ELs to use technology to develop vocabulary (Baker & Irwin, 2021; Gonzales, 2020).

Problem Statement

Despite research that has shown how education technology-mediated interventions can increase students' understanding of academic vocabulary (see Fogarty et al., 2020), it is not known how teachers provide opportunities for kindergarten ELs to learn vocabulary using technology and how educational leaders support that endeavor. There are potentially better ways of teaching kindergarten students because they are not being taught vocabulary using education technology or learning technology skills for future use. This study addressed the problem of understanding how teachers use different kinds of technology to enhance the learning of students in lower grades, including kindergarten.

Research has shown that education technology-mediated interventions can increase students' understanding of academic vocabulary (Fogarty et al., 2020). In Abdalla's (2021) study, 96.3% of teachers agreed that the internet could be used to teach vocabulary; 3.7% disagreed. Using new technology in the classroom can enhance English vocabulary (Abdalla, 2021). Furthermore, 58.8% of teachers in the study agreed that

learning vocabulary is often neglected when students learn a new language, even though the two are connected (Abdalla, 2021). Research is needed into how teachers use different kinds of technology to enhance student learning in lower grades, including kindergarten (Abdalla, 2021; Lee et al., 2017; Meskill et al., 2020). The use of technology in learning is a topic that needs more research (Karami, 2019).

Wong and Samudra (2019) recommended further study into computer-assisted language learning for foreign language learners. Gonzales (2020) suggested that future researchers should explore school leaders' perceptions about implementing technology in language instruction and leaders' influence on teachers. Karami (2019) called for more research on using audio-visual technology, such as videos, including full-length and short clips, on young learners' vocabulary attainment. Although there have been studies in English language learning settings, more research is needed that is focused on "culturally and linguistically diverse students" (p. 67).

The achievement gap can be defined as when one group of students outperforms another, usually based on grade point averages or standardized tests (Hung et al., 2020). One of the achievement gaps in the literature is lower test scores for ELs compared to their peers (Hung et al., 2020). ELs are students who have yet to attain competence in the English skills of speaking, listening, writing, or reading. Due to the lack of these English skills, ELs have difficulty performing in other classes when the content is taught only in English (Hopkins et al., 2013). A report by the NAEP showed that, over 15 years, there had been a "stall of non-English speakers" (Carnoy & Garcia, 2017, p. 1). At first glance, this looks like good data, but comparing performance between ELs and non-ELs is

misleading. Saunders and Marcelletti (2013) labeled this gap as the “gap that can’t go away” (p. 139). The gap has always been there because students who are successful in learning English have not been included in the analysis. Kieffer and Parker (2016) and Kieffer and Thompson (2018) showed that between 25% and 50% of kindergarten ELs are reclassified before they reach fourth grade. Between 70% and 85% are reclassified before they reach the eighth grade. The wide range of differences in percentages is due to the difference in state estimates (Kieffer & Thompson, 2018). The conclusion is that the needs of ELs are not being fulfilled by the current educational programs, policies, and pedagogies (Kieffer & Thompson, 2018).

Esplin et al. (2018) stated that lack of technology leadership hampers technology integration in teaching and learning. In a study of 15 school administrators in the western region of the United States, Gonzales (2020) found that school leaders failed to implement technology for various reasons, including lack of professional development and teacher resistance. In recent studies on the use of different technologies in aiding ELs in vocabulary acquisition, researchers have found that these technologies motivate and benefit students when used in the classroom (Chen & Chan, 2019; Shamir et al., 2018). According to Amin (2019), future research must focus on the most efficient language learning techniques and technology.

Teachers use technology to teach vocabulary in classes for young ELs (Alam & Mizan, 2019; Cassady et al., 2018; Lee et al., 2017; Meskill et al., 2020; Xin & Affrunti, 2019). Researchers have found that children learn vocabulary when teachers use video, voice, and animation accompanied by visual elements (Martinez et al., 2022). Educators

and linguists have suggested the integration of practical and exciting technology into vocabulary learning (Albaladejo et al., 2018). Still, technology enhancement must be developmentally appropriate (Gómez et al., 2019), and studies focused on preschool education are lacking (Yilmaz et al., 2019). Several researchers have highlighted areas that need research, such as using interactive learning environments (Phadung et al., 2016). Yilmaz et al. (2019) called explicitly for a study at the preschool level in foreign language teaching. Although how teachers use technology to teach vocabulary was not mentioned, the combined studies above allow the projection of needed studies. Researchers have called for more qualitative research to explore stakeholders' perceptions of the use of technologies in general, including educators, parents, and those learning a language (Khoshnevisan, 2021; Nikolopoulou, 2021). Karami (2019) called for more research on using audio-visual technology, such as videos, including full-length and short clips, on young learners' vocabulary attainment. Although there have been studies in English language learning settings, more research is needed to focus on "culturally and linguistically diverse students" (p. 67). This is the gap I intended to fill with this study.

Haynes and Shelton (2018) conducted a study on growing school capacity in the digital age, providing a structure for school leaders to implement technology in their curricula. Furthermore, most schools need more strategies to implement technological learning (Haynes & Shelton, 2018). In a study of computer-assisted instruction with 28 kindergarten and first-grade ELs, Cassady et al. (2018) found that first graders experienced more excellent vocabulary proficiency. Still, vocabulary acquisition among kindergarten ELs was less consistent. Xin and Affrunti (2019) studied five third-grade

ELs who usually used flashcards to learn vocabulary. IPads were introduced, and students received instructions on how to use them to increase vocabulary. The results showed that using iPads for vocabulary instruction was beneficial in helping students with comprehension, word meaning, and recognition. Meskill et al. (2020) researched digital screens with 20 kindergartners and three educators and found that digital screens improved vocabulary and language skills among bilingual students.

Moreover, Gonzales (2020) highlighted the importance of the awareness of school leaders in using technology in classroom instruction and its influence on teachers. Baker and Irwin (2021) found that a successful implementation of a technology initiative depended on positive leadership attitudes toward technology and open communication between school principals and teachers. Baker and Irwin (2021) proposed that district and school leaders better implement technology initiatives for language instruction by supporting teachers with quality professional development, instruction, and curriculum that reflects a pedagogical framework that supports technology integrations.

Purpose of the Study

The purpose of this study was to understand how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. Amin (2019) emphasized the importance of future research to use technology to concentrate on the most effective language learning techniques. Chapelle (2017) discussed the interconnection between vocabulary and language learning using technology and highlighted that lessons need to be geared toward the developmental

stage of the learner. De Wilde et al. (2020) suggested research on technology-mediated vocabulary development and language learning through digital gaming environments and social media tools.

Research Questions

RQ1: How do teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States?

RQ2: How do education leaders support teachers to provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States?

Theoretical Framework

Basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP; Kandagor & Rotumoi, 2018) formed the foundations for this study. Bilingual children need instruction that addresses three factors: (a) cognitive skills, (b) academic content, and (c) critical language awareness (Cummins, 1999). Poor outcomes in education for students who are a minority are associated with power relations in schools and society (Cummins, 2021). The disparities in school buildings, as well as educational opportunities, are due to power relations. Cummins (2021) developed a framework to understand how that occurs and how to alter it.

Policies, curricula, programs, and assessments make up educational structures that usually reflect the values of the dominant group, but they are not static. Educational structures and how the roles of educators are defined determine the interactions between

students, educators, and communities (Cummins, 2021). Within that interaction, knowledge attainment and identity formation are negotiated. Where identities and minds meet has the most "immediate determinate of student academic success or failure" (Cummins, 2021, p. 44). Either relation of power is enhanced or reduced by that interaction. If reduced, the disempowerment of students from culturally diverse communities occurs, and the opposite occurs if power is enhanced.

When power is enhanced during interactions, educators, communities, and students are empowered to challenge coercive power structures (Cummins, 2021). However, collaborative interaction creates empowerment. Education structures in broader social interactions are designed to reflect the dominant group's priorities, and education reproduces that design. These education structures frame and set limits about interactions between students and educators (Cummins, 2021), which influences the expectations, assumptions, and goals an educator carries to educate students. In turn, minority students' cultures and languages are affirmed or denied. When established, instruction is presented in such a way as to promote intrinsic motivation for students to generate knowledge by expressing themselves, their language, and their culture (Cummins, 2021). Freire (2020) labeled the alternative as *banking education* in which an educator deposits information in students' memory banks.

The use of languages other than English in schools came under scrutiny in the 1980s when there was an influx of refugees from Asia and Central America, and anti-immigrant sentiments rose. Restrictive legislation was passed in many states banning students from speaking and being taught in only English (Cummins, 2021). Cummins'

arguments about language proficiency resonated with bilingual educators working in schools who could observe their students struggling and sought to help them learn better.

One way to teach BICS is by encouraging learners to speak day-to-day by recreating the same situations in the classroom so they can role play (Kandagor & Rotumoi, 2018). ELs often have different proficiency levels in each of the four skills: (a) listening, (b) speaking, (c) reading, and (d) writing. While learning one language, a child gains skills and implicitly metalinguistic knowledge that can be drawn upon when learning another language (Kandagor & Rotumoi, 2018). Teachers should provide opportunities for learners to visualize using charts and graphs to understand concepts (Kandagor & Rotumoi, 2018). To help ELs attain academic and linguistic proficiency, the International Society for Technology in Education (ISTE, 2016a) standards provide the framework for educators and education leaders (see Appendix B).

BICS and CALP relate to this study because the two concepts apply to instruction and policy making. Many educators have incorporated the concepts into their teaching practices (Cummins, 2021). BICS and CALP have important implications for school policy to account for developing vocabulary and language learning differences among students (Cummins, 2021). Understanding the premise of BICS and CALP can help address the needs of students so they can learn better. Parents' and educators' understandings of BICS and CALP can be used to communicate how a child's educational needs can be met due to the distinguishing features of the concepts, thereby improving a child's academic performance. Understanding BICS and CALP can improve

educators' teaching practices, especially in second language acquisition when English is not a student's native language (Cummins, 1999, 2021).

The research questions were developed based on the aim of the study, prior literature, and the concepts of BICS and CALP. Although the research questions do not directly refer to the two images, the use of technology to develop the vocabulary for kindergarten ELs is related in that learning vocabulary is part of learning a language. Hence, opportunities for that learning need to be provided. The opportunities educators and teachers should consider BICS and CALP to gear that toward students' abilities. In Chapter 2, I expand on this discussion.

Nature of Study

The nature of this study was a basic qualitative study design. This qualitative study was conducted to help understand how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. Understanding this phenomenon can aid in discerning and explaining how schoolteachers currently use technology to enhance vocabulary and how education leaders support teachers in that endeavor. The participants in this study included seven kindergarten teachers, two principals, two assistant principals, and three English language development coordinators. From the ontological lens, the participants were the primary source of data to understand their experiences and views regarding the use of technology in promoting vocabulary in ELs (see Ravitch & Carl, 2016). Epistemological assumptions involved semistructured, one-on-one interviews with the 14 participants. To

ensure dependability, there was consistency in data collection, analysis, and reporting (Crawford et al., 2000). In determining triangulation, data sources were semistructured and one-on-one interviews, focus groups, and observations (see Crawford et al., 2000). Additionally, rich, thick descriptions were vital in ensuring trustworthiness and credibility.

Definition of Terms

Culture: "Values, symbols, interpretations, and perspectives that distinguish people from one another" (Banks & Banks, 1997, p. 8).

Education leaders: "Focus on curricula and instruction, communication and relations, the ability to shape the school climate and culture, and hiring and retaining qualified teachers" (Daniëls et al., 2019, p.13). However, in this study, education leaders, except teachers, include other professional personnel who help students achieve academically.

English as a second language (ESL): English is taught to students whose primary language is not English (Akiba, 2021).

English learners (ELs): Students whose communication in English is not fluent. ELs come from diverse backgrounds, and when they are in educational situations, teaching and learning instructions need to be adjusted to their language needs (Lee & Stephens, 2020).

Gamification: A collection of steps to solve a problem by adopting characteristics of game-linked elements (Kim et al., 2020).

Literacy: Reading and writing skills needed to be successful in life (Mealings, 2022).

Professional development: A learning process that involves updating an individual's knowledge and ability to do things (Başaran & Dinçman, 2022).

Technology competence: The ability to use technology professionally as a teacher educator and feel comfortable doing so (Gondwe, 2021; Uerz et al., 2018).

Assumptions

In this study, I assumed that multiple realities are subjective to the participants. I assumed that participants would answer all questions honestly and accurately as school representatives. Based on the qualitative nature of the study, I assumed that participants would provide unbiased and truthful responses during the interviews and focus groups. Another assumption was that values would be personal to the participants and needed to be understood, and an evaluation of those values promoted the needed social change. There was also an assumption that the sample population included participants who were representative of the intended demographic.

Scope and Delimitations

The scope of this study was to understand how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. The main limitation was only focusing on kindergarten teachers and education leaders. The sample of teachers and school leaders was drawn from one urban

school system in the southwest United States. Participation was limited to those with experience with ELs at the kindergarten level.

In this study, I used a nonprobability sample technique. Therefore, the findings are limited to the urban school system in the southwest United States where the study took place. Because I used a nonprobability sample technique, transferability is not feasible.

Limitations

In this study, I focused on how kindergarten teachers provide opportunities for EL students to learn vocabulary using technology and how educational leaders support that endeavor. Participation was limited to those with experience with ELs, so the sample comprised kindergarten teachers and school leaders. The transferability of qualitative study findings is ensured by collecting thick, rich descriptions of a phenomenon (Crawford, 2016). The results may apply to similar settings but are not generalizable (Lincoln & Guba, 1986). Furthermore, the method of recruitment is described in detail, and the sample was based on the knowledge of the participants to determine the transferability of the study results (Pezalla, 2016). The findings, therefore, are expected to be reliable and meaningful to others (Stewart & Hitchcock). Because of these limitations, the study is not generalizable to other schools in the United States or other countries.

Significance of the Study

The results of this study address a gap in the literature by providing insights into how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary and how education leaders support that endeavor. Results from this

study may provide the urban school system in the southwest United States with information about how the use of technology is beneficial in promoting vocabulary development in the state's increasing population of kindergarten ELs.

In addition, the findings of this study could assist school leaders in understanding the need for professional development for teachers and the acquisition of technologies to promote vocabulary learning in ELs at the kindergarten level. Teachers can engage students in vocabulary learning through technology while empowering them to develop digital competence, which can be part of positive social change (see Kajee, 2018). Furthermore, ELs ought to be better prepared to participate in civic life and compete successfully in the 21st century, as recommended by the *global education reform movement* (Sahlberg et al., 2017). Uerz et al. (2018) showed that researchers tend to observe that the benefits of students learning technology depend on how teachers approach it.

Summary

Implementing technology in the classroom has many obstacles, even though students need to have the 21st century skills technology provides (Baker & Irwin, 2021; Gonzales, 2020). According to Gondwe (2021), teachers and principals (Wright-Odusoga, 2020) need professional development on the use of technology in the classroom. Technology has shown an increase in vocabulary learning (Fogarty et al., 2020). Research has shown that ELs lack basic English skills, affecting their performance in other classes taught only in English (Hopkins et al., 2013; Kieffer & Thompson, 2018; Saunders & Marcelletti, 2013). One of the reasons for the lack of technology integration

in the classroom is insufficient leadership (Gonzales, 2020). Still, there is a lack of research on the use of technology to teach vocabulary in lower elementary grades (Gonzales, 2020; Khoshnevisan, 2021; Nikolopoulou, 2021). There are studies about different types of technology that have been utilized in various levels of learning, including kindergarten (Abdi & Cavus, 2019; Lee et al., 2017; Meskill et al., 2020). Specifically, more research is needed on using technology with students who speak a language other than English (Karami, 2019). Helping ELs use technology to learn vocabulary helps close the achievement gap between them and students who know English (Alam & Mizan, 2019). In Chapter 2, I review prior literature and the theoretical foundation related to this study.

Chapter 2: Literature Review

Introduction

Research has shown that technology-mediated interventions in education can increase students' understanding of academic vocabulary (Fogarty et al., 2020). In Abdalla's (2021) study, 96.3% of participating teachers agreed that the internet can be used to teach vocabulary, and 3.7% disagreed. Using new technology in the classroom can enhance English vocabulary (Abdalla, 2021). Furthermore, 58.8% of teachers in the study agreed that learning vocabulary is often neglected when students learn a new language, even though the two are connected (Abdalla, 2021). There may be a better way of teaching kindergarten students who are not being taught vocabulary using education technology or learning technology skills for future use. Incorporating technology into classes can aid in that learning. This problem mainly affects students who are ELs. Using technology in the classroom can also contribute to closing the achievement gap between students who know English and students who are learning ESL (Alam & Mizan, 2019).

Studies are needed on how teachers use different kinds of technology to enhance student learning in the lower grades, including kindergarten (Abdi & Cavus, 2019; Lee et al., 2017; Meskill et al., 2020). The use of technology is a topic that needs more research (Karami, 2019). Many students speak another language besides English. Learning vocabulary is part of learning the English language.

The purpose of this basic qualitative study was to understand how teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support

teachers in that endeavor. Amin (2019) emphasized the importance of future research to concentrate on the most effective language learning techniques by using technology. Chapelle (2017) discussed the interconnection between vocabulary and language learning using technology and that lessons need to be geared toward the developmental stage of the learner. De Wilde et al. (2020) suggested research on technology-mediated vocabulary development and language learning through digital gaming environments and social media tools.

I conducted this study to fill this gap in the research. At this stage in the research, education technology will be generally defined. The classic definition of educational technology is the field that facilitates human learning through the systematic identification, development, organization, use of all kinds of learning resources, and management of these processes (Ely, 1983).

Literature Search Strategy

This literature review is focused on integrating technology into learning vocabulary for elementary students and what can be done to help teachers accomplish this task better. Because technology today is fast changing, it is challenging for elementary teachers to aid bilingual students in developing their English vocabulary. Teachers learn a great deal in their academic education classes and during their preservice placements. However, professional development could help teachers understand and remain up to date on the latest technology to aid their students in learning English.

In this literature review, I explain the theoretical foundation of this study, including a short history of its development. The wide range of diversity and languages kindergartners possess is presented next. How teachers are educated and the requirements for teaching kindergarten are explained as each state has different benchmarks, yet there are similarities. What teachers have not learned in their degree or certificate programs about technology use in the classroom could be learned during teacher professional development. English vocabulary learning for students is a process teachers need to understand and encourage, and technology can aid in that process. The chapter ends with a summary.

The articles selected for this literature review relate to how teachers and school leaders use technology to promote vocabulary development in kindergarten ELs. Some of the keywords included in the search were *teacher*, *educator, school leader, principal, director, leadership, stakeholders, technology, digital media, computer assisted language learning (CALL), multimedia instruction, digital tools, vocabulary, vocabulary acquisition, vocabulary development, language, kindergarten, elementary school, English learners, second language learners, ESL,* and *English as a foreign language (EFL)*. The databases searched were SAGE journals, Springer e-books, Google Scholar, Researchgate.net, and ERIC.

Theoretical Foundation

Two types of language proficiency formed the foundation for this study: BICS and CALP (Kandagor & Rotumoi, 2018). Cummins (2003) defined BICS as "The ability to carry on a conversation in familiar face-to-face situations… It involves the use of high-

frequency words and simple grammatical constructions. Communication of meaning is typically supported by cues such as facial expressions, gestures, intonation, and the like" (p. 2). Cummins (2003) defined CALP as:

> Knowledge of the less-frequent vocabulary of English as well as the ability to interpret and produce increasingly complex written (and oral) language … far more low-frequency words (primarily from Greek and Latin sources), complex syntax (e.g., passive voice), and abstract expressions that are virtually never heard in everyday conversation. (p. 2)

Cummins (2001) distinguished between BICS and CALP by citing the history of other theorists regarding similar phenomena beginning with Vygotsky (1962). Cummins (2000) summarized this by stating:

> The conversational and academic language distinction addresses similar phenomena to distinctions made by theorists such as Vygotsky (1962; spontaneous and scientific concepts), Bruner (1975; communicative/analytic competence), Canale (1983; communicative/autonomous proficiencies), Donaldson (1987; embedded and disembedded thought and language), Olson (1977; utterance and text), Bereiter and Scardamalia (1981; conversation and composition), Snow (1991; contextualized and decontextualized language) and Mohan (1986; practical and theoretical discourse). (p. 60)

Bilingual children need an instructional program that addresses three factors: (a) cognitive skills, (b) academic content, and (c) critical language awareness (Cummins, 1999). Failure to account for the difference between BICS and CALP knowledge

acquisition can lead to inappropriate psychological testing of bilingual students and their exit prematurely from ESL support programs to mainstream classes (Cummins, 1999). Minimal support is provided for academic language development. Essentially, the inability to distinguish between BICS and CALP regarding the nature of language proficiency contributes to the academic failure of bilingual students. The inappropriate assessment of bilingual students also results in overrepresentation in classes for the learning disabled and underrepresentation in classes for gifted students (Cummins, 1999).

> The following inter-related assumptions apply specifically to ELL students:
>
> Students' home language (L1) is, at best, irrelevant and, at worst, an impediment to literacy development and academic success
>
> The cultural knowledge and L1 linguistic abilities that ELL students bring to school have little instructional relevance
>
> Instruction to develop English literacy should focus only on English literacy
>
> Students can learn only what has been explicitly taught
>
> Culturally and linguistically diverse parents, whose English may be quite limited, and do not have the language skills to contribute to their children's literacy development. (Cummins, 1999, p. 4)

Learners need time to socialize and interact in school for BICS to develop. One way to aid in learners' BICS development is by encouraging learners to speak in day-to-day life situations and re-create those situations (Kandagor & Rotumoi, 2018). Enacting daily problems in the classroom allows students to interact with other students and socialize,

which is essential for learning how the vocabulary words they are learning are used. BICS goes beyond words by encompassing social cues in the second language, such as kinesics, which includes gestures, facial expressions, and body movement (Kandagor & Rotumoi, 2018). ELs cannot learn social cues from social interaction, so teachers must teach them by exposing learners to authentic material. It takes up to 3 years to acquire social cues for a non-native speaker (Kandagor & Rotumoi, 2018).

Just because learners speak English at home or during social interactions does not mean they have mastered the academic and cognitive language to address tasks in the classroom (Kandagor & Rotumoi, 2018). Thus, learners can have different proficiency levels in each of the four skills: (a) listening, (b) speaking, (c) reading, and (d) writing. For example, some learners with low proficiency in their oral language skills may perform well in written exams. The importance of the first language should be considered in second language acquisition because it forms a basis for knowledge transfer (Kandagor & Rotumoi, 2018).

While learning one language, a child gains a set of skills and implicitly metalinguistic knowledge that can be drawn upon when learning another language (Cummins, as cited in Kandagor & Rotumoi, 2018, p. 52). CALP requires methodological thought in the choice and delivery of content. Learners need to be given opportunities to visualize using charts and graphs to understand concepts, particularly abstract ones. CALP is the type of language proficiency crucial for formal academic learning encompassing reading, writing, and thinking about the subject-area content material (Kandagor & Rotumoi, 2018).

In helping ELs attain academic and linguistic proficiency, ISTE (2016a) standards provide the framework for educators and education leaders. The standards have been used, updated, and researched for over 25 years, reflecting best practices in the successful use of technology to teach, learn, coach, and lead, in addition to the latest research (ISTE, 2021). All 50 states in the United States have adopted the standards, and many countries worldwide have as well. The ISTE standards are available in eight languages and are aligned with the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Sustainable Development Goals (ISTE, 2021). ISTE (2021) developed steps teachers can use when implementing the standards:

> Foster a culture where students take ownership of their learning goals and outcomes in independent and group settings.
>
> Manage the use of technology and student learning strategies in digital platforms, virtual environments, hands-on makerspaces, or in the field.
>
> Create learning opportunities that challenge students to use a design process and computational thinking to innovate and solve problems.
>
> Model and nurture creativity and creative expression to communicate ideas, knowledge, or connections. (para. 9)

ISTE (2016a) launched a new version of the standards for students in 2016 to guide teachers in preparing students "for work and life in this uncertain future" (p. 2). The jobs that will be available for young learners in the future is ambiguous (Trust, 2017). ISTE standards for students are based on pedagogy instead of technologies because technologies are constantly changing. There are seven main standards:

(a) empowered learning, (b) digital citizen, (c) knowledge constructor, (d) innovative designer, (e) computational thinker, (f) creative communicator, and (g) global collaborator (ISTE, 2016a). K–12 teachers can use ISTE standards to transform their practice with new technologies (Trust, 2017). Teacher education preparation programs should have these standards embedded; however, preservice teachers also need to see them modeled and need to experience the standards themselves before they can identify ways to redefine learning and teach these standards (Trust, 2017). Preservice teachers ought to be provided with semester-long, collaborative projects to learn from in the classes in their educational program. The projects need to address an academic problem that students work on as a class design tool. The aim is for preservice teachers to learn 21st century skills, such as communication, teamwork, computer/technical literacy, creativity, networking, digital citizenship, web design, time management, multimedia design, and production. In addition, they also need to know how to use technology for teaching and possess the ability to apply these in real-world settings (Trust, 2017).

Benjamin Bloom first articulated two different levels of thinking in 1956 (Chambers, 2020): *daily literacy* and *academic literacy*. Bloom introduced the notion, whether intentionally or unintentionally, that the intellectual abilities of Caucasian people and African Americans were equal. This occurred during a time of many changes in the United States, such as Martin Luther King Jr.'s speeches and the Civil Right Movement (Chambers, 2020). The National Association for the Advancement of Colored People (NAACP), the Student Nonviolent Coordinating Committee, and others stood up for the equal rights of African Americans. Rosa Parks refused to give up her seat on the bus for a

White man, igniting the Montgomery Bus Boycott, a planned action by the NAACP (Chambers, 2020).

Cummins conducted research by examining tests of students who seemed to have learning problems. Skutnabb-Kangas and Toukomaa (1976) had written about Finnish children who had immigrated to Sweden. The children appeared to be fluent in Finnish and Swedish. Still, they showed low levels of verbal academic performance, and there was no difference if the communication was in either language. Cummins began noticing patterns in their scores (Cummins, 1999, 2001, 2003; Cummins et al., 2016). He was able to connect a low test score with the fact that the student was an immigrant and how long that student had been in Canadian schools. Even if a student could speak well in English, they still did not appear to have good academic skills. In explaining BICS and CALP, Cummins distinguishes between the two language learning levels Bloom introduced in the 1950s (Cummins, 1999, 2001, 2003; Cummins et al., 2016). Cummins is considered the leading authority in bilingual education (Kandagor & Rotumoi, 2018).

BICS stands for Basic Interpersonal Communication Skills and means the language we use in everyday communication (Cummins, 1999, 2001, 2003; Cummins et al., 2016). BICS language is concrete and makes sense within its context. It is easy to understand the simple structures of BICS as it is cognitively undemanding. It could take 2 to 5 years to develop BICS when learning a second language. Listening and speaking skills are frequently associated with BICS. BICS enables a person to use nonverbal communication and understand short and simple texts (Cummins, 1999, 2001, 2003; Cummins et al., 2016).

CALP is quite different from BICS. CALP stands for Cognitive Academic Language Proficiency (Cummins, 1999, 2001, 2003; Cummins et al., 2016). It is the kind of language used in academic contexts such as a university to discuss content. Prior knowledge is required to understand what is being said or written as the topics are abstract and are said to be context reduced. CALP has a complex language structure and is cognitively demanding. It could take 5 to 7 years to develop CALP when learning a second language. CALP utilizes all language skills. Examples are reading a textbook, writing an essay, or understanding a scientific or non-fiction paper (Cummins, 1999, 2001, 2003; Cummins et al., 2016).

Knowing and using the conceptual models of BICS and CALP help students perform better (Cummins, 1999, 2001, 2003; Cummins et al., 2016). Just because a student can speak English well does not necessarily mean they understand English. A student can speak English fluently, display command of the language, use it in different situations, and have good grammar. However, they can still score low on specific tests (Cummins, 1999, 2001, 2003; Cummins et al., 2016). This student has mastered BICS but still lacks CALP, which is acceptable. The point is that CALP takes much longer to master. Students in an English-speaking country in the first year should not be expected to make much progress during that time. Students who struggle may be that they can understand BICS but not CALP, and it is essential to make the distinction (Cummins, 1999, 2001, 2003; Cummins et al., 2016).

The influence of the concepts of BICS and CALP can be seen in both Culturally Responsive Teaching and Intercultural Bilingual Education regarding second language

acquisition (Valdez-Castro, 2021). BICS has been used in studies about second language acquisition. Kandagor and Rotumoi (2018) reviewed the literature and conducted oral interviews to explain the connection between language proficiency and academic performance from the scientific paradigm. BICS and CALP were central to the study because if students learn BICS, their chances of obtaining a better academic performance increase (Kandagor & Rotumoi, 2018).

In Kenya, there was a decline in all subjects besides English classes. In elementary school, students begin to learn English to communicate fluently in their everyday lives (Kandagor & Rotumoi, 2018). There are over 42 languages in Kenya, although the national language is Kiswahili. Students learn English and Kiswahili in school simultaneously. There is a ban on students speaking their native language at school, and parents are encouraged to allow only English at home even though no science supports the ban (Kandagor & Rotumoi, 2018). Yet, Cummins (2000) noted that learning concepts in the first language improve understanding of second language concepts (Kandagor & Rotumoi, 2018).

Learners of a second language need time to interact and socialize, so they can learn social cues and kinesics, which consists of body language, facial expressions, and gestures (Kandagor & Rotumoi, 2018). English is used from Grades 4 and up, allowing at least 3 years of learning social cues, making Kenya's educational system applicable before students obtain CALP skills (Kandagor & Rotumoi, 2018).

Roy-Campbell (2015) introduced the correlation between academic literacy and language proficiency, stating that students' academic language needs are not met in

Kenya except in literature classes. Integrating language skills in other courses would improve students' English ability to understand the meaning of words such as describe, contrast, explain, etc. (Kandagor & Rotumoi, 2018). UNESCO (2003) recommended that students be taught in their first language in the initial years of schooling. Still, it has not been implemented in Kenya because of the financial resources (Roy-Campbell, 2015).

Literature Review

Languages and Diversity of Kindergarten Learners

Even though English is the *de facto* dominant language in the United States, it is not the official language. Yet, English is used overwhelmingly in schools, government, businesses, and most public forums (Leonard et al., 2020). At any grade between K-12, the first focus for the student is teaching them to speak, listen, read, and write proficiently in English when first enrolled. Strong knowledge of English is essential for students to excel in school, society, and the workplace. However, the dominance of English instruction has come at the expense of many students losing their first language (Leonard et al., 2020).

According to the California Department of Education (2022), over a million ELs were enrolled in public schools in 2021-2022. Many ELs face challenges while striving to reach high literacy levels (Roessingh, 2018). The academic language becomes more complex as students move into higher grades (Roessingh, 2018). Academic language is challenging with high vocabulary loads, including many technical words seldom used in everyday conversations (Roessingh, 2018). Roessingh (2018) concluded that academic vocabulary development should be the focus of strong instruction in the early grades.

However, Cummins (2008) explained that when educators do not understand the differences between BICS and CALP, the problems ELs encounter in school are compounded by teachers who misattribute the problem. Teachers may assume that because EL student appears to be orally fluent in English, they are also proficient in academic work in English (Cummins, 2008). The misattribution creates problems for the student no longer enrolled in English to speakers of other languages classes where they were learning English. In bilingual education, academic language is developed in the student's first language. When the student leaves before that, they are deprived of the support needed to develop academic language in both their first and second language (Cummins, 2008).

For most of the nation's schooling history, students have been forced to leave their heritage and home language at the door of the school buildings when entering the school system (Leonard et al., 2020). Many believed this was the only way or the best way for students to learn English. There is a vast body of research that demonstrates there are numerous benefits of multilingualism (Leonard et al., 2020). Evidence has shown how knowing their home language can support students in learning English, in addition, to aiding in the development of cognitive and social-emotional skills along with well-being (Beaudrie et al., 2021; Brinton et al., 2017; Locher-Lo, 2020; Morales et al., 2019; Paing, 2018).

Minnesota, which has a large Asian refugee population, passed the All Kids Count Act in 2016. The All Kids Count Act requires the Minnesota Department of Education (MDE) to disaggregate data so that student information includes race,

ethnicity, English language skills, military, foster care, gender, disability, and low-income status (Leonard et al., 2020). The purpose of collecting this data in such detail is to ensure that all students have equal access to quality education and that policymakers can make more informed decisions (Leonard et al., 2020). As Minnesota has an extensive populous of Native, Hispanic, Latino, Black, and African Heritage groups, allocation of resources and informed policy decisions are important and applicable to these groups of people, in addition to the Asian population from various groups (Leonard et al., 2020). Furthermore, ESSA requires states to include students' progress toward English language proficiency in the accountability systems (Minnesota Department of Education, 2022).

Indigenous languages are devalued in the United States, and in Mexico, they are rendered invisible (Martínez & Mesinas, 2019). One way mothers exposed their children to their Mother Tongue was in conversations with their husbands while the children were present. Teachers must continue to reflect on the role of the student's first language and culture in their classes. They must embrace plurilingualism while affirming students' identity of their first language and culture while concurrently learning English (Martínez & Mesinas, 2019).

Heritage languages, often called Indigenous languages or Mother Tongues, are essential to people for various reasons. Martínez and Mesinas (2019) interviewed four Zapoteca mothers on the topic now living in Los Angeles, California. The mothers had children in public schools in a Spanish-English dual-language program. The language spoken by the Zapotec people in Southern Mexico is Zapoteco or Zapotec, not Spanish.

The Zapoteca mothers are considered part of a Latino or Mexican population assumed to be homogeneous linguistically and ethnoracially (Martínez & Mesinas, 2019).

All four mothers deliberately engaged with their children to maintain Zapoteco in their children's lives, exposing them to the language while communicating the importance and value of their heritage language (Martínez & Mesinas, 2019). The mothers reported that it was important for their children to be able to communicate with the larger Zapotec community in both Mexico and Los Angeles, but especially with grandparents in their hometown. There appeared to be a close connection between their mother tongue and hometown, and maintaining the language was one way to connect the children to their place of origin. A recurring theme emerged during the interviews, the interconnectedness of Zapotec, place, and indigeneity. The mothers' sense of identity was explicitly focused on the North Sierra of Oaxaca, and for three of the mothers, even more specific to the hometown or pueblo. Indigenous languages are devalued in the United States, and in Mexico, they are rendered invisible (Martínez & Mesinas, 2019). The mothers explicitly valorized multilingualism in their children's lives. One way to expose their children to their mother tongue was in conversations with their husbands while the children were present. On the street, when answering someone, the mothers often spoke Zapotec or when speaking directly to their children. As the children grew older, they asked questions about Zapotec. Reading aloud in Zapotec also allowed the children to learn the language in written form, thus contributing to the intergenerational transmission of Indigenous linguistic heritage. Martínez and Mesinas (2019) maintained that

multilingual mothers should be acknowledged in their children's schools to support the maintenance of Indigenous heritage language.

Conducting the interviews in the interviewees' language most likely minimized misunderstandings as translations often contain (Martínez & Mesinas, 2019). The researchers were also from the community of the interviewees, making them more comfortable and open to sharing personal experiences. However, biases could easily change some of the findings because the researchers were from the community. The study ultimately exposed the value of Indigenous knowledge the mothers knew and passed on to their children.

The main strength of this study by Martínez and Mesinas (2019) was their ability to illuminate the value of the Indigenous knowledge the women held and how they passed it on to another generation. Critical Latinx Indigeneities (CLI) were used to accomplish the findings. According to Sanchez (2018), the weakness is that CLI has no extensive theoretical/analytical work that applies to building practice or policy on the logic therein (Casanova et al., 2016). However, the approach supported the educational view of the Indigenous people instead of using a Western paradigm, which only adds to the invisibility of those oppressed and marginalized in the United States. Furthermore, using CLI was instrumental in bringing out the multiplicity of the Latino community. The community is multilingual and multiracial, containing multiple genealogies (Calderón & Urrieta, 2019).

Embracing Diversity in Education

Teachers face many difficulties trying to support the language and literacy needs of the diverse population of the United States. Pre-service and in-service teachers often feel challenged in responding to cultural and linguistic diversity in their classrooms (Kapoyannis et al., 2021). Researchers such as Kapoyannis et al. (2021) have expressed the need to embrace plurilingualism while simultaneously affirming students' identity of their first language and culture while learning English. Therefore, teachers must continue considering the role of their students' first culture and language in their classes (Kapoyannis et al., 2021).

A literacy intervention study called the Name Jar Project was undertaken by Kapoyannis et al. (2021) to examine the impact it had on pre-service teachers and how teachers cultivated literacy engagement to support English language development. During the study, community of practice (CoP) groups were formed to meet preservice teachers' needs. CoP groups are "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., 2002, p. 4). The weekly meetings resulted in meetings to discuss various aspects of literacy sessions, create a support system, and informal opportunities to bridge theory and practice (Kapoyannis et al., 2021). There were 29 students identified as ELs from grades 2 and 3.

The Name Jar Project was an intervention developed by Kapoyannis et al. (2021), collaborating with 11 other preservice teachers. Field notes, focus groups, and literacy session reflections made up the collected data that was analyzed using constant

comparative analysis. Three major themes were identified. The first was that preservice teachers could empathize with the challenges and strengths of learning English through informal learning experiences. The second one consisted of implementing the interventions using the service learning model, providing a safe learning environment for gaining practical experience working with ELs (Kapoyannis et al., 2021). The last was the opportunities within the intervention for preservice teachers to connect theory and practice to inform their teaching experiences in the future. Preservice teachers provide time for ELs to learn more about their languages and cultures by sharing with their peers, using artifacts, dual language opportunities, and creating their identity texts. Preservice teachers need to continue to reflect on how they can affirm students' identities within their instructional design (Kapoyannis et al., 2021). The literature echoed the preservice teachers' view that more support was needed in teacher education to differentiate instruction for ELs (Kapoyannis et al., 2021).

Although there were few details regarding the actual implementation of the intervention, there was enough to grasp the positive impact it had on both preservice teachers and their students. The analysis contained explanations of the procedures. The continued exploration of the role of differentiation of cultural and linguistic diversity in coursework educational programs was highlighted. The findings answered the research questions, which centered on the experiences of preservice teachers that would help support ELs. The applicability of the specific literacy intervention was also included in the research questions. A strength was that the intervention reflected much Cummins put forth about using BICS to enhance the learning of ELs. For example, the use of objects,

in this case, artifacts from their first culture, were brought into the classroom. Cummins (2000, 2021; Cummins et al., 2016) posited that ELs need to be supported and encouraged to value their cultures and multilingual talents. A weakness was that only preservice teachers were participants. Had experienced teachers have been included, it is possible that some conflict between how they usually teach and the use of this new way the intervention presented may have surfaced.

Another example is how schools in Minnesota strive to embrace student diversity. Looking at Minnesota as an example of the many population changes in the United States may help put a realistic perspective on the issue and highlight the importance of teachers considering the language and cultural diversity to the best of their abilities (Leonard et al., 2020). Minnesota's dual language learners comprise 21% of children from birth to age 8.47 (Williams, 2016). The growth is 77% compared to 24% nationally since 2000. The second largest dual language learner population is Hispanic (31.5% in the state), while Asian students comprise 28% (Williams, 2016). Despite this growing community, very little research has been done on this population and the benefits of heritage language despite the increasing growth rate (Leonard et al., 2020). The Minnesota Department of Education reported approximately 142,000 students in the state who speak a primary language other than English. The top five languages identified were Spanish, Karen, Somali, Vietnamese, and Hmong (Minnesota Department of Education, 2018).

Students are no longer physically punished for speaking their Mother Tongue. Still, the message of their acceptance into society and by their teachers depends on renouncing their culture and home language (Cummins, 2001). "This harm impacts

students' ability to succeed academically, their sense of self, as well as their relationship to society" (Leonard et al., 2020, p. 7).

Teacher Education

Elementary school teachers play an essential role in their students' lives by establishing an educational foundation needed for future academic experiences. Teachers, who teach younger students, enjoy a dynamic, challenging, and rewarding work environment every day. There are other benefits, however (Teaching Degree, 2021). Becoming an elementary teacher ensures a lifetime of learning inside and outside school. Early childhood teachers, who are state government employees working in public schools, receive health insurance, paid holidays, and time off. Continuing education workshops, conferences, and meetings keep teachers updated with changes in curriculum and policy (Teaching Degree, 2021).

The minimum requirement to teach is typically a bachelor's degree and pursuing a license as an elementary school teacher (Teaching Degree, 2021). In these teacher education programs, they learn teaching techniques, curriculum development, teaching methods, and knowledge and skills related to child development. The essential prerequisite for nearly every state licensure is completing practical in-class experience while supervised by experienced professionals and a bachelor's degree in early childhood education (Teaching Degree, 2021).

Some teachers specialize in specific areas, such as science or math, and additional education may be required (Teaching Degree, 2021). A background check and passing a series of exams are also mandatory, which tend to vary from state to state. The process is

typically completed in 4 years though retaking certification exams may be necessary to add time until completion of the degree. Earning a master's degree also adds two more years of full-time classes. The university must be accredited to teach in the public school system (Teaching Degree, 2021).

After graduation, a teacher may work in different areas of education, such as preschool administrator, daycare teacher, daycare administrator, kindergarten teacher, elementary school teacher, or curriculum developer (Teaching Degree, 2021). Educators need skills in communication to communicate effectively. Complex issues are typically discussed collaboratively with coworkers, parents, administrators, and guardians. School teachers must be patient with new students' new ability levels and personalities every year. It can be challenging to grow the collective knowledge of a classroom of children, so patience is called with those students who struggle, cannot sit still, or have behavioral problems. Physical, emotional, and mental stamina are also needed to retain students' attention and maintain control. Teachers often need to explain things differently or add supplemental material to lesson plans. Creativity and resourcefulness are also required to encourage student engagement (Teaching Degree, 2021).

Kindergarten teachers manage children ages 4-6 in the classroom. Daily tasks include teaching basic skills relating to numbers and letters, introducing students to formal education processes, and reinforcing rules. Teachers often collaborate with coworkers to set goals and standards. A bachelor's degree in early childhood education helps prepare professionals for these responsibilities (Teaching Degree, 2021). The Teaching Degree (2021) was very informative, and assertions were supported by prior

literature. Another strength was the detailed explanation of the requirements for becoming a teacher and why the educational requirements are needed. It appears that the organization of this article was well thought out.

Recent scholarly literature revealed that the primary aim of teaching education programs is "to prepare pre-service teachers to teach effectively in diverse classrooms" (Moosa, 2018, p. 57). Teaching education programs are pathways to transfer both theoretical and professional knowledge to pre-service teachers (Moosa, 2018). Using a questionnaire, thematic analysis, and case study method, Moosa (2018) explored the expectations of experienced teachers about preservice teacher internships. The foundation was the theory of procedural knowledge, knowing *what* and *how* that is informally and socially learned. The findings revealed that there was confusion about what students should know about what preservice teachers should understand regarding teaching (Moosa, 2018). The results disclosed a significant misalignment of unrealistic expectations, thus negatively impacting pre-service teachers. The gap between what pre-service teachers should know when beginning their teaching career and the knowledge they lack needs further investigation in teacher preparation (Moosa, 2018). This study involved the establishment of ill-prepared teachers starting to teach in the classroom with little insightful support about their needs to become effective teachers.

Uribe-Zarain et al. (2019) conducted a mixed study on teacher preparation among first-year teachers. The study surveyed first-year teachers and their principals to determine areas of teacher preparation deficits that could result in teachers being unprepared for individual teaching capacities. There were 644 K-12 first-year teachers

and 497 principals who participated in the study. The teachers and the principals answered the same close-ended questions on the survey about the teacher's preparation which were affiliated with a Midwestern state's teaching standards (Uribe-Zarain et al., 2019). The purpose was to identify problems faced by first-year teachers and determine which part of teacher preparation could be improved. The research questions inquired into the commonalities and differences in ratings by teachers in their first year of practice. The principals also answered questions regarding teacher preparation and the main problems described by them. Uribe-Zarain et al. (2019) concluded that the areas that needed improvement were student engagement, classroom management, and differentiation.

The findings coincided with a literature review on the same topic. Only the summaries of secondary data in public schools from the state were available for descriptive analysis. Similar qualitative case studies would provide a more in-depth understanding of the issues (Uribe-Zarain et al., 2019). It appears there was a lack of planning, resulting in incomplete data to complete a full analysis of aspects such as race and ethnicity. Other limitations also restricted interpretation. Yet, the study provided valuable information and showed that more research was needed in this particular area to improve teacher preparation programs.

Green-Weir et al. (2021) studied teacher-student learning and the quality of a specific teacher-education program. Green-Weir et al.'s (2021) study aimed to examine one bachelor's program that educates teachers and how situated learning theory prepares quality teachers. The principal key to the program was to connect the students' learning

with applying their knowledge in the authentic classroom context. Both situated learning theory and integrated theory were used as a foundation. Thematic analysis was applied to two surveys. The findings showed that this particular program prepared quality teachers, and in that process, the enhancement of other disciplines was accomplished. Graduates were found to possess the skills needed and obtain experience in the classroom to implement what they had learned successfully. However, there were several limitations. Situated learning theories were effectively implemented in this particular program. Future studies could be conducted on the long-term impact of other teacher preparation programs, including factors that contributed to their effectiveness. A strength of this study was that surveys were performed twice, although the second sample was much smaller than the first, which was a weakness. Yet, the elements of each dimension of quality teaching were explicitly presented, and quality teacher preparation was defined. This study provided insights into a quality teaching preparation program that utilized situation learning theory successfully.

Teaching for Social Justice

The majority of teacher education programs are based on transformative and reflexive learning. Mertens (1999) defined transformative learning. Transformative education aims to construct a personality measured by the capability to find a way in settings of constant change, intense diversity, and deep knowledge (Mpisi et al., 2020).

James-Wilson (2020) provided a framework for developing education teacher programs focused on urban teacher preparation. Ideas from various topics were utilized, such as feminist theory, semiotics, and pollical philosophy. Therefore, James-Wilson

(2020) argued that inner-city and urban teacher education should focus on the personal and professional development of teachers new to the profession by preparing them to work for social justice and equity. A critical examination of how those that live in urban cities are represented in our minds and society is necessary under this paradigm. A guide to developing teacher education programs based on equity and social justice is essentially the crux of this material. However, the suggestions that could be implemented into those programs are limited. Why they need to be implemented is fully explained. Yet, the recommendations are a valuable summation of the longer part of the why part. Still, it is not a conclusive article, and further research could be helpful, although not articulated. The emerging issue of educating for social justice and education appears to have a wide range of philosophies with little data on the effectiveness of this way of educating.

The study by Luguetti and Oliver (2019) used a participatory action research design with ten pre-service teachers, two researchers, and 90 youth. Participatory action research involves more robust collaboration with this method, which is embedded in the belief that knowledge develops from social relations (Fine, 2021; Freire, 2020). The objective of the study was to provide evidence of the challenges of preservice teachers concerning the activist approach and the progression across time. Their struggles to understand themselves as advocates for social justice were captured in their group meetings, observations of the researchers, reflective diaries, artifacts, focus groups, and interviews. The results revealed pre-service teachers' assumptions about student-centered learning and the challenges of successfully overcoming misconceptions about learning and teaching. This study's strengths were the applied analysis techniques, constant

comparisons, and inductive. Another was that data was collected over 18 months to incorporate more extended changes. The gradual learning progression of pre-service teachers was reflected in their articulate descriptions that could not have been captured if data had been collected only at one time. Weaknesses were that the study was conducted in only one university and there was only one researcher. It should be noted that this study took place at the University in Guarujá in Guarujá, Brazil, with a highly vulnerable group of youths. This study is inconclusive, so future research was suggested about the facilitators and challenges of learning an activist approach to empower students and teachers in physical education.

Luguetti and Oliver (2019) explored how an activist teaching approach participants chose showed they favored this approach to solve misconceptions about learning and teaching while creating student-centered pedagogy. An activist approach empowers both students and teachers by developing a conscious understanding of their relationships with the world in their effort to change the world (Luguetti & Oliver, 2019). Likewise, as an activist approach, student teachers, teacher educators, and youth work jointly to become cognizant of the power structures that lead to social inequities (Luguetti & Oliver, 2019). Education cannot be a process of simply transmitting knowledge analogous to a banking education perspective (Freire, 2020). Instead, education should be viewed as an educational philosophy in which the teacher addresses questions of ethics and the justice of democracy, thereby creating spaces for social change (Hill et al., 2018; O'Sullivan, 2018).

Paulo Freire's *Pedagogy of the Oppressed* is one of the most-read books in teacher education programs, setting the foundation for critical pedagogy (Barmania, 2011). Critical pedagogy is based on the idea that there is a social context to a person's problems and experiences (Kincheloe et al., 2018). Students need to be taught how to think about their education situation. This consciousness realization leads to praxis, defined as power and knowledge to act against oppression while emphasizing the significance of liberating education. At the collective level, praxis generates social transformation (Kincheloe et al., 2018). Therefore, critique and disruption in the oppression context of the dominant culture liberate the oppressed to freedom of thought to live according to the freedom to think context. The study aimed to explain critical pedagogy to educators, a philosophy of liberating the oppressed. As applied to teacher education, Freire's philosophy is often criticized for not including traditional education writings such as John Dewey (Searle, 1990). However, as explained by Shor, Freire puts forth that formal education essentially programs students of official knowledge of the dominant culture to oppress people (Alarcón et al., 2022).

Critical pedagogy is based on posing and solving problems in the classroom and life, discussing systems of power critically. It will liberate you and change the world(Alarcón et al., 2022). The influence of Freire's writing has reached far and wide. Examples are feminism, globalization, mass media, race relations, and education (Kincheloe et al., 2018). Kincheloe et al. (2018) further explained critical pedagogy:

> We cannot simply attempt to cultivate the intellect without changing the unjust social context in which such minds operate. Critical educators cannot just work to

> change the social order without helping to educate a knowledgeable and skillful group of students. Creating a just, progressive, creative, and democratic society demands both dimensions of this pedagogical progress. (p. 21)

But Dewey's (2017) ideas on education often resonate with Freire's. "Modern life means democracy; democracy means freeing intelligence for independent effectiveness—the emancipation of the mind as an individual organ to do its work" (Dewey, 2017, p. 82). Furthermore, "Obviously, a society to which stratification into separate classes would be fatal must see to it that intellectual opportunities are accessible to all on equable and easy terms" (Dewey, 2017, p. 88).

Teaching for social justice and professional identity development are intertwined. Mpisi et al. (2020) examined the experiences of teacher educators from diverse backgrounds while facilitating a class in identity construction. To accomplish this task, the teacher educators must also reflect, re-evaluate, and reconstruct their perception of otherness with their students. This qualitative narrative methodology study showed that a continual unlearning of what they had thought otherness meant was required because they were all part of the dominant culture. Thus, to model equity and social justice principles in diverse classrooms, teachers must be open to allowing change within themselves by acknowledging their learned stereotypes, prejudices, and biases. However, this was a tiny sample, but to the extent that this was exploratory research, the study provided insights into the transformation process of effective teaching in a diverse classroom. Nearly all pre-service teachers experience feeling not confident enough to be an agent of change (Speicher, 2021).

Construction of Teacher Identity

Teacher identity construction has been the topic of much literature published globally (Ubaidillah et al., 2020). For example, some studies have been conducted in Korea (Song, 2019), America (Parsons et al., 2019), China (Yang, 2020), South Africa (Christiansen & Bertram, 2019), Canada (Marom, 2019), Indonesia (Suprayogi et al., 2017), and Arab teachers in Israel (Hayik & Weiner-Levy, 2019). The teaching practicum has also been the focus of several studies about teacher identity (Geng et al., 2019; Gómez et al., 2019; Robinson & Knight, 2019; Sugimoto et al., 2017; Wetzel et al., 2019). The practicum is the student teacher's first classroom teaching experience. Student teachers' struggles contribute to constructing their identity as teachers (Lucero & Roncancio-Castellanos, 2019).

Journal entries and group discussions were the data collection methods of a study by Lucero and Roncancio-Castellanos (2019) that explored the lived experiences of English language preservice teachers during their practicum. The aim was to capture their perspectives on the knowledge they cultivate, what their mentors offer them, and the seeds carried over to their next developmental stage as teachers (Lucero & Roncancio-Castellanos, 2019). Their emotions, feelings, frustrations, and lack of confidence are echoed in the findings. Much of the challenges centered on the disconnection between the theory they learned in the education programs and the realities of practice in the classroom, indicating better support was needed (Lucero & Roncancio-Castellanos, 2019). The feedback and co-constructed interactions they received from superiors while in the practicum heavily influenced their development as autonomous capable English

language professional teachers (Lucero & Roncancio-Castellanos, 2019). Yet, the relationship of pre-service teachers with their mentors could be better articulated as it appears to be an essential aspect of learning. This calls for further research, though it is not explicitly stated. This exploratory study provided information on preservice teachers' experiences in their first teaching situation. The depth of the experiences is evident in the findings, which is the main strength of this study. The sample size (34) is most adequate for this study. Explanations about the methodology could be more robust, however.

The complexity of preservice teachers' learning experiences has seen a wide range of research (Pazilah et al., 2021). According to Ubaidillah et al. (2020), what a teacher learned in the past influences how they make pedagogical decisions to engage students to learn, thus constructing their professional identity as a teacher. This study focused on the identity-construction experiences of one teacher in a remote village in Pamekasan City, East Java, Indonesia. The unique personal stories prompted by a semi-structured interview were told by the single participant revealing a mission for his career as a teacher. The essence of those stories of struggling with past learnings became the motivation for teaching language, which he passed on to his students. Reflecting on past learning experiences, memories, and beliefs influences teaching practices (Farrell, 2017). Additionally, teacher identity is part of becoming an effective educator (Alarcón et al., 2022). This study can inspire research into the impact of frustrating and depressing experiences on teacher identity, particularly within the classroom.

Past experiences of pre-service teachers are also linked with teaching performance (Baran et al., 2019; Damrow & Sweeney, 2019; Theelen et al., 2019). Therefore, their

past experiences help structure their views on how they facilitate learning for students (Karami, 2019; Kloser et al., 2019). Reflection is a social construction that should constantly be utilized to reshape themselves (see Farrell, 2017), thus providing a basis for pedagogical decisions in teaching students (Davis et al., 2019; Jensen, 2019). Transformative education and pedagogies reframe pre-service teacher education (Arvanitis, 2018). First, sustaining reflexive practices means ongoing reflexivity and self-directed learning. Second, collaborative professional learning occurs in the community setting. Both emerge as the foundation of teachers' professional identity (Arvanitis, 2018).

Reflective Practice and Teaching

Reflective practice is widely acknowledged as an essential component in the professional development of pre-service teachers (Bubnys & Zavadskienė, 2017). Babaii and Asadnia's (2019) qualitative case study aimed to assess the knowledge teachers' reflection on research-based theories and language assessment practices. The findings showed that the teachers' knowledge was in accord with and helped to guide their reflection on planning impending language assessment proficiency per professional development. Four data collection techniques were utilized, adding to the strength of this study, so triangulation was implemented. In conclusion, reflective practices in developing English language teachers are vitally important. However, there is much to be researched as this study was exploratory. Still, this study established the importance of reflective practice in teachers teaching English in a country where another language is dominant, and recommendations were made to encourage reflective practices.

According to Rodgers (2002), numerous states, school districts, boards, foundations, and commissions have identified reflective thinking as a standard all students and teachers must seek. Rodgers (2002) reviewed the literature to clarify John Dewey's writings in the 1930s on reflective practice for definition purposes regarding teaching practices. The four criteria for reflecting on Dewey's ideas are still relevant today and help understand the promotion of reflective practices in pre-service teacher education.

> Reflection is a meaning-making process that moves a learner from one experience into the next with a deeper understanding of its relationships with and connections to other experiences and ideas. It is the thread that makes continuity of learning possible and ensures the progress of the individual and, ultimately, society. It is a means to essentially moral ends.
>
> Reflection is a systematic, rigorous, disciplined way of thinking rooted in system inquiry.
>
> Reflection needs to happen in the community and interaction with others.
>
> Reflection requires attitudes that value the personal and intellectual growth of oneself and others (p. 845).

Rodgers (2002) concluded that only when teachers know how to think reflectively can they teach their students to do so. Dewey provided the reflective practice tool to transform raw experience into a meaningful theory that services the moral growth of both individuals and society. Reflective thinking is what makes us human and continuous learners. Although historically reflective thinking is defined, the manifestation is not

(Rodgers, 2002). Therefore, more research is needed on reflective thinking in teacher education. Though relying primarily on one author (Rodgers, 2002), clarified the meaning and practice of reflective thinking by providing explanations of understandings and wisdom. The methodology may be lacking, but the information is less valuable.

Reflective practice and teaching have gotten much attention in the current literature. Bubnys and Zavadskienė (2017) reviewed the scientific works about teacher education, collecting insights into reflective practice. An underlying assumption is that pre-service teachers must engage in activities that teach them to reflect (Bubnys & Zavadskienė, 2017). This demand enables teachers to choose the most relevant teaching to nurture and model meaningful and effective reflection. The ultimate goal is to allow the process of transformation, first of pre-service teachers who will, in turn, strive to change society (Bubnys & Zavadskienė, 2017). The literature review choices were restricted to set criteria written in either English or Lithuanian to convey the ideas and knowledge on the topic but no set range of publication, allowing for discussion of John Dewey's works. The grouping of a wide range of perspectives highly acknowledged reflective practice literature provided substantial evidence of the multifaceted concept for consideration in pre-service education programs. Even so, research on the topic is not all-encompassing as how reflective practice is demonstrated in student-centered pre-service teacher education programs is open to more research and, therefore, not conclusive (Bubnys & Zavadskienė, 2017). This study provided valuable attributes of reflective practice that could be applied in teaching.

Teacher Professional Development in Technology

According to the global education reform movement, instructional technology such as informational and communication technology (ICT) are drivers for educational change to a more learner-centered from instructor-led pedagogies (Sahlberg et al., 2017). Some researchers observed that the potential benefits of technology mainly depend on how it is approached in preparation programs when teachers are being educated about teaching (Uerz et al., 2018).

Technology competence is the ability to use technology in a professional role as a teacher (Gondwe, 2021). This understanding builds on definitions in the literature, which vary from "being able to use certain technologies, to feeling comfortable in using technology, to being proficient in a wide variety of technologies, to swiftly adopting emerging technologies and being knowledgeable about (the impact of) technology in general" (Uerz et al., 2018, p. 18).

Teacher educators' technology competencies should be one significant factor within the teacher education programs to prepare teachers for future technology integration (Foulger et al., 2017; Uerz et al., 2018). However, with more complicated and less common technologies, teachers still face challenges in modeling appropriate use, and the experience of their past education often falls short of their needs (Foulger et al., 2017; Uerz et al., 2018). Foulger's et al. (2017) study aimed to develop a set of Teacher Educator Technology Competencies (TETCs) by collaborating with a diverse group of teacher educators globally, thereby seeking multiple perspectives. There was also an advisory group that stemmed from letters written to support developing the TETCs from

various education organizations, including the United States Department of Education Office of Educational Technology. The advisors only advised increasing the awareness of developing the TETCs. The research question centered on obtaining information about the attitudes, skills, and knowledge all teacher educators need. The findings were the establishment of 12 TETCs. Foulger et al. (2017) emphasized that the TETCs were to be integrated throughout teacher-educator programs, not limited to one course that focused exclusively on the TETCs. A strength of this study was that the process for developing the TETCs was explained in detail, as it was an unorthodox method. Input from organizations, education teachers, and the public, in addition to searching the literature on the topic, established the process of developing the competencies as co-created, another strength. It appears that weaknesses are nil. To build technology competencies, technology professional development (TPD) has expanded, as has the research thereof (Gondwe, 2021).

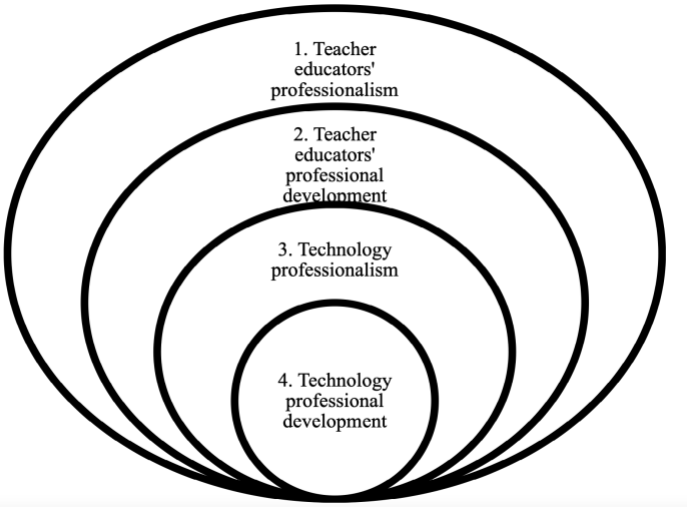
The concept of professional development should also be clarified. As defined by Evans (2008), it is:

> Work practice that is consistent with commonly-held consensual delineations of a specific profession or occupation and that both contributes to and reflects perceptions of the profession's or occupation's purpose and status and the precise nature, range, and levels of service provided by and expertise prevalent within, the profession or occupation, as well as the general ethical code underpinning this practice. (p. 13)

The lack of knowledge about how TPD supports teacher educators in their particular roles has been under-researched; Uerz et al., 2018). According to Gondwe (2021), the transfer of what teacher educators learn from TPD into the classroom does not always occur (Gondwe, 2021). Gondwe (2021) conducted a literature review of the literature on effective technology integration for teacher educators' professional development. After establishing a clear definition of technology competence, teacher professional development (TPD) was also clearly defined. The research questions asked about the outcomes of TPD, pedagogies to transfer TPD learnings into the classroom, and knowns and unknowns of TPD that focused solely on teacher educators (Gondwe, 2021). One of the results of this study was the development of a conceptual framework for teacher educator technology professionalism, illustrated in Figure 1.

Figure 1

Framework for Teacher Educator Technology Professionalism



Note: From "Technology Professional Development For Teacher Educators: A Literature Review and Proposal for Further Research" by Gondwe, F. (2021) SN Social Sciences, 1(8), p. 199. Reprinted with permission. Copyright 2021 Springer Nature Journal.

A strength of Gondwe's (2021) study was the defining and establishing the technology competencies for teacher educators and the framework for teacher educator technology professionalism. The results of this study expounded on the topic concisely and presented in an understandable form. However, not all articles reviewed were technology oriented; perhaps the findings may have been different if they were. Still, important information was provided to aid in the construction of PD for teacher educators. The article appeared to be conclusive on the two aims of the study. It seemed that a weakness was that no practice suggestions were offered. Still, the explanation was that no one technology development would serve the needs of teacher educators because their roles vary. Further studies were suggested to gain student teachers' perspectives on

the understanding of teacher education professional development, the connection of the professional roles of teacher educators and professional development, and how teacher educators balance between form TPD and informal TPD.

How TPD could be taught in a virtual community, Soto et al. (2019) conducted a qualitative study on ways the lesson-study process on technology provided professional development for mathematics teacher educators. Multiple technologies were utilized in the communication efforts of the study. The goal was to give a detailed understanding of the complex issue. Three themes emerged illustrating pedagogy for enhancing learning transfer: "integrated approach to TPD, reference to learning theory, and emphasis on collaboration and reflective practice" (p. 9). The study's limitations need to be considered in any repeat of the structure of the professional development presentation. However, the study expanded the methodology of lesson study to examine how participating in the technology-facilitated lesson study supported the participants' learning.

Furthermore, online communities still meet and conduct research. This is significant because a literature review by Xu and Pedder (2014) found that even on a global and pre-K-16 level, only 7% of the articles focused on lesson studies concerning teacher learning. There were no experimental groups formed to compare not was the level of professional development unless a participant self-reported it within the communications that took place. Yet, as an exploratory study, insights into the possibilities of online community formation for teacher educators were founded. Much research still needs to be conducted as this study was only the beginning of the expansion

of professional development communities with global participation eliminating geographical boundaries.

Children Learning Vocabulary

Listening to and reading stories of fiction is essential for language and literacy development (Kelley et al., 2020). Researchers have shown that word learning retention is a long process that benefits from repetition (Hulme & Rodd, 2021). Children and adults show improved abilities to recognize and recall words after periods of sleep (Hulme & Rodd, 2021; Hung et al., 2020). This section will present research on the learning vocabulary of children.

Henderson et al. (2021) investigated whether 237 children (5-7 years old) would likely retain new words if they learned them close to sleep using an alien adventure story containing 12 new words. Contrary to expectations, children were more likely to retain word learning if they studied them 3-5 hours before bedtime. This coincides with theories that characterize word learning as a prolonged process using consolidation and retrieval practice and the vocabulary knowledge the child already possesses. Future studies suggested were to examine whether the influence on vocabulary knowledge long-term retention stays the same when children hear the story more than once and when they are more motivated to learn new words encountered in the stories (Henderson & James, 2018; Henderson et al., 2021). This study had a sizable sample, but the analysis procedures were poorly explained. The process parents were to take was described in detail, as was the scoring system of how the children did. However, most of the literature

was dated. Further studies utilizing naturalistic paradigms are essential to improve understanding of how best to close the vocabulary gap (Quigley, 2018).

Puimège and Peters (2019) examined the mechanisms underlying incidental vocabulary attainment before formal instruction. The cross-sectional study collected data from 12 primary schools in Flanders, the Dutch-speaking part of Belgium, with a sample of 560 children. Twenty-four percent spoke other languages besides English and Dutch at home with siblings and parents. Learners' socioeconomic status could not be accounted for as only a few parents completed this information (Puimège & Peters, 2019). The descriptive analysis of Puimège and Peters's (2019) study showed that participants learned cognates more easily than noncognates, which coincides with previous research of Peters and Webb (2018). Future research was suggested to explore how informal ELs are connected to accumulated vocabulary knowledge (Puimège & Peters, 2019). A suggestion for a longitudinal study without a cross-sectional design is needed to make strong claims. However, the test used with the children, though designed for their age, needs more validity. There were also several limitations to consider when interpreting the findings. Furthermore, demographics could not be included in the analysis due to the unresponsiveness of the parents.

Learners often learn informally, even with the use of technology. De Wilde et al. (2020) considered the relationship between informal technology-mediated language learning of English and learners' scores on speaking, listening, reading, and writing tests (Cambridge English Test for Young Learners) and a receptive vocabulary test (Peabody Picture Vocabulary Test 4, PPVT- 4, Dunn & Dunn, 2007). Four factors were found to be

related to learners' vocabulary test scores: speaking English, gaming, use of social media, and listening to English music. There was no effect of TV viewing found on learners' vocabulary knowledge. Research into technology-mediated vocabulary development was strongly recommended and should also address language learning through digital gaming environments and social media tools (De Wilde et al., 2020).

De Wilde et al. (2020) concluded that most language tests measure the same proficiency element. Puimège and Peters (2019) failed to comment on the vocabulary tests. Both studies involved the same age group, with some who spoke English and Dutch and other speaking only Dutch. However, a larger sample was found in De Wilde et al. (2020) study. The Cambridge English Tests for Young Learners was used as a measurement along with the Peabody Picture Vocabulary Test 4 (De Wilde et al., 2020). A pilot study was conducted, and adjustments were made to the tests. The Early Language and Intercultural Acquisition Studies questionnaire was administered to capture the language background of parents and children. No analysis was specified, so it was assumed that the scoring was completed according to test directions. Future studies were suggested to be experimental to explore different types of interaction, multimodal input for language learning, and the role of language generation for the second language development learned formally and informally.

Technology in the Classroom

The mobile learning market was nearly a three-fold increase, from $6 billion in 2013 to over $16 billion in 2016 (Marci-Boehncke & Vogel, 2018). McKinsey & Company (2017) found a significant rise in the adoption of mobile learning around the

world using devices such as laptops, smartphones, tablet PCs, etc. Multimedia offers students alternative means of obtaining knowledge designed to enhance teaching and learning through diverse platforms and mediums (Marci-Boehncke & Vogel, 2018). In the 1960s, technology began expanding into classrooms (Fletcher, 2017). This technology allows teachers to observe each student's needs while allowing students to learn at their pace (Marci-Boehncke & Vogel, 2018). Multimedia can be used in many disciplinary settings and is designed to create a hands-on learning environment using technology (Damanik, 2020).

Lessons can be tailored to the subject matter, especially in language learning (Damanik, 2020). However, testing of these multimedia products for their effectiveness is limited. Therefore, that was the objective of a study by Damanik (2020). Six stages were included in the development research method used to validate technical education products. The results showed that experts rated the products well, and through observations, the students using the study were rated very interested. Pre-tests and post-tests revealed a positive impact on the students learning, as 27 out of 28 completed their English vocabulary learning (Damanik, 2020). No limitations were mentioned, but 28 participants in one study are small study to rate inadequate. There is no information about the participants other than the language learning program in which they were enrolled and that it was a beginning language class. Still, this study is the beginning of testing different products for their educational effectiveness. As an emerging method of testing educational outcomes, the study model may be helpful for stakeholders and researchers who want to conduct similar studies.

This kind of usage of multimedia inspires interactive communication between teachers and students while opening feedback channels, thereby presenting an active learning process (Andresen & van den Brink, 2002). Technology is mainly associated with using computers or other electronic devices and digital media due to its research, problem-solving, and communication capabilities through simulations and feedback opportunities (Collis, 1991). The innovation of technology in education by using multimedia permits classroom diversification to augment students' general learning experience (Pierce & Cleary, 2016).

Technology for Learning Vocabulary

When the students and teachers use the technology purposefully, it engages them in critical reflection on their learning. Communication technologies provide valuable and meaningful resources for language students to become aware of and actively reflect on their communication practices (Chun, 2016). Language teachers and students need to follow and know the modern trend of technological influence while considering the social consequences that may occur. This is critical to adapting proficiency in a foreign or second language (Chun, 2016).

In an experimental study, Abdullah et al. (2019) found that integrating mobile phone technology benefits students learning second languages because learning words by mobile phone is faster than the conventional way of learning, in which students look up the words in a printed dictionary. Numerous websites about language learning make the mobile phone a good way of learning particular language sections such as vocabulary. Still, teachers must be prepared and willing to allow students to bring mobile phones to

their classroom, but only to use them productively to gain knowledge (Abdullah et al., 2019). There were 79 undergraduate students involved in this experimental study (Abdullah et al., 2019). A survey was completed during two different periods, and descriptive statistics were used using SPSS. A weakness was that students downloaded 42 different kinds of smartphone applications, and they chose which they wanted. However, involving so many different types of apps also contributed to the effectiveness of using smartphones overall. Students were evaluated on their performance in Mandarin, task accomplishment, and learning from the ten questions they were asked. Self-reports are always susceptible to bias, and there was no other manner of testing.

The purpose of Korlu and Mede's (2018) study was to examine the impact of a particular mobile flashcard app and accompanying Quizlet students learning the vocabulary of English in Turkey, where it is a second language. To shed more light on the issue, the qualitative data obtained by Korlu and Mede (2018) from interviewing teachers and students and reflective journals indicated that both perceived using a mobile tool to store, teach, and practice vocabulary in and out the classroom positively. Data were collected through student interviews, a pre-and post-vocabulary test, an online survey, and a reflective journal kept by the teacher. In contrast, Abdullah et al. (2019) collected data only one way. Convenience sampling was also used by Abdullah et al. (2019).

A nonrandomized quasi-experimental research design was employed, and the collection methods were qualitative and quantitative in Korlu and Mede's (2018) study. The different ways of collecting data made for robust research and the results were

illustrated in graphic and table form in the survey by Korlu and Mede (2018). The results also confirmed that vocabulary learning using a mobile flashcard program called Quizlet enabled learners to achieve better learning and retention outcomes. The program also provided collaborative and individual learning opportunities. Mobile applications can be a fun way to enhance learning while increasing their motivation to help them become autonomous learners (Korlu & Mede, 2018). This is only one study in one study in one educational institution, but it did show promise for using this type of technology in vocabulary learning classes. The strength of this study was the use of triangulation of the data and having a control group who received no treatment to compare with another group who received treatment. A larger sample would strengthen the findings.

Teachers commonly use social media in classroom learning activities. Hence, Nuraini et al. (2020) conducted a literature review to determine the benefits and counteract some of the negative influences of social media. Benefits that can be obtained by teachers using social media are: (a) as a means to communicate interactively with teaching co-workers who are more effective in the teaching process; (b) because it is no longer bound by space and time, teaching and learning can be enhanced; (c) teachers can use multimedia such as animations, pictures, videos, photos, and audio to augment teaching materials making learning more interesting; and (d) accommodate the diversity of students in learning (Nuraini et al., 2020, p. 261). The main weakness of this study is that only a few recently published articles were included. However, a wide range of samples was utilized, such as people with young students enrolled in special education. In addition, Nuraini et al. (2020) chose articles that evaluated the different social media

while discussing cyberbullying and explaining the press. Yet, no methodology was described. Only a reference to a book on it was included. Still, the study generated precious information about some improvements in various aspects of learning with social media that could be utilized by teachers, parents, and other stakeholders.

Ma (2017) highlighted that students' learning a second language might be affected by how they use social media in a multi-case study conducted in Hong Kong with ten students from various disciplines. The personalized ways students learned their second language varied from listening to and singing music to looking for commentaries on the latest developments in news columns. Content analysis and categorization were used to analyze all data collected from interviews, questionnaires, student reflections, and concrete learning evidence (Ma, 2017). Descriptive statistics were also used in the analysis. The results showed that students used social media to personalize their learning depending on their interests, entertainment interests, and communication interests. Some combine learning a particular subject with a second language, English (Ma, 2017). A new socio-cultural framework was developed to capture the many elements revealed in the findings. Though the number of participants was small (10), the evidence about how they utilized social media to learn a language is valuable. Future research is needed in another socio-cultural context. Think-aloud protocols would provide better data (Ma, 2017).

More recently, Puspa (2018) conducted a quantitative study collecting data using a questionnaire analyzed by descriptive statistics with 90 students. The findings showed that 71% have three social media accounts, yet the most influential and most used site was YouTube (53%). The most beneficial feature related to language was vocabulary

(31%). Furthermore, vocabulary knowledge was enhanced by using social media platforms more than other forms of technology, such as web-based learning or CD-based platforms. Alharthi et al. (2020) suggested more studies be conducted on using social media to learn vocabulary, but Puspa (2018) had no suggestions and never mentioned limitations. The large sample (90) helped to strengthen this study while providing insights into students' learning using social media to learn English vocabulary that stakeholders and policymakers could utilize.

Summary

Several TPD models Parrish and Sadera (2019) reviewed in the literature have been published, mainly focusing on how these models can be used to prepare teachers for acquiring the necessary technology competencies to teach in today's classrooms (Gondwe, 2021). The main promising models were communities of practice, mentoring, and mutually beneficial partnerships (Gondwe, 2021). Design elements of these models consist of opportunities for reflection, inquiry-driven, job-embeddedness, and collaborative strategies for enhancing educators' knowledge and practices (Borg et al., 2018). Collaboration as a pedagogical strategy is used to aid teacher educators in enacting what they learn from TPD models. Teamwork is essential within the context of the fast-changing technologies that occur in teaching and learning technologies (Uerz et al., 2018). Research into technology-mediated vocabulary development was strongly recommended and should also address language learning through digital gaming environments and social media tools. When the students and teachers use the technology purposefully, it engages them in critical reflection about their learning. Communication

technologies provide valuable and meaningful resources for language students to become aware of and actively reflect on their communication practices (Chun, 2016). Language teachers and students need to follow and know the modern trend of technological influence while considering the social consequences that may occur.

Studies are needed on how teachers use different kinds of technology to enhance students' learning in lower grades, including kindergarten (Abdi & Cavus, 2019; Lee et al., 2017; Meskill et al., 2020). The use of technology in learning is a topic that needs more research, according to Karami (2019). This is the gap this study tried to fill. Chapter 3 described the methodology to be utilized.

Chapter 3: Research Method

Introduction

The purpose of this basic qualitative study was to understand how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. According to Haynes and Shelton (2018), teachers and school leaders need to provide opportunities for ELs to use technology to develop vocabulary. This vocabulary gap affects listening, comprehension, reading comprehension, and language proficiency as ELs move through upper elementary grades (Coyne et al., 2019; Kapoyannis et al., 2021). It remains unknown how teachers provide opportunities for kindergarten ELs to learn vocabulary using technology and how educational leaders support that endeavor.

In this chapter, I discuss the methodology used in the study. This includes a discussion of the selected methodology and research design. The population and sample selection techniques are also discussed. I describe the data sources, as well as the methods taken to ensure the trustworthiness of the study. Finally, the assumptions and delimitations are described, and the chapter ends with a summary.

Research Design and Rationale

The following research questions guided this study:

RQ1: How do teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States?

RQ2: How do education leaders support teachers to provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States?

The phenomenon under investigation in this study was how teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary and how education leaders support that endeavor in an urban school system in the southwest United States. A basic qualitative study design was employed for this investigation. A qualitative approach is preferred when a researcher is interested in individuals' experiences and perceptions (Archibald et al., 2019). A qualitative methodology was appropriate for the current study because the perspectives of individuals are being sought rather than relationships among variables. A qualitative methodology would also add to the existing literature, as there is a gap relating to how teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary and how education leaders support that endeavor. Hammarberg et al. (2016) noted that qualitative investigation is appropriate when concrete variables cannot be identified. Qualitative studies often ask how and why questions because they commonly explore a phenomenon that cannot be easily explained and can be used to provide detailed information regarding the phenomenon in its natural context (Creswell & Poth, 2016).

Basic qualitative studies are interpretive and are common in education (Merriam, 2009). This type of qualitative study is based on constructionism; every person constructs their reality and meaning by interacting with what is around them (Crotty, 1998). Basic qualitative researchers focus on how a person interprets what they experience, how they

construct the world around them, and the meaning they give to those experiences (Merriam, 2009). The general aim is to understand how people make sense of their experiences and lives. A basic qualitative researcher captures descriptions of a phenomenon by conducting an in-depth exploration (Merriam, 2009). In the current study, the focus was on how teachers and school leaders provide opportunities for kindergartener ELs to use technology to develop vocabulary in an urban school system in the southwest United States.

Role of the Researcher

The integrity of qualitative research is centered on the skillfulness, competency, and thoroughness of the individual conducting the investigation. Within qualitative research, a researcher collects human data and applies analysis to that data. The researcher becomes the primary data collection instrument (Patton, 2002). In the current basic qualitative study, I selected participants who met the participant criteria; ensured that participants' data were protected and confidential; conducted semistructured interviews and focus groups; was responsible for minimizing my biases and predetermined viewpoints; analyzed the interviews and focus groups data using NVivo Version 12, a computer-assisted qualitative data analysis software; and made conclusions based on the themes emerging from the data.

I had no personal or professional connections to the urban school system in the southwest United States that was selected as the setting of this research. However, I had preconceived notions that technology could be used to develop vocabulary in young children. Therefore, I used bracketing to set aside my preconceived notions that may have

impacted data collection or analysis. Bracketing requires researchers to separate preconceived notions, biases, inherent knowledge, personal opinions, and assumptions from what is being observed in the research process (Baksh, 2018; Creswell & Poth, 2016). Experiences can easily influence decisions that need to be made while conducting research. To bracket, a researcher must assess their consciousness level throughout the different steps of the research (Baksh, 2018). During the study, I kept a journal combined with an audit trail. I bracketed out what was needed, especially during the analysis, and documented all decisions along with the rationale for those decisions (see Baksh, 2018). Before the data collection and analysis processes, I noted my preconceived opinions in a journal to confront and comprehend any subconscious notions that were subconsciously present, which allowed me, as the researcher, to ensure these ideas did not influence the study.

Methodology

Participant Selection Logic

This research took place in a school district in the southwestern United States. The general population under investigation in this study were kindergarten teachers and school leaders with experience in the education of kindergarten ELs. The participants in this study included seven kindergarten teachers, two principals, two assistant principals, and three English language development coordinators. Participants were selected using purposeful sampling. The purposeful sampling strategy assists in selecting participants who hold knowledge of the phenomenon under investigation (Suri, 2011). By choosing participants with specific criteria, a researcher is more likely to collect data from

participants with knowledge relevant to the topic of interest (Suri, 2011). The criteria in this study were that the participants be employed as kindergarten teachers, principals, assistant principals, or English language development coordinators at the urban school system site of the study in the southwest United States. All participants had at least 1 year of experience in the education of kindergarten ELs.

For those participants who were not teachers, the criteria also included that they have some type of involvement with technology involving kindergarteners, but direct teaching was not necessary. A supportive role of kindergarten teachers sufficed. After possible participants contacted me saying they were interested in volunteering, I reviewed the criteria. If they met the requirements, I sent them the consent letter to sign. After receiving their signed consent letter, I contacted them to schedule an interview.

In this study, I used a sample of 14 participants chosen by purposeful sampling. In purposeful sampling, a researcher chooses persons based on their experience and knowledge of the phenomenon being studied (Maxwell, 2012). Crawford (2016) and Ravitch and Carl (2016) indicated that sample size in qualitative research does not need to reach the level of statistical significance as it does in quantitative research. However, qualitative researchers should reach data saturation. Data were collected in the current study from at least 14 participants until two consecutive participant interview transcripts revealed no new themes or until all participants had been interviewed. At the point of data saturation, collecting additional interviews is unlikely to yield different results (Crawford, 2016; Ravitch & Carl, 2016). In qualitative research, data saturation usually

occurs after data are collected from five to 20 participants (see Crawford, 2016; Ravitch & Carl, 2016), so my sample of 14 participants was likely to reach data saturation.

Focus group participants were chosen from among those who took part in the individual interviews. When each interview was finished, I asked them if they were interested in participating in a focus group that would last between 45 and 60 minutes. If the answer were yes, I told them I would contact them to schedule the focus group. I also drew on the original list of volunteers who fit the criteria to email and ask them if they would participate in a focus group. The goal was to have at least two focus groups.

Instrumentation

Two different researcher-designed protocols guided the interviews and focus groups with open-ended questions on how teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor (see Appendix A). Interviews and focus groups provided participants with opportunities to share in-depth life experiences and perspectives on using technology to promote vocabulary acquisition in kindergarten ELs. Before beginning data collection, I asked an expert panel to review the protocol for the interviews and questions for the focus groups of this study to ensure validity, clarity, and sufficiency. The expert panel consisted of three experts in qualitative research and data collection from my academic advisory team. The expert panel reviewed the interview and focus group protocols and made recommendations for improvements to ensure the research protocol was likely to collect information that could

be used to inform the research questions. I moved on to data collection only when the expert panel had improved the interview and focus group protocols.

Data Collection Procedures

The data for this study were collected through semistructured interviews with kindergarten teachers, principals, and English language development coordinators at the site school district and through focus groups. Focus groups promote interactions and data that might be impossible to obtain in individualized interviews (Ravitch & Carl, 2016). Kindergarten teachers, principals, assistant principals, and English language development coordinators participated in both interviews and focus groups. I also kept field notes/observation journals during data collection. If no principals could participate in focus groups, I would go back to my original list of those who volunteered to see if they wanted to participate in a focus group. The goal was to have at least two focus groups, so volunteers would have a choice of times to participate. For participants other than teachers, the criteria also included that they have some involvement with technology comprising kindergarteners, but direct teaching was not necessary. A supportive role of the kindergarten teachers sufficed.

The data collection process began with site authorization. First, I emailed the school district superintendent, requesting permission to conduct data collection via Zoom. Due to the COVID-19 pandemic, the interviews and focus groups were conducted through Zoom and were audio recorded. I explained the purpose of the study and asked the district to give permission. I also asked to use the email list of employees. If the target district had not given permission, I would have selected a new school district in the

southwest United States and sought study permission using the same method. Once permission was granted, I approached several schools in the community to request permission to study whether they use technology to teach English to kindergarten ELs.

I sent a recruitment email to kindergarten teachers, principals, assistant principals, and English language development coordinators, inviting them to participate in the study. School personnel interested in participating in the study could contact me directly using the information provided in the recruitment email. I answered each participant's questions, and if they were still interested in participating in the study, I asked them if they fit the criteria to participate in the study. For those other teachers, the measures also included that they have some type of involvement with technology encompassing kindergarteners, but direct teaching was not necessary. A supportive role of the kindergarten teachers sufficed. If they qualified, then I would send a consent form to sign. I then scheduled an interview with the participant at a time that was convenient for them.

At the interview appointment, I thanked them for volunteering and reminded them they were not obligated to answer a question if they did not want to. I also told them they had the right to withdraw from the study at any time without any consequences; all they needed to do was email me. I again asked them if they felt comfortable that I audio tape the interview and reassured them of confidentiality. Each participant was provided a Zoom link to participate in their interview 2 or 3 days before the scheduled interview. I followed the interview questions and interview protocol. Still, I asked follow-up questions of the participants based on the participant's responses to the protocol questions

so more in-depth information could be collected. I recorded the interviews with an electronic recording device. During the interviews, I noted observations to record the participants' facial expressions, tone, gestures, and other data that assisted in interpreting the transcript. However, I did not allow anything to distract me from listening closely to the answers given. The interviews and the focus group length were no longer than 45 minutes.

At the end of each interview, I asked the participants if they would be willing to participate in a focus group. I recruited six participants, just as I had planned. Like the interviews, the focus groups were conducted via Zoom. I arranged a time for the groups that worked for the participants and myself. Once a time had been agreed upon, I sent the participants a Zoom invitation that allowed them to join the focus groups that included the Zoom link for the group. I also told them that only six participants were in each focus group. Before the groups began, I reminded the participants that they might quit the study and that their data was kept strictly confidential. Additionally, I asked that focus group participants refrain from discussing the conversations with individuals who did not participate in the group.

After the interviews and focus groups were completed, I transcribed the recordings using the Trint app for the iPhone by following the instructions on their website (Trint, 2022). I provided the participant with a copy of the transcript in an email for review to support the study's dependability. This review process is called member checking and offers the opportunity to decide if the transcripts of their spoken words during the interviews accurately reflect what they intended (Crawford, 2016; Ravitch &

Carl, 2016). The privacy of the individual participants was essential; therefore, I assigned a number to each participant to protect their identity and deleted anything in the transcripts that deemed them identifiable. Only my dissertation committee had access to the original names of the individuals.

I also kept a journal/audio trail to document decisions made and the reasoning behind the decision. Each step taken during the entire research process was recorded in the journal. The journal was also a place to record any biases, enlightened thoughts, questions I had, and notes taken during the interviews and focus groups about my observations. If insight about the study was experienced, that too was recorded. However, I did not allow note taking to distract me from listening attentively to the participants.

Interviews and focus groups are frequently used to collect data for qualitative studies (Creswell & Poth, 2016; Moser & Korstjens, 2018). How the participant describes the meaning of the phenomenon is sought (Moser & Korstjens, 2018). Follow-up questions to solicit more in-depth data were used in both interviews and focus groups (Moser & Korstjens, 2018). Follow-up questions were: Can you tell me more about that? Do you have an example of that experience? I am trying to understand. Can you clarify?

Data Analysis Plan

I transcribed each interview and the focus groups when they were completed. After the participants' interview and focus group responses were transcribed, the analysis process began. Once the transcripts had been finalized, I uploaded the focus group transcripts, interview transcripts, and field notes to NVivo 12 for coding. Each of the three data types was coded individually. Yin (2018) described the process of data analysis

as inference-making that focuses on understanding meaning. Data analysis in a qualitative study involves preparing the data by reducing themes through a coding process (Yin, 2018). This study utilized a thematic approach to analyze the data, which entails reading over the material in an iterative way to grasp critical words, phrases, and concepts that organically emerge from the data (Braun & Clarke, 2006; Yin, 2018).

Data were analyzed using Braun and Clarke's six-step thematic coding method (2006): (a) become familiar with the data, (b) generate initial codes, (c) search for themes, (d) review themes, (e) define themes, and (f) write up findings. In step one, becoming familiar with the data, I read and reread all the transcripts and listened to the audio recordings (Braun & Clarke, 2006). I became deeply familiar with the data and generated some initial thoughts about it from the process that will be noted in my journal. In step two, generating initial codes, I coded all sections of the data relevant to the research questions into smaller chunks of meaning (Braun & Clarke, 2006). My initial thoughts informed these codes gleaned from step one. In phase three, search for themes, I reviewed each initial code, considering how they are related, and combined them into larger themes. These themes captured something significant about the data and research questions. In step four, review themes, I reviewed the developed themes and the chunks of text within each theme. I refined the themes, combining themes when appropriate, splitting themes when they were divergent, and removing themes not supported by the data, as suggested by Braun and Clarke (2006). In step five, I captured each theme's essence, considering what the theme means, what sub-themes exist within themes, and how those sub-themes interact with the central theme. Each theme was named with a

short phrase that captured their essence of them. In the final step of coding, step six, I wrote up the findings and supported each theme with direct quotes from the participants and prior literature applicable to the theme and research questions.

The data were expected to answer the research questions, as I asked experts to review the interview questions to help establish their sufficiency. In addition, the research questions were considered when the interview questions were developed. Collecting data through interviews and focus groups provided enough data to answer the research questions due on the participants' experiences.

Issues of Trustworthiness

In qualitative research, trustworthiness is defined as the credibility, transferability, confirmability, and dependability of qualitative research findings, given that qualitative research does not use instruments with established metrics (Merriam & Tisdell, 2015). In this study, I took every precaution to establish credibility, transferability, confirmability, and dependability, thus bolstering overall trustworthiness.

Credibility

Credibility is the extent readers believe in a study (Hadi & Closs, 2016). In qualitative studies, the findings are considered credible if they accurately interpret the participants' experiences, responses, and thoughts (Hadi & Closs, 2016). According to Crawford (2016) and Ravitch and Carl (2016), member checking can enhance credibility. By conducting member checks, each participant can see if their answers were transcribed according to what they said. I did member checking with each study participant, providing them with a copy of the transcript via email for review to decide if the

transcripts of their spoken words during the interviews accurately reflect what they intended to say. The participants were satisfied with the transcription of their words and returned the transcripts to me via email.

Dependability

According to Hopkins et al. (2017), the study should address dependability issues to avoid providing untrue findings that may be misleading. Historically, qualitative studies use member checking to promote the dependability of their results (Hopkins et al., 2017). In keeping with this tradition, the current study used member checking to ensure that each interview transcript accurately reflects the statements made by the participants. Furthermore, the dependability of the research increased by explaining the strategy used in the study, defining the participant selection process, documenting the data collection process and its interpretation, and articulating the role of the researcher in the present study (see Hopkins et al., 2017). Crawford (2016) and Ravitch and Carl (2016) indicated that to enhance the dependability of the study data analysis process, data collection processes and triangulation method should be documented. I followed the procedures described in this chapter and stayed consistent with what was written. Triangulation is achieved by using several data collection techniques (Crawford, 2016; Ravitch & Carl, 2016). The data were compared to ensure unbiased and in-depth findings (Crawford, 2016; Ravitch & Carl, 2016). Comparisons of the interview themes, focus group themes, and the journal aided the final analysis presentation (see Crawford, 2016; Ravitch & Carl, 2016).

Transferability

Transferability refers to the generalizability of the study results (Hopkins et al., 2017). Transferability was increased in this study by collecting a sufficient sample size. I accomplished this by collecting data until data saturation was reached. I further increased the transferability of the study by collecting rich data that contained thick descriptions using follow-up questions about participants' experiences of the phenomenon, as described by Hopkins et al. (2017).

Confirmability

Confirmability refers to other researchers' ability to confirm a study's findings (Hopkins et al., 2017). The confirmability of this study was increased in several ways. I clearly described the coding processes used to arrive at the findings presented in this study, as Hopkins et al. (2017) recommended. I also provided evidence to support all the claims made in the study. Evidence is expected to arise from direct participant quotes supported by prior literature. The researcher also strived to set aside all biases before data collection and during data analysis by writing them in the journal. By doing this, I was better able to look at the results unbiasedly and could arrive at conclusions that would be easy to understand by other researchers.

Ethical Procedures

The three primary ethical principles, as provided by The Belmont Report, include autonomy, beneficence, and justice (Department of Health, 1978). Autonomy, often referred to as respect for the person, is the first ethical principle that signifies individuals' fundamental right to choose what activity they will or will not be engaged in. Autonomy

requires individuals to have a detailed understanding of what they are requested to be involved in to allow them to make a reasonable judgment of its effect on them and subsequently make a non-coercive decision to participate or not. Respect for a person in human research gives regard to the natural ability of individuals to do what they choose to do since not every individual has the intentional application of independence and control. Therefore, this calls for exercising care to ensure participants' responses are not influenced by coercion or external interference (Henderson et al., 2021). I did this by thoroughly explaining the purpose of the research to each participant and answering any questions they had about it. Furthermore, I did not ask the participants any leading questions that might influence the descriptions of the participants or how they answered the questions I asked them.

Beneficence, the second ethical principle, refers to the researcher's obligation to maximize the benefit for participants and society while minimizing risk (Department of Health, Education, and Welfare, 1978). This ethical principle ensures the well-being of participants and society concerning the research study since the researcher is responsible for guiding participants against physical and psychological harm and ensuring the research benefit outweighs the anticipated risk (Henderson et al., 2021). I did this by receiving the Institutional Review Board (IRB) approval number 08-30-22-0999727 before beginning data collection and sharing the research results with the participants and the academic community. I submitted my topic to IRB for approval because my study involved human subjects.

Justice is the final ethical principle that demands an equitable selection of research participants. Justice requires avoiding participants or populations whose participation might be unfairly coerced and demands that participants must like to benefit from the research. This study did not include participants who could not make a sound judgment about their desire to participate.

Informed consent was obtained by sending a form to the participants after they had agreed to volunteer to request their signatures. The privacy and confidentiality of the participants were ensured by changing their names and deleting any information likely to reveal who they were.

Finally, I will maintain the transcripts and field recordings for 3 years before destroying them. Specifically, I secured electronic files on my personal computer and a flash drive with a file access password. To eliminate the electronic files, I will delete them from all personal computers and flash drives. I will also keep paper field notes and other paper documents of the study in a locked filing cabinet for 3 years before destruction. I am the only one who will have access to this file cabinet. I will shred the paper copies of field notes and other paper documents to destroy them.

Summary

The purpose of this basic qualitative study was to explore teachers' and school leaders' perceptions of providing opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the Southwest United States. The phenomenon under investigation in this study was schoolteachers' and leaders' perceptions of technology use to promote vocabulary development in kindergarten ELs.

A basic qualitative study design was employed for this exploration. In the current study, I adhered to all the principles of the Belmont Report; selected participants that met the participant criteria; ensured that participants' data were protected and confidential; conducted semi-structured interviews and focus groups; was responsible for minimizing my biases and predetermined viewpoints; analyzed the interview data using NVivo version 12, a computer-assisted qualitative data analysis software; and made conclusions based on the emergent themes from the data. The general population under investigation in this study was kindergarten teachers who participated in the education of ELs. The participants in this study included seven kindergarten teachers, two principals, two assistant principals, and three English language development coordinators. Participants were selected using purposeful sampling to choose 14 participants. Two user-designed protocols guided the interviews and focus groups with open-ended questions. After the participants' interviews and focus groups were audio-recorded and transcribed, the analysis process began. I transcribed each interview and focus group verbatim directly after each was completed. Data were analyzed using thematic coding. I took every precaution to establish the study's credibility, transferability, confirmability, and dependability, thus bolstering overall trustworthiness. Chapter 4 reported on the findings in detail.

Chapter 4: Results

Introduction

The purpose of this study was to understand how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. The following two research questions were used to guide this study:

RQ1: How do teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States?

RQ2: How do education leaders support teachers to provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States?

This chapter includes the following sections: (a) description of the set of data collection; (b) description of the seven kindergarten teachers and seven school leaders who participated in this study; (c) description of the data collection procedures that involved individual interviews and focus groups; (d) description of the inductive, thematic procedure used to analyze the data; (e) discussion of the evidence of the trustworthiness of the study findings; (f) presentation of the study results, organized by the research question; and (g) summary of the results.

Setting

The data collection setting for the individual interviews and focus groups was the online videoconference application Zoom. Upon receiving approval number 08-30-22-

0999727 from the IRB, the personal interviews and focus groups were scheduled at times convenient for the participants to ensure they had adequate time to provide detailed responses. A link to the Zoom meeting was sent to individual interview participants or focus group participants on the day before the scheduled appointment. Participants could access the meeting from any location where they had internet access. Participants were invited to enter the videoconference from a safe, comfortable place where they would have privacy and few distractions. Audio and video were both enabled during the individual interviews and focus groups. There were no known personal or organizational conditions that influenced participants or their experiences at the time of study that may affect the interpretation of the study results.

Demographics

A purposeful sample of seven kindergarten teachers and seven school leaders was included in this study. At the time of study, the 14 participants worked in an urban school system in the southwest United States. The seven kindergarten teachers had at least 1 year of experience educating ELs. The school leaders were principals, assistant principals, and English language development coordinators, who all had at least 1 year of experience supporting kindergarten teachers who educated ELs.

To maintain the confidentiality of the participants' identities in reporting the results, the participants were assigned pseudonyms to use in all study materials in place of their real names. The seven teacher participants were given the pseudonyms T1 through T7. The seven school leader participants were given the pseudonyms L1 through

L7. T3 and T6 participated in the teacher focus group, and L1, L3, and L6 participated in the school leader focus group.

Data Collection

One individual interview was conducted with each of the seven kindergarten teachers and seven school leaders. The average duration of the personal interviews was approximately 45 minutes. One teacher focus group was conducted with two teachers who provided individual interview data. One school leader focus group occurred with three school leaders who were also interviewed individually. The focus groups were each approximately 30 minutes in duration. All interviews and focus groups were conducted online via Zoom and audio recorded with the participants' consent using Zoom's audio-recording feature. There were no variations from the data collection procedure described in Chapter 3, and no unusual circumstances were encountered during data collection.

Data Analysis

I transcribed the audio recordings of the interviews and focus groups verbatim. The transcripts were imported into NVivo 12 computer-assisted qualitative data analysis software. The data were analyzed using the inductive, thematic coding method recommended by Braun and Clarke (2006). The six steps of the process were: (a) become familiar with the data, (b) generate initial codes, (c) search for themes, (d) review themes, (e) define themes, and (f) write up findings (Braun & Clarke, 2006).

In step one, becoming familiar with the data, I read and reread all the transcripts thoroughly (Braun & Clarke, 2006). I became deeply familiar with the data and noted initial thoughts about the data and potential patterns in participants' responses in a

handwritten journal. In step two, to generate initial codes, I coded all sections of the data relevant to the research questions into smaller chunks of meaning (see Braun & Clarke, 2006). Teacher and school leader data were coded separately because they addressed different research questions. Each resulting piece of data consisted of a phrase or group of words that expressed one idea relevant to managing a research question. An example of a chunk of data was provided by T3, who stated in an interview response, "When I would specifically play like a YouTube video about a story or subject in English, [students] were more engaged, they were more focused, they were able to pay attention." Each chunk of relevant data was assigned to a code. The chunk of data quoted from T3's interview was assigned to a code labeled *technology engages students*. When different chunks of data had similar meanings, they were given the same code. For example, T5 said in an interview response, "That [instructional technology] holds their [students'] attention better, you know?" This chunk of data from T5's interview was assigned to the same code as the previously quoted chunk for T3's interview because both excerpts expressed that technology effectively engages students' attention. From the 14 interviews and two focus groups, 136 data chunks were assigned to 24 codes. Table 1 indicates the initial codes generated from the teacher data.

Table 1

Initial Codes From Teacher Interviews and Focus Groups

Initial codes	Data chunks assigned from:	
	Teacher interviews	Teacher focus group
Apps	13	
Assessments are informal	6	
Audiobooks	2	
Digital textbooks	2	
Discrepant data: Prefer not to use technology	2	
Meeting the challenge of differentiated instruction	4	2
Multimodal instruction	10	2
Not enough devices	3	2
Professional development would teach new tools	6	
Projector	2	
Prompt integration of PD instruction	5	
Students enjoy technology	7	
Technology engages students	4	
Videos	11	
Walkthroughs are needed	3	

Table 2 indicates the initial codes generated from the school leader data.

Table 2

Initial Codes From School Leader Interviews and Focus Group

Initial codes	Data chunks assigned from:	
	Leader interviews	Leader focus group
Age-appropriate device distribution	3	
Evaluating technology	3	
Making time for technology integration	2	
Providing devices	5	
Providing professional development	4	2
Teacher proficiency is needed	6	3
Technology facilitates differentiated instruction	4	
Technology facilitates multimodal instruction	8	1
Technology promotes student engagement	9	

In step three, search for themes, I reviewed each initial code, considering how they are related, and combined them into larger themes (Braun & Clarke, 2006). These themes indicated the overarching patterns of meaning in the data. As an example of theme formation, the following five codes from the teacher data were identified as related to one another: (a) assessments are informal, (b) meeting the challenge of differentiated instruction, (c) multimodal instruction, (d) students enjoy technology, and (e) technology engages students. These five codes were identified as related because they all indicated the perceived impacts of technology integration for vocabulary instruction on student success. The theme into which these five codes were clustered was assigned the preliminary label *technology effects* as a placeholder, pending the final naming of the theme in step five of the analysis. Table 3 indicates how the 15 initial codes generated from the teacher data were clustered to form three preliminary themes.

Table 3

Clustering of Initial Codes From Teacher Interviews and Focus Groups to Form Preliminary Themes

Preliminary theme Initial codes grouped to form theme	Data chunks assigned from: Teacher interviews	Teacher focus group
Technologies used	31	
Apps		
Audiobooks		
Digital textbooks		
Discrepant data: Prefer not to use technology		
Projector		
Videos		
Technology effects	30	4
Assessments are informal		
Meeting the challenge of differentiated instruction		
Multimodal instruction		
Students enjoy technology		
Technology engages students		
Needed supports	17	2
Not enough devices		
Professional development would teach new tools		
Prompt integration of PD instruction		
Walkthroughs are needed		

Table 4 indicates how the nine initial codes generated from the school leader data were clustered to form two preliminary themes.

Table 4

Clustering of Initial Codes From School Leader Interviews and Focus Groups to Form Preliminary Themes

Preliminary theme Initial codes grouped to form theme	Data chunks assigned from: Leader interviews	Leader focus group
Supports for teachers	19	5
Evaluating technology		
Making time for technology integration		
Providing devices		
Providing professional development		
Teacher proficiency is needed		
Support effects	24	1
Age-appropriate device distribution		
Technology facilitates differentiated instruction		
Technology facilitates multimodal instruction		
Technology promotes student engagement		

In step four, review themes, I examined the preliminary themes and chunks of text within each theme, refined the themes as suggested by Braun and Clarke (2006), and ensured that the themes did not overlap and that each theme represented a single cohesive idea. I also checked each theme against the original data to ensure it accurately represents a pattern in the participants' responses. In step five, I attempted to capture each theme's essence, naming the theme by considering what the data assigned to the theme meant (see Braun & Clarke, 2006). Each theme was named with a short phrase that captures its essence. Table 5 indicates the names assigned to the preliminary themes.

Table 5

Naming of Preliminary Themes

Preliminary theme label	Finalized theme name
Technologies used	Theme 1: Teachers implemented five kinds of technology
Technology effects	Theme 2: Technology integration promoted students' academic success
Needed supports	Theme 3: Needed supports for teachers included more professional development and more devices
Supports for teachers	Theme 4: Education leaders supported kindergarten teachers in four ways
Support effects	Theme 5: Education leaders' support for kindergarten teachers promoted students' success

Step 6 of the analysis involved presenting the results by writing Chapters 4 and 5 of this study. The results section of this chapter includes a detailed presentation of the study findings, organized by the research question, with supporting quotes from the data as evidence. First, however, in the following section, I address evidence of trustworthiness.

Evidence of Trustworthiness

In qualitative research, trustworthiness is defined as the credibility, transferability, confirmability, and dependability of qualitative research findings, given that qualitative research does not use instruments with established metrics (Merriam & Tisdell, 2015). In this study, I took precautions to establish credibility, transferability, confirmability, and dependability, thus bolstering overall trustworthiness.

Credibility

Credibility is the extent to which study findings accurately represent the reality they are intended to describe (Hadi & Closs, 2016). In qualitative studies, the findings are

considered credible if they accurately interpret the participants' experiences, responses, and thoughts (Hadi & Closs, 2016). According to Crawford (2016) and Ravitch and Carl (2016), member checking can enhance credibility. Member checking was conducted in this study. By conducting member checks, participants could see if their answers were transcribed according to their intended meanings. I provided a copy of the transcript to the participant in an email for review to allow the participant to decide if the transcripts of their spoken words during the interviews accurately reflected what they intended (See Crawford, 2016; Ravitch & Carl, 2016). All 14 participants approved their transcripts by reply email.

Dependability

According to Hopkins et al. (2017), the study should address dependability issues to avoid providing untrue findings that may be misleading. Historically, qualitative studies involve member checking to promote the dependability of their results (Hopkins et al., 2017). In keeping with this tradition, the current research involved member checking to ensure that each interview transcript accurately reflected the statements made by the participants. Furthermore, the dependability of the research was increased by explaining the strategy used in the study, explaining the participant selection process, documenting the data collection process and its interpretation, and articulating the role of the researcher in the present study (Hopkins et al., 2017). Crawford (2016) and Ravitch and Carl (2016) indicated that data collection processes should be documented to enhance the dependability of the study data analysis process. I followed the procedures described in Chapter 3 and did not deviate from what was written.

Transferability

Transferability is the degree to which the study results hold samples and settings other than those from which they were derived (Hopkins et al., 2017). Transferability was increased in this study by recruiting a sufficient sample size. This was accomplished by collecting data until data saturation was reached. I further increased the transferability of the study by collecting rich data that contained thick descriptions and asking follow-up questions about participant experiences of the phenomenon during the interviews and focus groups, as described by Hopkins et al. (2017).

Confirmability

Confirmability refers to how well the findings reflect participants' opinions and perceptions rather than researcher bias (Hopkins et al., 2017). The confirmability of this study was increased in several ways. In the Data Analysis section of this chapter, the researcher clearly described the processes of coding used to arrive at the findings presented in this study, as recommended by Hopkins et al. (2017). I also provided evidence to support all the claims made in the study in the Results section of this chapter. Evidence is in the form of direct participant quotes. I also strove to set aside all biases before data collection and during data analysis by writing them in a journal, reflecting on them, and making conscious efforts to suspend them.

Results

The results were organized by research questions. Table 6 summarizes how the five themes that emerged during data analysis addressed the two research questions.

Table 6

Themes Used to Address Research Questions

Research question	Themes used to address question
RQ1. How do teachers provide opportunities for kindergarten English Learners to use technology to develop vocabulary in an urban school system in the Southwest United States?	Theme 1: Teachers implemented five kinds of technology Theme 2: Technology integration promoted students' academic success Theme 3: Needed supports for teachers included more professional development and more devices
RQ2. How do education leaders support teachers to provide opportunities for kindergarten English Learners to use technology to develop vocabulary in an urban school system in the Southwest United States?	Theme 4: Education leaders supported kindergarten teachers in four ways Theme 5: Education leaders' support for kindergarten teachers promoted students' success

Research Question One

RQ1 was: How do teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the Southwest United States? Three themes were used to address this question, as follows: (Theme 1) Teachers implemented five kinds of technology, (Theme 2) Technology integration promoted students' academic success, and (Theme 3) Needed support for teachers included more professional development and more devices. The following subsections are detailed presentations of these themes.

Theme 1: Teachers Implemented Five Kinds of Technology

All seven teacher participants contributed to this theme through their interview data. One participant provided discrepant data indicating that she preferred not to use technology for instruction. The teachers reported in their interviews that they used five

types of technology to support vocabulary instruction, including apps, videos, overhead projectors, audiobooks, and digital textbooks.

Five participants indicated that they used apps to support vocabulary instruction. T1 reported that she used four apps to develop the vocabulary for ELs across three different subjects, saying, “For ELA, we can integrate through Green Screen. For science, we have . . . STEAM for motions, which includes vocabulary. For math, we use the Five Little Pumpkins with the KEVA Planks.” T2 reported using one app for reading instruction: “There’s like Reading A-Z and like these other programs that students can go in there and choose the book, and then it’ll guide them through it.” T3 reported using one app for building math vocabulary: “If it’s like math, without me telling them, they go to the MAP app MAP program, and they’re happy solving math problems.”

Like T2, T3 reported using Reading A-Z for students’ reading, saying, “If it’s like reading stories, they go in, and they should choose the stories, and then some of the stories have songs and audio.” T6 reported using an app tailored for ELs: “Benchmark has an application for ELs and ELD. It’s mostly music, which I like a lot, because I think that’s the most appropriate way, sometimes, for them to acquire language in a very enjoyable and fun way.” T6 also reported using two other reading apps: “Some of the apps are Renaissance and ABC Mouse. You know, they also have much literature in English that we use. They have high-frequency words.” T7 described using a different reading app: “There are applications such as ABCya! It’s kind of like a game. It’s just full of games, mainly sight words, not necessarily vocabulary words, but for that purpose.”

Five participants reported using videos to support vocabulary instruction, sourced mainly through YouTube. T3 said she used “A lot of videos and songs, yeah, YouTube videos.” T4 showed her students videos that integrated vocabulary instruction with physical movement: “I like to incorporate videos, especially during long days, you know, the movement videos, where they do exercise, so not only are they stretching, they’re also learning new words.” T5 reported showing her students videos that included songs for some vocabulary instruction: “There’s a video, there are songs they can sing and practice, it’s kind of like the rote learning skills, but specifically just with my ESL students, maybe once or twice a week.” T5 also showed her EL students videos of people interacting to help build vocabulary, so the students would “Watch a scene of people interacting, and for them that might be better than me just trying to explain it, saying, like, ‘Oh, here’s the parent, here’s the child, here’s the sister,’ and they see those interactions.” T6 said, “I use YouTube because they have some videos that apply to the concept that we’re teaching.” T7 said she successfully taught her students vocabulary by “Having a visual, like YouTube videos, where there’s a catchy song, and it really helps, so YouTube videos with the music, and then there’s some dancing involved.”

Two participants reported that they used overhead projectors. T2 would project books for students to read with her; she said: “If you just project the book over the overhead projector, right? I feel like you can get their attention that way.” T4 used the overhead projector to display books for reading so she could develop students’ vocabulary when a new word appeared:

> I like to go on different websites, especially where they have books. I get to project them on the screen, and we get to read them together, and if we see a word that we don't know, I ask my students, "Oh, do you guys know what this means?"

Two participants reported that they used audiobooks for vocabulary instruction. T3 stated that the administrators at her school encouraged the use of audiobooks for vocabulary instruction for ELs and that the students used audiobooks in small groups:

> They [students] were sitting in groups to listen to audiobooks, reading, so that's where the school administrators wanted them to practice in English. Students will choose an English book, and then they would listen to it, and that vocabulary in those stories was their exposure to it.

T7 said that when audiobooks were used, students could hear new vocabulary words in addition to reading them: "When the books are being read to the students, they hear the story being read."

Two participants indicated that they used digital versions of textbooks for vocabulary instruction. T2 used the discs that textbook publishers included with the hardcopy texts in conjunction with an overhead projector: "Many times, it [the textbook] comes with a disc, so instead of just having the old, traditional way of just, 'Students, open up your books,' we just have it projected onto the screen, and students can see very clearly." T5 said, "We have books that walk us through each lesson each day, and they have suggestions in there: 'Play this video or hear a prompt for journals. First, discuss this.' So, I go right out of the book."

One participant, T5, provided partly discrepant data indicating that she preferred not to use technology for instruction. T5 reported that she did not like to use technology in the classroom because she believed that students were exposed to a sufficient amount of it at home:

> When they're at home, many of them spend many hours on screen, so if they're going to come to the classroom, I don't want to put them on a screen very much. I want them to have turn-taking. I want them to be to ask a human. I don't want to put headphones on them and have them look at the screen.

The data was only partly discrepant because, like other teacher participants, T5 indicated that she used some technology, including videos and a digital textbook. Thus, the teacher participants reported integrating five kinds of technology to provide opportunities for kindergarten ELs to use technology to develop vocabulary. The five kinds of technology were apps, videos, overhead projectors, audiobooks, and digital textbooks. According to teacher participants, the following theme indicates the perceived effects of integrating these technologies.

Theme 2: Technology Integration Promoted Students' Academic Success

All seven teacher participants in their interviews and teacher participants in the focus group indicated that the opportunities they gave EL kindergarten students to use technology to learn vocabulary contributed to those students' academic success. The teachers reported using informal assessments, such as listening to and questioning students, to determine that technology use contributed to academic success. The most frequently reported way in which technology use contributed to EL students' academic

success was by providing multimodal instruction, including through audio (apps that would read words aloud), visual (pictures and videos), music (songs that included vocabulary words), and movement (dance and exercise). The teachers said that technology also contributed to differentiated instruction when students could work independently or in small groups at their own pace on a device. The teachers described technology as effective for promoting their EL students' academic success because the students found the technology engaging and enjoyable.

Five teacher participants expressed in their interview responses that they informally assessed student success related to technology use, and no teacher participants reported that they conducted formal assessments. T2 said, "I've used just basically just informal observation, so just by observing the students, you can see if there's a difference." T3 conducted informal assessments by questioning students after they used technology: "I would [do] an informal assessment, like I would ask them a question in English, and they would respond." T4 said she assessed her students informally, "Just by asking them all, 'Do you know what this word means?'" T4 added that she could also assess her students informally by observing their facial expressions when she gave explanations: "You just have to look at your students as you're talking to them, as you're explaining, as you're reading if they're looking at you like they're not understanding what you're saying." T5 said of how she assessed her students, "Letting them have practice independently [and observing them] gives me a gauge on how much they're understanding."

Both teacher focus group participants and six teacher interview participants indicated that technology integration contributed to EL students' academic success by helping teachers to provide multimodal instruction. T6 said in the focus group that technology integration added a visual component to learning: "I guess the pros of using technology is that it offers a visual representation of the vocabulary that allows the learners to access more easily." T6 added in the same focus group response that visual instruction was also provided through videos that could be interactive: "Some videos, you can make it interactive, so you actually not just play a video, but you can actually, little by little, introduce them and embed the students to the meaning of the concept you wanted them to learn." T2 said in an interview response that technology was used to provide visual and audial learning: "We have learners that are visual, we have learners that prefer to hear, so they're just, for example, using technology, just finding that different ways." In an interview response, T4 described using videos to teach vocabulary through song and movement: "They're learning vocabulary words through song and through movement, because they're getting to learn all these words—stretch your arms, do arm circles—so not only are they moving, they're also learning new words." T6 described using music to teach vocabulary through the Benchmark app: "Benchmark has an application for ELs and ELD. It's mostly music, which I like a lot, because I think that's the most appropriate way, sometimes, for them to acquire language in a very enjoyable and fun way." T7 said in an interview response that a Google app was used to pronounce vocabulary words for students to add an audial component to learning: "With

Google dictionaries, they have a function where it'll actually pronounce the word for you."

The teacher focus group and three teacher interview participants reported that technology use contributed to EL students' academic success by helping teachers provide differentiated instruction. T5 said in an interview response that differentiating instruction was the most challenging aspect of teaching kindergarten ELs:

> I think the most challenging part is that they all come to me at different levels, so I might be giving a picture cue and giving a description, and some children, they already understand that that's already in their knowledge, and some children have no idea what I'm talking about because it's brand new to them.

T1 also said in an interview response, "The most challenging [aspect of teaching EL students] is the different levels of comprehension. Some students know a little, some do not, and some are very fluent, but these students are labeled at the beginning." T1 added that technology use helped her to meet this challenge because, through reading apps, she was able to "Differentiate instruction based on the student levels." T3 said in a focus group response that when EL students used the Raz-Kids app for reading, "They can practice reading at their level, and then the more they read, the more complex the text becomes."

Technology use was effective for teaching EL students vocabulary partly because the students found the technology enjoyable and engaging, five of the teacher participants said in their interviews. T1 said of her students, "They love using computers in a station and all those programs. They're excited to use them." T3 described videos as engaging

for students: “When I would specifically play a YouTube video about a story or subject in English, they were more engaged, they were more focused, they were able actually to pay attention.” T3 also described students enjoying learning through a math app: “They go to the MAP app MAP program, and they’re happy solving math problems.” T6 expressed that students’ enjoyment increased when more apps were used: “The more applications that we use, the more familiar they [students] become, the more they will enjoy, and the more I feel like I’m giving them the chance to succeed.” T6 also described technology as “hooking” some students: “Some students get really hooked on technology, and that’s a different experience for them to access new vocabulary when they don’t do it through the typical classroom strategies.” T7 said of her students’ using Google Docs to practice typing vocabulary words, “They love technology. Somehow, something about just having no paper and pencil and practicing on the computer motivates them to look at the letters and arrange the letters.” Thus, the teacher participants vehemently attested that technology use contributed to their EL students’ academic success in vocabulary acquisition through multimodal instruction, differentiated instruction, and student engagement and enjoyment. However, the teacher participants believed that students would benefit from technology use if teachers received more support with technology integration, as the following theme indicated.

Theme 3: Needed Support for Teachers Included More Professional Development and More Devices

All seven teacher participants indicated in their interview responses, and both focus group participants stated that they could implement technology to support their EL

students' vocabulary acquisition more effectively if they had more support from their administrators. The teacher participants expressed the perception that additional professional development (PD) would acquaint them with additional technology tools that would make vocabulary instruction more effective for their EL students. Some teacher participants further indicated that the specific form the additional PD could most beneficially take would be that of a walkthrough on new apps and devices. Some teachers stated that they needed more devices to provide optimally effective vocabulary instruction for their EL students.

Six teacher participants expressed in their interview responses that additional professional development could benefit them and their students by acquainting them with other instructional technologies. The remaining participant did not disagree. T2 said, "Professional development on technology, I feel that would increase those opportunities to use technology so that it would give me more tools, I feel, and so yeah, I would consider that to be beneficial." T3 said that additional professional development could benefit her and her students by teaching her "The latest apps because I'm not that familiar with it. I'm not computer savvy." T4 wanted additional PD to teach her to exploit the technologies that were already in her classroom to the fullest extent:

> [PD could teach me] how to use it [technology] efficiently and effectively . . . Like we have our overhead. I know you can connect it to the computer and just directly to the overhead, but I know there are also settings that you can connect it directly to the internet, which I did not know how. If we don't know how to use it, then we're not really taking advantage of it.

T5, who reported that she did not like to use technology, still believed she and her students could benefit if she received the right kind of PD on technology: “The value for me would be someone coming along and saying, ‘I know these are your concerns, but let’s try this because this is what’s going to benefit your kids.’ I’m always open to someone teaching me something new.” T6 said her students could benefit if she received more PD on technology because “I would love to hear more about technology that we could use in the classroom. I think there are so many things out there that we are not using yet that I’ve heard.” T7 said she wanted more PD to learn “How to implement [technology] in the classroom and how to help students use it in the classroom, so just more new, fresh ideas that can motivate students to really apply what they’re learning with the use of technology.”

Three teacher participants indicated in their interview responses that one of the forms PD on technology should take was walkthroughs for teachers. T3 said that she needed to walk her students through new apps before they could use the technology independently and that she would benefit from a walkthrough from a more experienced PD facilitator because “I actually have to go in the steps myself first before I can model it to them, and then have them go in and do it until they learn the routine.” T4 believed that receiving a walkthrough from an experienced trainer would be more beneficial than exploring apps on her own: “You can learn on your own by just going through it, but you might miss certain features that you would not know about unless somebody showed you.” T7’s students had recently been given access to Chromebooks. She wanted to be shown “What it is, how to care for it, and how to use it properly, and how to use it

effectively . . . how to access sites, how do I manage a popup," so that she could demonstrate the proper ways to use the devices to her students.

One participant in the focus group, and three interview participants, indicated that they and their students would benefit from more access to technology. T6 said in the focus group that she and her students did not have access to some of the paid apps that might benefit her ELs in their vocabulary acquisition: "For some classes, we might not have enough resources to use a website, and sometimes some of those websites are paid, so they're not really accessible to us." In an interview response, T3 indicated that her students needed more laptops and appropriate chargers: "We don't have the round-headed chargers for a certain model of laptops. I haven't been able to have each student have their own yet." T6 also said in an interview response, "Not all students have access to a computer." T7 also reported that technology resources were scarce at her school: "We were very limited with the technology. We only had the technology available for about an hour once a week, sharing the computer cart, so we were limited to that." Thus, most teacher participants reported that they and their EL students would benefit from receiving more PD on using instructional technology to promote vocabulary acquisition, particularly in walkthroughs. Some teacher participants also reported that they and their students would benefit from access to more apps and devices. The following theme indicates the support the school leader participants said they provided to kindergarten teachers of ELs.

Research Question Two

RQ2 was: How do education leaders support teachers to provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the Southwest United States? Data to address this question was drawn from the leader interviews and focus groups. Two themes addressed this question: (Theme 4) Education leaders supported kindergarten teachers in four ways, and (Theme 5) Education leaders' support for kindergarten teachers promoted students' success.

Theme 4: Education Leaders Supported Kindergarten Teachers in Four Ways

All seven leader participants contributed to this theme through their interview responses, and three leaders contributed to this theme through their focus group responses. The four ways in which the leaders indicated that they supported teachers were by providing PD, by providing devices, by evaluating a new technology for possible integration in the classroom, and by making time in the daily school schedule for teachers to integrate technology. The leader participants agreed with the teacher participants that PD on technology was needed for teachers because teachers are required to be proficient in using instructional technologies for students to benefit from them.

Two leader participants indicated in their interviews, and two leader participants indicated in the focus group that they supported kindergarten teachers' instructional technology integration by providing PD. L6 said in the focus group that PD was provided when a new app was implemented: "We had development for technology when we adopted the benchmarks LD program." L3 said in the focus group that PD on technology was provided "Once a month" and that it involved showing teachers "How to use the

apps that we have, so MyOn, Happy Numbers, Alecks. So, that was PDs for the teachers to know how to navigate those so they can show the students how to navigate that." In an interview response, L3 added that support for teachers included,

> Providing examples of when they can use it and use it purposefully—that's the support that I can immediately give a teacher. Another support can be providing training in the resources we already have and letting them know how they can use them.

L1 said in an interview response that supports for teachers included "Providing the professional development and the training for teachers in the various technologies, and even social media platforms and some of the other ways that we use technology for instruction." L7 provided walkthroughs for teachers, according to an interview response: "I'm able to support teachers and kindergarten to use technology by demonstrating how to use specific apps that are going to benefit their kids in the long run." L7 added that support for teachers was provided through ongoing PD: "I think the easiest way for a school leader to do that is through professional development training, but ongoing, not just one day train you and then I kind of leave you to drown." L7 followed up on the ongoing PD by "Going inside the classroom to see how they're using the technology from the training that they received and supporting them with whatever it is that they need one-on-one."

Three participants indicated in the leader focus group, and four leader participants specified in their interviews that PD for teachers was important because effective technology implementation depended on teacher proficiency with the technology. In the

focus group, L1 said, “I think the educator has to understand and be provided instruction . . . to understand technology enough to know what type of technology would best help reach those [instructional] goals.” L3 said in the focus group, “I want them [teachers] to learn what is the appropriate technology for them to use that’s specifically for English learners.” In an interview response, L1 clarified the expertise teachers needed to use technology effectively to support instruction for ELs, “It would be important that the teacher is well aware of how to use the software, the benefits of it, the research behind it, [and] what the outcomes are supposed to be.” In an interview response, L2 said of the expertise teachers needed, “The teachers need to be able to be tech savvy and just be able to utilize different types of tools.” L4 said in an interview that teachers needed training to use technology because “We have a scope and sequence that we expect the teachers to follow, and I would want them to be able to line up the technology delivery for those English learners that would keep them on pace.”

Four leader participants indicated in their interview responses that their support for kindergarten teachers included providing student devices. L4 said of the devices supplied, “All of our students have their own devices. Every classroom has a NewLine, an old-school, gigantic, big-screen TV that is interactive. Then on top of that, we purchased research-based software.” L6 said in an interview response, “We support the teachers in making sure that everybody has enough technology,” and specified, “We will provide all the classrooms with one-to-one technology. We have purchased several programs with the EL designation, for example, BrainPOP ELL.” L7 reported providing

a one-to-one device-to-student ratio: “Our whole school got Chromebooks for every child. We already had iPads.”

Three leader participants indicated in their interviews that they supported teachers by evaluating or vetting new technologies to assess whether implementation would be appropriate. L1 said in an interview response that a curriculum committee had been formed to support teachers by identifying appropriate instructional technologies:

> I’m sure there are many companies out there that want to make money and try to put out various things, and maybe disguise them as educational that may not be, which is why it’s very important that the administration has in place a curriculum committee to look over and review and even pilot the various things that are out there, to make sure that it’s meeting the vision and the objectives of the instruction. I don’t believe that everything out there should be used. I believe we have to be selective to make sure it’s meeting our objectives.

L3 reported vetting digital games to ensure that they were appropriate for instruction: “You need to see what the objective is for these digital games, and preview the digital games before using them because they might [inaccurately] promote themselves as vocabulary-enriched digital games.” L4 said that before implementing an instructional game, “I would want to see the research behind the game before I just put a kid on it because otherwise, they could just be playing a game that’s [only] playing games.”

Two leader participants reported in their interviews that they supported teachers’ integration of instructional technology by ensuring adequate time during the school day

for the technology to be used. L3 said, “The support that I can provide easily is being able to meet with teachers and help them make the time. I think that’s a big problem a lot of teachers face: how long is this going to take.” L6 said of helping teachers to make time for technology integration, “We have encouraged the teachers to have designated ELD time, and we’ve also encouraged them to have such time as like centers, where you would have station rotation,” so that students, “Whether independently or with a buddy, they have that opportunity to access those technology apps.” Thus, leaders reported that they supported teachers’ technology integration to promote EL students’ vocabulary acquisition in four ways: providing PD, providing access to devices and apps, vetting technologies before implementation, and helping teachers make time for technology integration. As will be seen in the following theme, the leaders believed that the supports they provided to teachers were conducive to EL students’ academic success.

Theme 5: Education Leaders’ Support for Kindergarten Teachers Promoted Students’ Success

All seven leader participants indicated in their interviews, and one leader participant expressed in the focus group that the supports they provided for teachers’ integration of instructional technology were conducive to EL students’ academic success. The leader participants indicated that EL students’ academic success was supported in three ways. First, technology integration promoted student engagement, the leaders said. The leaders also described technology as facilitating multimodal instruction and differentiated instruction.

Six leader participants expressed the perception in their interview responses that technology integration promoted student engagement, and the remaining leader participant agreed. L1 described the stimulation technology provided as a student's need: "Children need those stimuli. They need those various ways that are smaller than just a voice and a whiteboard, so any technology can be used in a way that helps engage our children and keep them interested and motivated." L4 attributed measured improvements in students' academic success to increased engagement through technology integration: "Our data shows that when we implement the [technology] component that comes with the curriculum or the language software we have for the kids, they show growth. I think that's because kids are engaged with technology." L5 agreed, saying, "Using technology will be engaging for students nowadays . . . I think it's engaging for the students when they listen to music or different sounds. That might keep their attention." L7 stated of technology, "It's engaging. It's not something where I'm [the student] just listening to the teacher. It's more like me independently seeing it, and it might look like a game at some point. That's what I've seen for kindergarten."

Five leader participants stated in their interviews, and one leader participant said in the focus group that technology integration promoted EL students' academic success by facilitating multimodal instruction. In the focus group, L6 described EL students as using visuals and virtual manipulatives to learn math vocabulary:

> They were putting in their code to get into their ST math account, and I think it was maybe 12 pictures that they had to have memorized in a particular order, and

> it was dragged into the correct order, and I couldn't believe how quickly these students could do that.

In an interview response, L2 indicated that kindergarten teachers were using technology to implement a visual instructional component and manipulatives:

> Many kids are visual learners, so they need a big projector to be able to see. For the teacher to model using the words, I've seen in kindergarten, where the teachers are using the ELMO [overhead projector] and might be using manipulatives.

In another interview response, L5 described kindergarten teachers as using technology to implement an auditory component to learning and manipulatives: "The technology is such advanced manipulating objects and different sounds to indicate maybe hints for the students, and just ways for them to understand vocabulary better." In an interview response, L6 described audiobooks being used to support audiovisual learning through "The highlighting of the words as the sound is being read, and the word is being highlighted. That helps the student to be able to identify what the word looks like as the sound is being read to them."

Two leader participants said in interview responses that teachers' integration of technology promoted EL students' academic success by facilitating differentiated instruction. L4 indicated that technology-enabled teachers let students learn at their own pace: "An English learner student can put their headphones on. They can be guided at their own pace. The teacher can check the data." L6 indicated that technology could provide one-on-one instruction for students: "Where you have the visual, you have the

word being read, the highlight following the words, that's almost like one-on-one instruction with the teacher." Therefore, the school leader participants reported that the support they provided to teachers for technology integration promoted EL students' academic success in three ways: increased student engagement facilitated multimodal instruction, and facilitated differentiated instruction.

Summary

Two research questions were used to guide this study. RQ1 was: How do teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the Southwest United States? Three themes were used to address this question. The first RQ1 theme was: teachers implemented five kinds of technology. All seven teacher participants contributed to this theme through their interview data. One participant provided discrepant data indicating that she preferred not to use technology for instruction. The teachers reported in their interviews that they used five types of technology to support vocabulary instruction, including apps, videos, overhead projectors, audiobooks, and digital textbooks.

The second RQ1 theme was: that technology integration promoted students' academic success. All seven teacher participants in their interviews and teacher participants in the focus group indicated that the opportunities they gave EL kindergarten students to use technology to learn vocabulary contributed to those students' academic success. The teachers reported using informal assessments, such as listening to and questioning students, to determine that technology use contributed to academic success. The most frequently reported way in which technology use contributed to EL students'

academic success was by providing multimodal instruction, including through audio (apps that would read words aloud), visual (pictures and videos), music (songs that included vocabulary words), and movement (dance and exercise). The teachers said that technology also contributed to differentiated instruction when students could work independently or in small groups at their own pace on a device. The teachers described technology as effective for promoting their EL students' academic success because the students found the technology engaging and enjoyable.

The third RQ1 theme was: needed support for teachers, including more professional development and more devices. All seven teacher participants indicated in their interview responses, and both focus group participants stated that they could implement technology to support their EL students' vocabulary acquisition more effectively if they had more support from their administrators. The teacher participants expressed the perception that additional PD would acquaint them with additional technology tools that would make vocabulary instruction more effective for their EL students. Some teacher participants further indicated that the specific form the additional PD could most beneficially take would be that of a walkthrough on new apps and devices. Some teachers stated that they needed more devices to provide optimally effective vocabulary instruction for their EL students.

RQ2 was: How do education leaders support teachers to provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the Southwest United States? Two themes were used to address this question. The first RQ2 theme was: education leaders supported kindergarten teachers in four ways. All

seven leader participants contributed to this theme through their interview responses, and three leaders contributed to this theme through their focus group responses. The four ways in which the leaders indicated that they supported teachers were by providing PD, by providing devices, by evaluating a new technology for possible integration in the classroom, and by making time in the daily school schedule for teachers to integrate technology. The leader participants agreed with the teacher participants that PD on technology was needed for teachers because teachers are required to be proficient in using instructional technologies for students to benefit from them.

The second RQ2 theme was: education leaders' support for kindergarten teachers promoted students' success. All seven leader participants indicated in their interviews, and one leader participant expressed in the focus group that the supports they provided for teachers' integration of instructional technology were conducive to EL students' academic success. The leader participants indicated that EL students' academic success was supported in three ways. First, technology integration promoted student engagement, the leaders said. The leaders also described technology as facilitating multimodal instruction and differentiated instruction. Chapter 5 includes discussion, interpretation, and implications of these results.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In this study, I aimed to understand how teachers provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. De Wilde et al. (2020) suggested research on technology-mediated vocabulary development and language learning through digital gaming environments and social media tools. The basic qualitative study design was adopted in this study. The findings from this qualitative study can help understand how teachers currently provide opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the southwest United States and how education leaders support teachers in that endeavor. The participants in this study included seven kindergarten teachers, two principals, two assistant principals, and three English language development coordinators. Thematic analysis was used for data analysis in this study. In Chapter 5, I present the interpretation of findings, study limitations, recommendations, implications, and conclusion.

In this study, some participants provided discrepant data showing their preferences not to use technology for instruction. The teachers reported in their interviews that they use five kinds of technology to support vocabulary instruction: (a) apps, (b) videos, (c) overhead projectors, (d) audiobooks, and (e) digital textbooks. Further, the findings highlight that the opportunities teachers give ELs to use technology to learn vocabulary contribute to those students' academic success. The teachers reported

that they use informal assessments, such as listening to and questioning students, to determine that technology use contributes to academic success and provide multimodal instruction, including through audio (apps that would read words aloud), visual (pictures and videos), music (songs that included vocabulary words), and movement (dance and exercise). The teachers said that technology also contributes to differentiated instruction when students can work independently or in small groups at their own pace on a device.

The teachers described technology as effective for promoting their EL students' academic success because the students find the technology engaging and enjoyable. Implementing technology can support EL students' vocabulary acquisition more effectively if teachers have more support from administrators. The teacher participants expressed the perception that additional PD would acquaint them with other technology tools that would make vocabulary instruction more effective for their EL students. Some teacher participants further indicated that a specific form of additional PD that could be most beneficial would be walkthroughs on new apps and devices. Some teachers stated that they need more devices to provide optimally effective vocabulary instruction for their EL students.

Leaders indicated four ways they support teachers: (a) providing PD, (b) providing devices, (c) evaluating a new technology for possible integration in the classroom, and (d) making time in the daily school schedule for teachers to integrate technology. The leader participants also indicated that PD on technology is needed for teachers because teachers must be proficient in using instructional technologies for students to benefit from them. The findings also indicate that support leaders provide for

teachers' integration of instructional technology is conducive to EL students' academic success. The leader participants indicated that EL students' academic success is supported in three ways: technology integration promotes student engagement, technology facilitates multimodal instruction, and technology facilitates differentiated instruction.

Interpretation of Findings

The interpretation and contribution of findings will be discussed based on research questions and their respective themes.

Theme 1: Teachers Implemented Five Kinds of Technology

The findings indicate that teachers use five kinds of technology to support vocabulary instruction: (a) apps, (b) videos, (c) overhead projectors, (d) audiobooks, and (e) digital textbooks. However, one participant provided discrepant data indicating they prefer not to use technology for instruction. The findings indicate that teachers use technology to support vocabulary instruction among students. The findings are consistent with previous literature indicating that teachers use technology such as video, voice, and animation accompanied by visual elements for children to learn vocabulary (see Martinez et al., 2022).

The use of technology promotes mastery of vocabulary among kindergarten children in schools. Teachers can use multimedia such as animations, pictures, videos, photos, and audio to augment teaching materials, making learning more interesting and accommodating the diversity of students in learning vocabulary (Nuraini et al., 2020). When students and teachers use the technology purposefully, it engages them in critical

reflection on their learning. Communication technologies provide valuable and meaningful resources for language students to become aware of and actively reflect on their communication practices (Chun, 2016). Language teachers and students need to follow and know the modern trend of technological influence while considering the social consequences that may occur. The findings contribute to the literature by establishing that teachers use five kinds of technology to support vocabulary instruction, including apps, videos, overhead projectors, audiobooks, and digital textbooks.

Theme 2: Technology Integration Promoted Students' Academic Success

The results indicate that the opportunities teachers give EL kindergarten students to use technology to learn vocabulary contribute to students' academic success. The teachers use informal assessments, such as listening to and questioning students, to determine that technology use contributes to academic success as well as providing multimodal instruction, including through audio (apps that would read words aloud), visual (pictures and videos), music (songs that included vocabulary words), and movement (dance and exercise). The findings indicate that technology results in improved academic success among kindergarten students.

The results are consistent with past findings indicating that integrating mobile phone technology is beneficial to students learning second languages because learning words by mobile phone is faster than the conventional way of learning, in which students look up the words in a printed dictionary (Abdullah et al., 2019). In explaining the connection between language proficiency and academic performance from the scientific paradigm, Kandagor and Rotumoi (2018) indicated that BICS and CALP are central

because if students learn BICS, their chances of obtaining better academic performance increase. Cummins (2000) noted that using technology to understand concepts in the first language improves understanding of concepts in the second language, thereby resulting in academic success among students (Kandagor & Rotumoi, 2018).

The findings also demonstrate that technology contributes to differentiated instruction when students work independently or in small groups at their own pace. The teachers described technology as effective for promoting their EL students' academic success because students find the technology engaging and enjoyable. The findings indicate that technology-enhanced differentiated instruction in the classroom contributes to improved student academic success. The results concur with prior findings of Korlu and Mede (2018), who confirmed that vocabulary learning by using a mobile flashcard program called Quizlet enables learners to achieve better learning and retention of academic outcomes. Quizlet also provides collaborative and individual learning opportunities. Mobile applications can be a fun way to enhance learning while increasing motivation to help students become autonomous learners and increase their academic success (Korlu & Mede, 2018).

The problem addressed in this study was that it was not known how teachers provide opportunities for kindergarten ELs to learn vocabulary by using technology and how educational leaders support that endeavor. The findings have added to the literature by establishing that technology contributes to differentiated instruction when students can work at their own pace on a device, either independently or in small groups. The teachers

described technology as effective for promoting their EL students' academic success because the students find the technology engaging and enjoyable.

Theme 3: Needed Support for Teachers Included More Professional Development and More Devices

The teacher participants expressed the perception that additional professional development would acquaint them with other technology tools that would make vocabulary instruction more effective for their EL students. Some participants indicated that a specific form of additional professional development would be a walkthrough of new apps and devices. Some teachers also stated the need for more devices to provide optimally effective vocabulary instruction for EL students. The findings imply that teachers need more support, such as professional development in technology to help implement technology to assist students in learning technology.

The findings are consistent with the previous literature results indicating that technical competence is the ability to use technology in a professional role as a teacher (Gondwe, 2021). Teacher educators' technology competencies should be one significant factor within the teacher education programs to prepare teachers for future technology integration (Foulger et al., 2017; Uerz et al., 2018). The findings have supported previous literature findings of Kidd and Rowland (2021), who indicated that professional development benefits kindergartners' oral language development while improving the teacher's instructional approach and pedagogical behavior. Teachers need to teach vocabulary at the elementary level and give young students fun ways to learn using

technology. It can only be achieved through professional development in technology among teachers (Biesaga, 2017; Cahyati & Madya, 2019).

The findings agreed with previous literature findings of Wright-Odusoga (2020) in finding that K-12 school principals needed professional development on how to support teachers who taught EL learners. The results also revealed that school principals needed to focus on helping EL learners reach their highest potential by ensuring teachers are technologically equipped through professional development (Wright-Odusoga, 2020). Both principals and teachers need to learn how to integrate educational technologies into the curriculum (Wright-Odusoga, 2020). Resources must also be directed to literacy teachers and mentoring principals and teachers (Wright-Odusoga, 2020). The findings have contributed to the past literature by revealing that additional professional development would acquaint teachers with technology tools to make vocabulary instruction more effective for their EL students.

Theme 4: Education Leaders Supported Kindergarten Teachers in Four Ways

The findings revealed that the four ways the leaders supported teachers were by providing professional development, providing devices, evaluating a new technology for possible integration in the classroom, and making time in the daily school schedule for teachers to integrate technology. The leader participants concurred with the teacher participants that professional development in technology was needed for teachers because teachers must be proficient in using instructional technologies for students to benefit from the instructions. The findings imply that leaders supported kindergarten teachers by providing professional development, providing devices, evaluating a new technology for

possible integration in the classroom, and making time in the daily school schedule for teachers to integrate technology.

Other studies have reported how kindergarten teachers are supported in school technology implementation. Collis (1991) indicated that technology is mainly associated with using computers or other electronic devices and digital media due to its capabilities involving research, problem-solving, and communication through simulations and feedback opportunities. The innovation of technology in education through multimedia permits classroom diversification to augment students' general learning experience (Pierce & Cleary, 2016). Gonzales (2020) highlighted the importance of the awareness of school leaders in using technology in classroom instruction and its influence on teachers.

The findings also supported previous literature results of Baker and Irwin (2021), who found that a successful implementation of a technology initiative was dependent on positive leadership attitudes towards technology and open communication between school principals and teachers by providing the requisite support, such as providing technology resources for its implementation. Baker and Irwin (2021) suggested that district and school leaders better implement technology initiatives for language instruction by supporting teachers with quality professional development and instruction by providing devices and a curriculum that reflected a pedagogical framework that supported technology integrations. The results have added to the previous literature by establishing that leaders supported teachers by providing professional development, providing devices, evaluating a new technology for possible integration in the classroom, and making time in the daily school schedule for teachers to integrate technology.

Theme 5: Education Leaders' Support for Kindergarten Teachers Promoted Students' Success

The findings indicated that the support education leaders provided for teachers' integration of instructional technology was conducive to EL students' academic success. The leader participants indicated that EL students' academic success was supported in three ways. First, technology integration promoted student engagement, and the leaders also described technology as facilitating multimodal instruction and differentiated instruction. The findings implied that support provided to enhance technology integration fosters student success. The results concurred with past literature results indicating that Kindergarten teachers manage children in the classroom through enhanced preparation and support from leadership, thereby improving student academic success (Teaching Degree, 2021). Leader support enhances teacher collaboration with coworkers to set goals and standards for students to promote students' academic success (Teaching Degree, 2021).

Educators need skills in communication to communicate effectively. Complex issues are typically discussed collaboratively with coworkers, parents, administrators, and guardians, enhancing student success. Physical, emotional, and mental stamina are also needed to retain students' attention and maintain control. Teachers must explain things differently or add supplemental material to lesson plans. Creativity, resourcefulness, and support are also needed to encourage student engagement in the classroom (Teaching Degree, 2021). The findings have added to the previous literature by establishing that the support education leaders provided for teachers' integration of instructional technology

was conducive to EL students' academic success by promoting student engagement and facilitating multimodal instruction and differentiated instruction in schools.

Limitations of the Study

One of the limitations of this study was that participation was limited to teachers and leaders with experience with ELs, so the sample was composed of kindergarten teachers and school leaders. The findings may not be transferred to another category of teachers. Another limitation was that the sample of teachers and school leaders was drawn from one urban school system in the southwest United States. As a result of the limitations, the study may not be generalized to other schools in the United States or other countries. The sample size also was a limitation of the study. I used 14 participants in the study. Therefore, the findings are limited to small sample size and may not be generalized to a larger number. The strength of this study was the use of triangulation of the data through semistructured one-to-one interviews and focus groups. The findings may not be generalized using one single method of data source.

Recommendations for Future Research

I recommend that future research be conducted by including teachers and education leaders across the education system to enhance the transferability of findings to other locations and populations within the education system. Another recommendation is for researchers to advance the study by employing a large sample size using a quantitative study design to determine the impact of technology integration on students' academic success. As a result, I recommend that future studies include more students, teachers, and education leaders. Future studies should also be conducted using other

sampling techniques, such as random sampling techniques, to enhance the transferability of study findings.

Implications

The implications of this study were categorized into theoretical implications and implications for positive social change.

Implications for Positive Social Change

The findings may help teachers understand the need for technology in their teaching practices and its impact on students' academic success. The results have provided teachers with a rationale for kindergarten ELs to use technology in the classroom for their academic success, closing the achievement gap. Students may also benefit from this study because it supports the importance of technology integration on students' academic success, helping them perform at the grade level as their English-speaking counterparts. Teachers can engage students in vocabulary learning through technology while empowering them to develop digital competence, which is part of social change (Kajee, 2018). The findings may also help ELs to prepare better to participate in civic life and compete successfully in the 21st century, as recommended by the Global Education Reform Movement (Sahlberg et al., 2017). Uerz et al. (2018) showed that researchers tend to observe that the benefits of students learning technology depend on how the teacher approaches it. Teachers can control student devices in physical classrooms, online classrooms, and both with the help of programs like Mobile Guardian. These kinds of digital resources can change the way they teach entirely. Teachers can use technology as a tool to promote learning and student engagement.

Regarding organizational implications, the results from this study may provide the urban school system in the southwest United States with information about how the use of technology is beneficial in promoting vocabulary development in the state's increasing population of kindergarten ELs. In addition, the study findings could assist school leaders by understanding the need for professional development for teachers and the acquisition of technologies to promote vocabulary learning in ELs at the kindergarten level. Education policymakers may also use the findings to implement technology integration policies in the education system to help teachers use technology in their teaching practices.

Theoretical Implications

Basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP; Kandagor & Rotumoi, 2018) formed the foundation of this study. Bilingual children need instruction that addresses three factors (a) cognitive skills, (b) academic content, and (c) critical language awareness (Cummins, 1999). Cummins (2021) developed a framework to understand how that occurs and how to alter it. Policies, curricula, programs, and assessments make up educational structures that usually reflect the dominant group's values but are not static. BICS and CALP have important implications for school policy to account for developing vocabulary and language learning differences among students (Cummins, 2021). Understanding the premise of BICS and CALP can help address the needs of students so that they can learn better. Parents' and educators' understanding of BICS and CALP can be utilized in communication about how a child's educational needs can be met due to the

distinguishing features of the concepts, thereby improving a child's academic performance.

Understanding BICS and CALP can improve educators' teaching practices, especially concerning second language acquisition when English is not a student's native language (Cummins, 1999, 2021). The findings have added to this theory by establishing the need for leaders' support for teachers through professional development in technology and providing technology resources for teachers to implement in the classroom. The findings have also contributed to the theory by indicating how teachers can integrate technology in the classroom and the importance of technology in promoting student academic success.

Conclusion

This study aimed to understand how teachers provided opportunities for kindergarten ELs to use technology to develop vocabulary in an urban school system in the Southwest United States and how education leaders support teachers in that endeavor. The findings indicated that the teachers reported in their interviews that they used five kinds of technology to support vocabulary instruction: apps, videos, overhead projectors, audiobooks, and digital textbooks. The results indicated using informal assessments, such as listening to and questioning students, to determine that technology use contributed to academic success and provided multimodal instruction, including audio, visual, music, and movement. The technology effectively promoted their EL students' academic success because the students found the technology engaging and enjoyable. EL students could not just look at the words but listen to how they sound, which helped ELs learn how to

pronounce them and use them in sentences, supporting ELs' English language development. Implementing technology can support EL students' vocabulary acquisition more effectively if they have more support from their administrators.

Additional PD would acquaint teachers with technology tools to make vocabulary instruction more effective for EL students. Leaders supported teachers, including providing PD, providing devices, evaluating a new technology for possible integration in the classroom, and making time in the daily school schedule for teachers to integrate technology. The support leaders provided for teachers' integration of instructional technology was conducive to EL students' academic success. The leader participants indicated that EL students' academic success was supported by technology integration which promoted student engagement, facilitating multimodal instruction and differentiated instruction in the classroom. The findings have added to the previous literature by establishing ways teachers integrate technology into their teachings.

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Appendix A: Interview and Focus Group Protocol

Interview Questions

1. What do you enjoy the most about teaching kindergarteners or being involved with kindergarten ELs?
2. At what age do you think is best for teaching ELs, and why is that?
3. Do most ELs at your school have access to a computer, smartphone, or another piece of technology at home? If not, based on your experience, what would it take to change that?
4. Are there children who do not learn English in the groups of kindergarten ELs, and can you explain your answer? Have you figured out why they don't know, or is it something you have not figured out? Do you have a theory about it?
5. Would you share with me how you teach kindergarteners vocabulary if you teach, or are you involved with ELs in some other way?
6. If you could have any kind of technology you wanted, what would that be, and why did you choose that? How would you use it to teach kindergarteners vocabulary?
7. Does the lack of technology at your school keep you from using the type of technology you would like to use with ELs?
8. What does it mean to you when I say using technology in the classroom?
9. Is there anything you want to tell me that I did not ask about?
10. Do you think you might be interested in participating in a focus group?

Focus Group Questions

1. Would you tell me how you go about learning about new technologies?

2. Have you ever thought about how you would use a hologram or artificial intelligence with kindergarten ELs?
3. Has social media been helpful to you in your teaching or involvement with kindergarten ELs, and can you explain how you use it? Is it something you add to your regular curriculum, or does the curriculum stem from social media?
4. Is there anything you would like to comment on that we haven't discussed?