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No One Can Whistle a Symphony:

Analyzing Growth in Proficiency for English Learners in Coteaching

By

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ABSTRACT

K-12 ELs in the U.S. are increasing in number and diversity (Park, et al., 2018), requiring schools to establish and grow language instruction education programs (LIEPs) that facilitate language acquisition for a wide range of learners, while also providing equitable opportunities to learn. The study used a quantitative, pretest-posttest, research design to address gaps in the literature noted by Takanishi & Menestrel (2017), regarding which LIEPs are most effective for various EL subgroups, and to explore the effects of Coteaching for ELs (COTEL) on growth in proficiency. Data from 723 ELs in two Midwestern districts was disaggregated three ways to determine if ELs of various home languages, grade levels, and starting proficiency levels grew more in COTEL or in other kinds of English instructed LIEPS (NO COTEL). Growth was calculated using ACCESS test scores from 2018 and 2019 to avoid pandemic effects. Several two-way analyses of covariance (ANCOVA) were conducted to control for pretest differences and to better isolate the effects of COTEL on growth in English amongst various subgroups.

Results showed that overall ELs grew more in COTEL. Additionally, statistically significant, higher growth was discovered for 4th and 7th graders in COTEL, and for ELs with Developing (DEV) and Expanding (EXP) starting proficiency levels in Grades 3-5, and for all starting proficiency levels in Grades 6-8. Of particular interest, speakers of 33 lower incidence languages (MIX33) accelerated their growth in English in COTEL, while floundering in other kinds of English-instructed LIEPs (NO COTEL). Based on these findings, the researcher proposes that among English-instructed LIEPs, COTEL holds the most promise for implementing research-based practices with fidelity, for infusing a

translanguaging stance, and for building the capacity of each classroom's teachers to succeed with multilingual learners.

Keywords: LIEP, coteaching, English proficiency, ELs, heterogenous, socio-cultural theory

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PRELUDE

I am a longtime language teacher. I began teaching German in 1985, hoping my middle schoolers of German-speaking heritage would catch a passion for learning how language can be a window into a different point of view. As my teaching career progressed, I became convinced that acquiring another language should be a fundamental goal of public education for all students. The benefits to my students of learning other languages were many – especially the deep knowledge students gained about their first language. As Goethe so famously expressed it, “Wer fremde Sprachen nicht kennt, weiß nichts von seiner eigenen”. Or in English, “He who does not know foreign languages does not know anything about his own” (Goethe, n.d.).

When students speaking other languages came to town, I was tapped to work with our grade 7-12 new arrivals. In our noisy class of 14 multilinguals, one could hear nine different languages (including English), and lots of laughter. During this time, I also learned that while the U.S. is a land of immigrants, it has also been called “a language graveyard” (Rumbaut, 2009). So began my pursuit of more, better, and earlier opportunities for all students to learn and draw on multiple languages for learning.

While I have experienced the frustration of working in isolation, I have also celebrated success with fellow educators to coestablish a dual immersion program, to codevelop meaningful professional development opportunities for teachers of multilinguals, and to work with regional leaders to establish the St. Louis Coteaching for ELs Regional Initiative. Together, we met goals we couldn’t have met alone. This is the promise of true collaboration for the collective benefit of all students in our increasingly diverse classrooms, and the promise of Coteaching for English Learners.

CHAPTER I - BACKGROUND

English learners (ELs), are a significant and growing population in U.S. public schools, where 4.85 million K-12 ELs enrolled during the 2012-2013 school year, well over 9% of all students in U.S. public schools (National Center for Education Statistics [NCES], 2020; Ruiz Soto et al., 2015). ELs also represent a growing diversity of languages and cultures. Researchers have called these effects of migration, ‘superdiversity’ (Barwell, 2015). In the following sections, I will describe key federal policies regarding ELs, explain the problem statement, my conceptual framework, identify the purpose, and describe the research hypotheses. After presenting the potential significance of the study, I provide definitions of key terms used to clarify what is meant by Coteaching for ELs (COTEL).

Federal Policies and Court Rulings Related to Educating ELs

The pivotal, 1954 ground-breaking case of *Brown v. Board of Education* focused on providing equal educational opportunities for all school age persons residing in the U.S. It further determined that separate schooling is inherently unequal, and therefore violates the fourteenth amendment of equal protection under the law. The Civil Rights Act (1964) followed ten years later, outlawing discrimination based on race, color, religion, sex or national origin in the United States. In particular, it prohibits racial segregation in schools (Wright, 2010).

Language education policy has ebbed and flowed toward promoting bilingualism and then insisting that language instruction education programs (LIEPs) be primarily about increasing English proficiency as quickly as possible in English-only programs. Recently, the national trend seems to acknowledge the long-known benefits of

multiliteracy (Bunch & Martin, 2020; Flores, 2019a; García et al., 2021; García & Solorza, 2020; García et al., 2016a), as can be seen in the popularity and increase in Dual Language Immersion (DLI) programs across the country (Wilson, 2011). In 2017, *Every Student Succeeds Act* (ESSA) reauthorized the Elementary and Secondary Education Act (ESEA) of 1965, requiring state education agencies (SEA) to hold local schools accountable to identify ELs and provide them with effective, research-based LIEPs. In particular, LIEPs must meet three criteria established in the ruling in *Castañeda v. Pickard* (1981) case as described in the table below (U.S. DOE DOJ, 2015).

Table 1

Timeline of U.S. Federal Policies and Court Rulings Related to the Education of ELs

Year(s)	Method(s) of Instruction, Law, or Policy	Description
1923	Meyer v. Nebraska	Forbidding the teaching of German until after 8 th grade violates the 14 th Amendment
1968	The Bilingual Education Act	The Bilingual Education Act formed the basis of U.S. policy for educating ELs for more than thirty years.
1974	Lau v. Nichols	Decided that providing exactly the same education to ELs does not provide them with equal opportunities.
1981	Castañeda v. Pickard	Established a three-part test for determining the adequacy of a district's LIEP. 1) the program is based on a sound theory. 2) the program is reasonably resourced and staffed. 3) the district regularly evaluates and adjusts its LIEP.
1982	Plyler v. Doe	Under the 14 th Amendment, the state does not have the right to deny a free public education to undocumented children.
2001	No Child Left Behind Act of 2001 (NCLB)	The reauthorized Elementary and Secondary Education Act (ESEA) provided funds under Title III to establish LIEPs that improve outcomes for ELs and Immigrants.
2015	January 7, 2015, Dear Colleague Letter and the	The DOJ and OCR joint letter reviewed school district obligations to ELs, clarifying common

	corresponding U.S. DOE EL Toolkit	civil rights issues related to providing equitable educational opportunities (U.S. DOE DOJ, 2015).
2017	Every Student Succeeds Act (ESSA)	This reauthorization of ESEA, requires state education agencies (SEA) to have one process for all public schools to identify and exit ELs, and to hold local education agencies (LEA) accountable.

Current Application of ‘Separate is Not Equal’ for ELs

In traditional ESL programs, students are generally pulled out of their mainstream classroom – usually at the convenience of the school schedule or the classroom and EL teachers – to receive instruction about the English language for the purpose of English language development (ELD). This practice of segregating students for ELD often has negative consequences and may be in violation of students’ civil right to equal opportunities to learn (Johnson et al., 2018). According to the Office of English Language Acquisition (OELA) there are three key points related to the segregation of ELs in U.S. schools,

LEAs [Local Education Agencies] should not keep ELs in segregated EL programs (or “EL-only” classes) for periods longer or shorter than required by each student’s level of English proficiency, time and progress in the EL program, and the stated goals of the EL program (2017, p. 4)

Since the 2001 *No Child Left Behind Act* (NCLB), researchers have noted a significant weakness of the emphasis on outcomes. When the learning goals are instructed in the same way for all students, and measured by standardized tests in English, the multilingual, multicultural aspects of students learning English are easily dismissed, or even invisible, in general education classrooms where ELs spend the majority of their time at school (Frattura & Topinka, 2006). However, providing a Coteaching for ELs

(COTEL) language instruction education program (LIEP) provides ELs the opportunity to participate meaningfully in the mainstream academic classroom while simultaneously receiving English language development (ELD) assistance according to their current level of English proficiency (Honigsfeld & Dove, 2012).

Statement of the Problem

Despite the fact that much is already known about how to best educate ELs, schools continue to struggle to establish programs that effectively close the opportunity gap for English learners. As a result, developmental and achievement disparities between many students classified as ELs, and those who are not, continue. Cruz describes this as a school-based problem of a “knowing and doing gap” (2016, p. 5), rather than a student-based problem. In fact, research reviewed by the National Academies Press (NAP) reveals that many schools do not provide ELs with appropriate opportunities to learn (Takanishi & Menestrel, 2017).

When I was a Pull-Out teacher of English to Speakers of Other Languages (ESOL), I frequently felt like an insignificant ‘add-on’ teacher who was continually interrupting ELs’ core instruction. In an effort to get more connected to the actual language learning needs of my students, I began to push-in to classrooms, rather than pulling students out. There were two problems with this plan. First, the ELs I needed to work with during the same instructional period were often spread out into multiple classrooms. Second, I rarely had time within the school week to confer with ELs’ classroom teachers, which resulted in being demoted to the status of teacher’s assistant, or worse – the awkwardly standing adult in the back of the room during the ‘real’ teacher’s whole group instruction. Sometimes the teacher forgot I was coming and had

planned activities that were not conducive to working with the ELs in the class. Upon my arrival I might find a video playing, a teacher lecturing, or no one at all in the classroom. I wondered to myself if there might be a better way for essential language development instruction to be linked to and incorporated into the rest of what students were learning at school.

In addition to a knowing and doing gap, there are also still gaps in knowledge about what makes a LIEP effective for particular ELs with varying characteristics such as home language (HL). In their recommendations for policy, practice, and research, contributing authors recommend researchers design studies to address the gaps in knowledge regarding the kind of instructional models and strategies that promote achievement of different groups of ELs (Takanishi & Menestrel, 2017; Williams, 2017).

In particular, they ask for:

Investigation of alternative instructional strategies for ELs and their relative effectiveness with respect to English language development. ... taking into consideration specific learner subgroups (e.g., ELs with low versus ELs with relatively high proficiency in English (Takanishi & Menestrel, 2017, p. 13)

Conceptual Framework

Given the increasing number and diversity of ELs, the urgency for programs to improve is also increasing. At the barest minimum, compliant LIEPs address the needs of ELs to become proficient in school English within a reasonable time, while also enabling them to successfully learn in typically English-only (EO) instructed classes with their grade level peers (U.S. DOE DOJ, 2015). Perhaps even more important though, is

that successful LIEPs recognize the assets ELs and their families bring to our schools and communities, and focus on unlocking their potential. Effective programs take an additive approach by encouraging the development of multilingual literacy at home and at school, while increasing proficiency in speaking, writing, reading, listening, and interacting in both the social and content area language used at school (Waterford.org, 2020).

Not All Language Instruction Education Programs (LIEPs) Are Created Equal

There has been an ongoing and sometimes contentious debate about the value of bilingual LIEPs versus English-only (EO) LIEPs for several decades (Billings & Walqui, 2021; Haertel et al., 2012; Wilson, 2011). However, what is known from several meta-analyses and individual studies comparing the effectiveness of bilingual LIEPs versus EO LIEPs, is that use of ELs' home languages during instruction is critical. (Collier & Thomas, 2017; Franchino, 2020; Goldenberg, 2006; Lindholm-Leary & Genesee, 2014; Peng et al., 2021; Rolstad et al., 2005; Sugarman, 2018; University of Kansas, 2021).

All effective LIEPs connect with their multilingual students, taking what's recently been called a 'translanguaging stance' toward these students, regardless of the language of instruction. Garcia, et al. (2016a) describe teachers with a translanguaging stance as those with,

A strong social justice orientation, and they assume that effective instruction and assessment...requires drawing on or leveraging students' bilingualism for learning
(p. 50)

In fact, LIEPs that forbid the use of multiple languages in the classroom are no longer considered research based and therefore are disallowed under *Castañeda v. Pickard*'s three prong test (August et al., 2010; Billings & Walqui, 2021).

Capacity Building LIEPs

More recently, Coteaching for ELs (COTEL) and English language development (ELD) coaching have emerged as alternatives to Pull Out ESOL when bilingual LIEPs are not practicable due to a lack of qualified teachers, or where there are only a few speakers each of a wide variety of languages. In Missouri for example, both have been identified as ‘research-based’ approaches,

A growing number of schools are recognizing that in order for ELs to be successful in all facets of school, any teacher who has an EL in class is comfortable adapting or modifying instruction and assessments... Co-Teaching (COT) and ELD Coaching (COA)], allow the ESOL teacher the opportunity to build the capacity among the district staff to support ELs in all classrooms (MO-DESE, 2021a, p. 3).

In this study, Coteaching for ELs (COTEL) was defined as an ESOL certified teacher for ELs (ELT) and a fully certified content or classroom teacher (CT) working together to coplan a minimum of four lessons (or two 90-minute blocks) per week. These coplanned lessons were cotaught by both teachers who were in the same classroom at the same time. ELs were strategically clustered for one or more of their content classes, enabling the ELT and CT to collaborate for the entire instructional cycle.

Principles and Research-based Practices of Effective LIEPs

Practitioners and researchers of language acquisition have found that while well-implemented, bilingual LIEPs work better than ones instructed in English-only (Collier & Thomas, 2017; Takanishi & Menestrel, 2017), what is most important is to incorporate a similar set of practices. These practices are often clustered around guiding principles,

have widespread consensus, multiple sources of evidence, and can be effectively implemented in a variety of instructional settings with a variety of ELs.

At first glance, the research-based practices below, some experienced educators may wonder what the fuss is all about, asking, ‘Isn’t this just good teaching?’. A closer look, however, reveals that there are important considerations when teaching ELs that are typically not considered when teaching an entire class of English-only speakers. In particular, ELs excel when both CTs and ELTs strive to learn as much as possible about the home languages (HLs) and cultures of their ELs. Successful educators for ELs view the cultural and linguistic characteristics of ELs as resources for learning, and as valuable assets to ELs themselves, their classrooms, schools, and communities (Moll, 2019).

To develop my own list of principles and recommended practices below, I reviewed and condensed thirteen sources, each with their own recommended set of research-based practices and principles for designing and implementing effective LIEPs for a variety of ELs in a variety of school contexts (Baker et al., 2014; Chappui, 2012; García et al., 2016a; Levine et al., 2013; Pearson, 2012; Richards-Tutor et al., 2016; Saunders et al., 2013; Scarcella, 2008; Seals, 2018; Short et al., 2018; Takanishi & Menestrel, 2017; Understanding Language, 2013; WIDA, 2020)

Translanguaging – the Foundation and Over-arching Principle

In her forward to the edited book, *Pedagogical Translanguaging: Theoretical, Methodological and Empirical Perspectives*, Nancy Hornberger declares,

Multilingual practices have been going on a long time, indeed centuries, but the turn of this century saw a veritable explosion of terminology for fluid multilingual and multi-modal communicative practices, by now a well-rehearsed list including

metrolingualism, polylinguaging, polylingual languaging, heteroglossia, codemeshing, translingual practice, hybrid language practices, multilinguaging, flexible bilingualism, dynamic bilingualism, dynamic languaging and translanguaging (2021, p. 18).

According to authors at English as an Additional Language (EAL), translanguaging is about, “using all your language resources to communicate (2018, para. 5).”

Translanguaging is often confused with the term ‘code-switching’ which sees bilingual or multilingual people as having two or more languages that they switch back and forth between, depending on the circumstances (Cummins, 2008b; Goodman & Tastanbek, 2020). However, Ofelia García, in an interview with François Grosjean in 2016, observed that bilinguals do not perceive themselves as having separate languages, noting that,

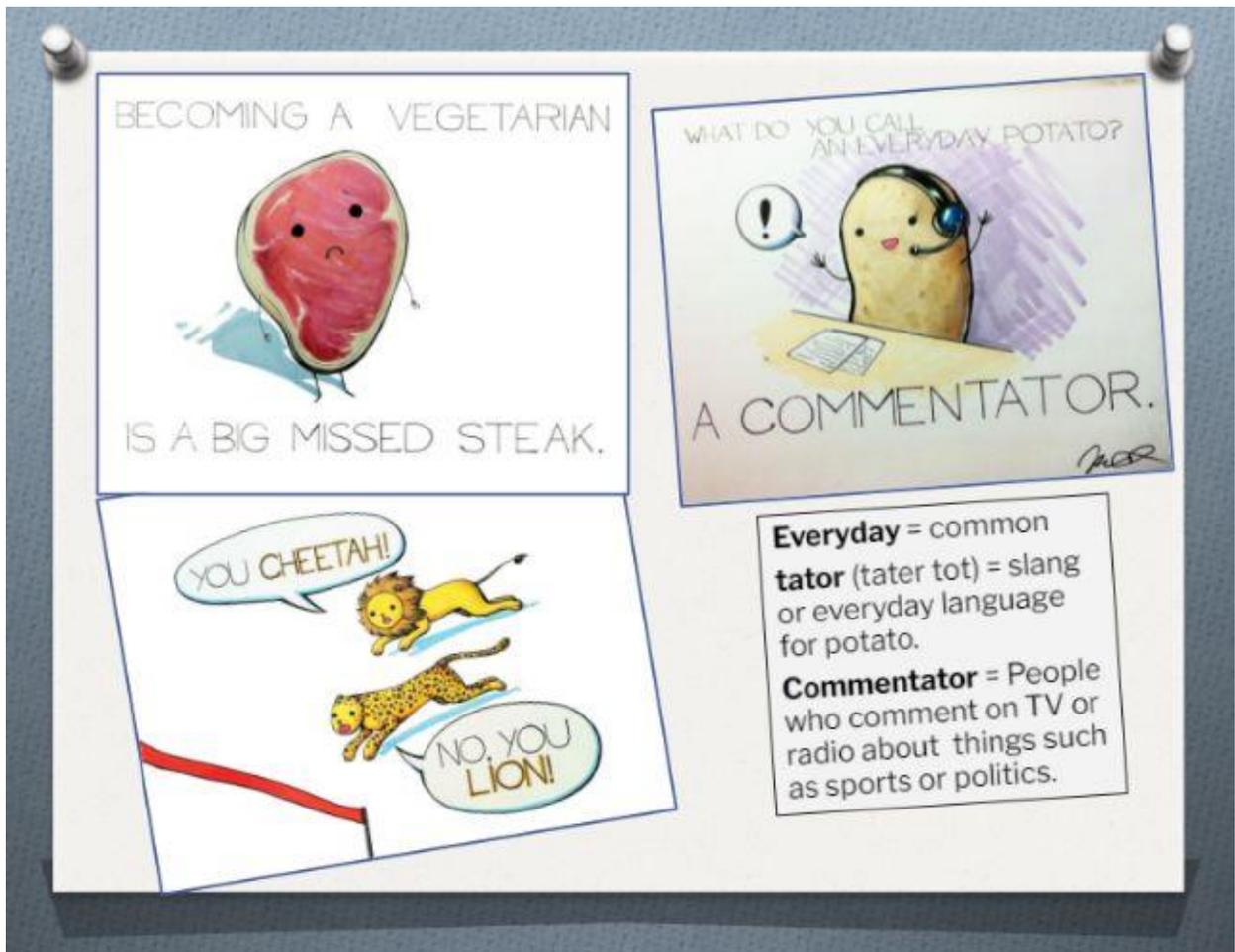
The work of neurologists is also beginning to show that when bilingual speakers perform linguistically, all the features of their repertoire are activated and available, even though speakers selectively suppress some features depending on the communicative situation in which they find themselves (Grosjean, 2016, para. 18)

This is not unlike how a monolingual student learning new words, or applying words in new ways in Math or Science class is still speaking the same language – just an expanded version. Some translanguaging theorists conceptualize that ELs, as they learn and apply new words and linguistic features, have not switched to a new code (Otheguy et al., 2015).

Typically, translanguaging has referred to what bilingual students and teachers do when they both speak the same or similar languages (Tian, 2020). However, monolingual English-speaking teachers can and have strategically incorporated students' HL into both instruction and assessment. In addition, monolingual teachers frequently include examples of monolingual translanguaging such as puns, playing with language, figurative language as seen in Figure 1.

Figure 1

Monolingual Translanguaging Using Puns and Illustrations (Arsenic, 2015)

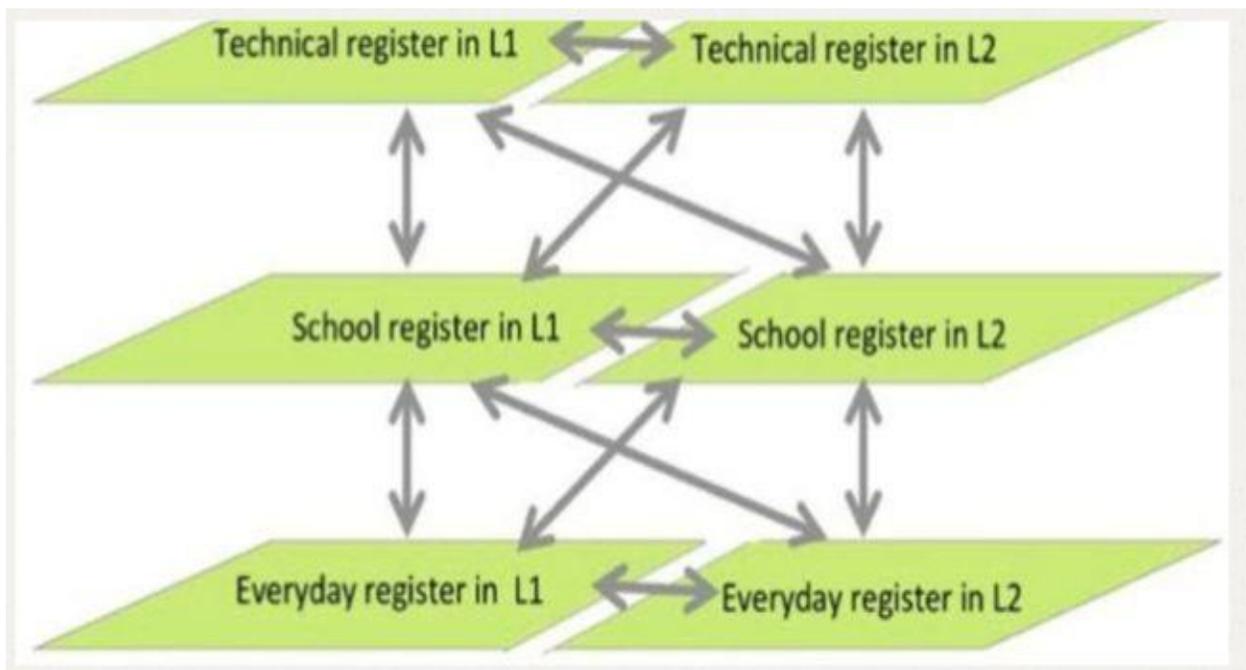


The term 'translanguaging' traces back to the Welsh 'Trawsieithu'—coined by Cen Williams, and later translated into English as 'translanguaging'. Williams used the

term in the 1980s to describe what Welsh speakers were doing when alternating between English and Welsh for the purposes of reading in one language and writing in another (translanguaging between two domains of literacy) or for receptive/interpretive (listening or reading) in one language into productive/expressive in the other language (speaking or writing) (Lewis et al., 2012). Figure 2 shows the planned instructional pathways through two languages and three registers teachers and students can use to build language proficiency in more than one language.

Figure 2

Three-tiered Model of Registers Adapted From Clarkson (2009)



Note. Reprinted from Prediger et al. (2015, p. 15)

Some believe that in schools where ELs speak multiple languages and English is the only common language, that English must be the only language used for instruction (Faulkner-Bond et al., 2012). But since at least the 1990s, researchers were prodding for the repositioning of ELs' multiple languages into English-instructed LIEPs noting that,

The use of the native language appears so compelling that it emerges even when policies and assumptions mitigate against it. Teachers who are monolingual English speakers or who do not speak the languages of all their students can incorporate students' native languages into instruction in many ways to serve a variety of educationally desirable functions (Lucas & Katz, 1994, Abstract section)

Many have suggested ways monolingual teachers can incorporate strategies conducive to translanguaging and in so doing, contribute to a more culturally and linguistically proficient classroom experience for ELs – and for all students (Cummins, 2019; Flores, 2019a; García et al., 2016b; Goodman & Tastanbek, 2020; Tkachenko et al., 2021).

Taken together, all reviewed sources noted the importance of incorporating and building on students' home languages and cultures throughout instruction.

Translanguaging proponents at the website *Little Sponges* (2018), recommend the following instructional strategies monolingual teachers can employ to incorporate all the multiple languages of ELs in the classroom, regardless of the LIEP selected for those ELs,

- Label objects in the classroom in multiple languages.
- Give students of all language abilities their time to shine.
- Stock your classroom with age-appropriate books and multimedia resources in the languages of your students.
- When grouping students for collaborative work, allow students with the same native language to work together. This allows them to receive a full and deep understanding of the assignment (Seals, p. 1).

Additional Principles and Practices of Effective LIEPs

Focus on Academic Vocabulary and Language Structures. While definitions of the construct of Academic English are varied and nuanced depending on the socio-cultural context in which it is used, it is simply stated by Anstrom, et al. as,

The language of schooling and the language that helps students acquire and use the content area knowledge taught in schools (2010, p. ix)

At its simplest level, it is language used in academic settings and for academic purposes.

Differentiate Based on the Proficiency Levels of Students. Acquiring a language is developmental. Therefore, providing the right kinds of scaffolds at the right time for each student is essential, whether for ELs or students speaking only English at home. Teachers must consider multiple different pathways for various students to acquire grade level standards. Lesson delivery, materials, scaffolds, and assessments must all be differentiated based on the student's current level of school language proficiency to move the student on toward mastery.

Set Explicit Content-based Language Objectives. While all students benefit from clear specific language learning targets, they are essential for ELs – particularly in content area classrooms (Short et al., 2012). Teachers of successful ELs set explicit language objectives, refer to them throughout the lesson, and then review and assess them at the end of the lesson. Language objectives focus on listening, speaking, interacting, reading, writing, and language learning strategies. They can focus on academic vocabulary, sentence structure, or discourse. Language objectives are carefully selected and formatively assessed, to enable students to develop the linguistic skills needed to

comprehend content area instruction and to express comprehension of grade level content standards.

Provide Explicitly Focused Language Instruction. While it's true students naturally acquire language from consistent exposure to the language, simply being immersed in a language isn't enough. Students must be taught language explicitly, especially the academic language that typically only comes up at school or when completing homework. Language instruction incorporates literacy, but also emphasizes oral language development. While some have argued that language development for ELs should have a separate focused block of time devoted only to language development (Saunders et al., 2013), in COTEL, coteachers collaborate to plan embedded, explicit instruction in language, as well as home language (HL) translanguaging support via various whole group, two-group, and multiple-group coteaching approaches. Effective coplanning allows all students to remain in the classroom, while also providing ELs equitable opportunities to learn and meet rigorous grade level standards. (Dove & Honigsfeld, 2017).

Focus on Formative Assessment of Language or Assessment for Learning (AfL). In my experience, ELTs sometimes wait for the results of summative language proficiency assessments to let them know how their students are progressing toward meeting language development goals. However, these results come back much too late to be of use to students and teachers who both need to make adjustments in real time. Eight of the sources reviewed emphasized the importance of setting appropriate goals and providing continuous feedback about each student's progress. Providing respectful, specific correction, particularly on form, prevents students from "fossilizing" language

mistakes. As Lightbown and Spada note, specific correction is particularly important during content-based and communicative instruction when,

Learners seem not to notice without focused attention. Teachers should also be especially aware of errors that the majority of learners in a class are making when they share the same first language background. They should not hesitate to provide contrastive information about how a particular structure in a learner's first language differs from the target language. (Lightbrown & Spada, 2021, p. 197)

Provide Frequent Opportunities for Language Practice. Provide explicit instruction to small groups of students at similar levels of English proficiencies. Then regroup students frequently, and provide structured academic conversation practice in small heterogeneous groups. Provide extra, small group intervention for students who struggle with specific language skills. Provide ongoing partner activities, so students have ample opportunity to practice.

Develop Metalinguistic Skills. Through translanguaging and explicit instruction of language learning strategies, students become independent language learners, drawing on their entire linguistic repertoire. Teaching students how to improve their language skills themselves, empowers them to take charge of their own learning. By explicitly teaching useful, practical strategies, students can employ them to maximize language learning in and outside the classroom. Teach students to recognize what they already know, to value, and to use their home languages to add English without depleting their linguistic resources.

Provide Time and 'Third Spaces'. Language instruction should be provided until a student is proficient enough in school language to easily access grade level,

content area instruction in English independently. The amount of time required varies significantly based on a multitude of factors. While learning a new language for school purposes takes time, it doesn't take forever. Speaking other languages is not a disability – it's an asset! Daily instruction for ELs should include significantly more wait time than is typically required for proficient English speakers to formulate their responses. Time to practice before public performances is critical for building students' sense of efficacy and automaticity with language. Provide 'third spaces' for students to tap into their entire linguistic repertoire (Flores & Garcia, 2014).

Incorporate Visuals Through Media, Graphics, and Modeling. The old adage that a picture is worth a thousand words is important to remember when working with ELs. Not only do visuals increase comprehension, they can also be engaging, contributing to and building motivation to learn language as students discuss images, videos, and demonstrations.

Design and Implement Culturally and Linguistically Responsive Instruction. Culturally and linguistically responsive teaching is really at the heart of a translanguaging classroom. Instruction in culturally and linguistically proficient classrooms perceives students' identities, languages, language forms, and backgrounds as meaningful resources for optimal learning, rather than as 'barriers' or 'deficits' to work around, regardless of the particular linguistic limitations of the teacher. Both students and teachers work collaboratively to develop an understanding and appreciation of multicultural perspectives embedded in the content of the standards (Lindsey et al., 2003). Teachers use of a variety of instructional practices to teach to and through the strengths of multilingual students. The Culturally Responsive Teaching Self-Efficacy Scale

(CRTSE), a tool used widely with pre-service teachers, was developed to describe what culturally responsive teaching looks and sounds like for English learners (Siwatu, 2011).

Involve the Entire School Community in Making Language Development a Priority. Build the capacity of all staff to work effectively with multilingual students. Ensure effective teaching for ELs is observable in every classroom. For school improvement activities to succeed, there must be a change in priorities and emphasis. Teachers working together, led by knowledgeable and committed school leaders, can truly empower students to grow and learn (Hattie, 2013). It is only through collaborative practices that we can learn from each other and guarantee all students an equal opportunity to learn.

In summary, regardless of the LIEPs they select for their ELs, schools will continue to fail in delivering on the promise of an equal opportunity to learn without a school-wide commitment to ELs and their families. The Office of Civil Rights clarifies each school's responsibility to staff a program with sufficient qualified staff including,

Teachers who are qualified to provide EL services, core-content teachers who are highly qualified in their field as well as trained to support EL students, and trained administrators who can evaluate these teachers (U.S. DOE, 2016, section 3)

Regardless of the type of LIEP selected for ELs, there is consensus about guiding principles and key practices that are inherent in all effective LIEPs. This study further hypothesizes that when content teachers (CTs) and English Language teachers (ELTs) take on a translanguaging stance and work together to integrate daily, multilingual, multicultural opportunities into their content teaching, they can more efficiently and effectively plan instruction and assessment for learning that better serves their culturally

and linguistically diverse students. As the authors of *Breaking Down the Wall* summarize,

To distill it into a single line would go something like this: if we can assume mutual ownership, if we can connect instruction to all children's personal, social, cultural, and linguistic identities, then all students will achieve (Calderon et al., 2019)

Beyond fidelity to the translanguaging stance and related principles and practices outlined above, I contend that among English-instructed programs, COTEL provides the best foundation and most inclusive framework leading to student success in super diverse classrooms. As a capacity-building LIEP, whenever COTEL is chosen for an individual school, the school is gradually better able to incorporate multilingual students' assets, celebrate each student's contributions, and generally enrich educational opportunities for ALL students, particularly those learning English.

Purpose of the Study

The purpose of this study was to collect and analyze evidence of the effects of Coteaching for ELs (COTEL) and of other English-instructed LIEPs (NO COTEL) on ELs' growth in proficiency as measured by WIDA's ACCESS test, a test of the five WIDA English Language Development (ELD) standards. Quasi-experimental research was used to compare pre-existing groups because true experimental techniques of random selection and assignment were not possible. This ex post facto study with non-equivalent groups was designed to fill gaps in the knowledgebase by investigating effects on ELs of various home language, grade levels, and starting proficiency levels.

Research Hypotheses

The following hypotheses provided the focus for the examination of data.

Hypothesis 1

ELs of all home languages grow more in Coteaching for ELs (COTEL) than in NO COTEL, after controlling for pretest differences.

Hypothesis 2

ELs of all grade levels grow more in COTEL than in NO COTEL, after controlling for pretest differences.

Hypothesis 3

ELs of all starting proficiency levels grow more in COTEL than in NO COTEL, after controlling for pretest differences.

Significance of the Study

At its heart, educating ELs and celebrating their cultural identity has been a civil rights challenge for many ELs in the U.S. (Calderon et al., 2019; Crawford, 2008). The growing number and diversity of ELs, several pivotal court decisions, and the evolution of laws related to establishing and evaluating LIEPs over the last six decades, have shaped modern civil rights legislation involving ELs in public schools. Yet still, unknowns remain which establish the significance of this study. Knowing which type of LIEP and under what circumstances results in the most growth in English proficiency for ELs would be useful to both CTs of ELs and ELTs (Faulkner-Bond et al., 2012; U.S. DOE DOJ, 2015). All teachers of ELs could more efficiently plan their work, provide ELs with better access to the curriculum while they are learning English, and accelerate the rate at which students acquire proficiency in school language.

This study may also provide essential knowledge to LIEP directors, as well as school and district leaders responsible for establishing policies for EL programming, and evaluating and improving their LIEPs to the greatest benefit of the students in the program (U.S. DOE, 2016). The findings from this study; namely discovering the most effective kind of LIEP for ELs of various home languages, in various grade levels, and with varying starting proficiency levels; could also be used by state policymakers and universities who prepare teachers of ELs, when describing, defining, recommending, or requiring various LIEPs or program elements for particular groups of ELs.

Definition of Terms and Abbreviations

The terms below are used to describe the background, purpose, review of the literature, and the methodology to be used to investigate the proposed questions.

ACCESS. The suite of state-required English language proficiency assessments given annually to ELs in grades K-12 in over 40 consortium states. ACCESS measures the five WIDA English Language Development (ELD) Standards across the four language domains or modalities of speaking, listening, reading, and writing (WIDA, 2021).

Analysis of covariance (ANCOVA). An analysis of variance that adjusts for the influence of a covariate. In this pretest-posttest analysis of intact groups, the ‘covariate’ in ANCOVA is the pretest score of English proficiency. By holding the pretest score to the average, the means are adjusted, providing a statistical control for pretest differences when groups have not been randomly assigned.

Comprehensible Input. Language input that can be understood by listeners though they may not understand all the words and structures in it. According to Krashen's

theory of language acquisition, giving learners this kind of input allows students to acquire language naturally.

Content or Classroom teacher(s) (CT(s)). Teachers who are certified to teach the classes and content areas of the classes they are assigned to teach. CTs may or may not have additional certification to teach ELs, but nonetheless have ELs assigned to their classroom.

Coteaching, Coplanned, Codeveloped, etc. Throughout this paper, these terms are intentionally spelled without a hyphen to emphasize the jointly enacted instructional cycle of COTEL.

COTEL. Code for the independent variable, Coteaching for ELs language instruction education program (COTEL LIEP). In this study students in COTEL received a minimum of four cotaught lessons (or two 90 minute blocks), coplanned jointly by the classroom teacher (CT) and certified EL teacher (ELT). Cotaught lessons were instructed by both teachers in the same instructional space, at the same time. with codeveloped language and content learning objectives.

Covariate: The covariate in this study was the ACCESS 2018 pretest score (PRE), It represented the starting proficiency level for ELs. It will be statistically controlled for before comparing the adjusted mean growth between the two groups of COTEL and NO COTEL.

EL-only classes. Classes designed specifically for ELs that segregate ELs from the general education classroom for one or more periods per day and for one or more days per week.

English Language Development (ELD). The goal of explicit instruction in the languages of school as defined in the English language development (ELD) Standards. Schools are held accountable by the state education agency (SEA) to provide a LIEP that results in the steady growth in English proficiency of ELs and a timely exit from the LIEP.

English Learner(s) (EL(s)). An individual, aged 3 through 21, enrolled in an elementary school or secondary school who was not born in the United States or whose native language is a language other than English; and who comes from an environment where a language other than English has had a significant impact on the individual's level of English language proficiency and whose difficulties in speaking, reading, writing, or understanding English may be sufficient to deny the individual the ability to meet challenging state academic standards and successfully achieve in classrooms where the language of instruction is English. (U.S.Congress, 2017, 8101[20] section)

English Learner teacher, EL teacher(s), ELT(s). Teachers who are certified to teach at some level or content area in PreK-12 schools who also have specialized, additional certification or endorsement in teaching English to Speakers of other languages (ESOL).

ESL/ESOL (English as a Second Language/English to Speakers of Other Languages). Refers to the class or instruction ELs receive, not to the students (ELs) or the teachers (ELTs) themselves.

Fixed Factor. The categorical variables in this study are the home language group (LANGgrp) of each participant, the grade level (GL), and the starting proficiency level group (PREgroup). The five analyses of covariance (ANCOVA) determined what effect

COTEL or NO COTEL had on growth in language proficiency (GROWTH) for ELs of various subgroups.

Grade level(GL). This is an independent variable used in this study to observe the effects on growth for different age groups, after statistically controlling for PRE, before comparing the average or mean growth of ELs in COTEL versus ELs in OTHER kinds of LIEPs.

Home language (HL). A language used in ELs' homes and understood by the student. The parents of each student complete a Language Use Survey (LUS) when they enroll their child in school. The purpose of the LUS is to determine what languages other than English are used in the home and understood by the student.

Independent Groups. ELs in COTEL are not included in the NO COTEL group, and ELs coded as BOS are not also assigned to the SPA or MIX33 groups. This independence of the groups being compared is a foundational assumption for completing the ANCOVA statistical analysis.

Immersion. Learning language in the most natural and authentic way possible – by spending time with, in, and around the language you're wanting to learn, including the languages of school.

Language Instruction Education Program (LIEP). Programs provided by public school districts to identified ELs in each of their schools. LIEPs are required until ELs meet the state and district criteria for exiting or transitioning out of their designation as ELs. Once ELs transition out or exit the LIEP, the district must document that they have monitored exited students three times a year for two years. The Office of English

Language Acquisition (2015) provides a short list of four categories of programs considered to be educationally sound in theory.

Language Use Survey (LUS). Each student completes this survey upon enrollment in the district for the first time to determine what languages in addition to English are used in the home and understood by the student.

Non-Equivalent Groups Design (NEGD). A frequently used design in social research with a pretest-posttest structure typically used in experiments, but without random assignment to two comparable groups.

NO COTEL. Code used in this study for the control group which are students in other kinds of English-instructed LIEPs, not COTEL/

Starting proficiency level (PRE). Measured by ACCESS in January 2018, and reported as a scale score of 100 – 600. PRE is used as a covariate in this study which will be accounted for statistically before comparing the mean growth of the two groups.

Studentized residuals

Studentized residuals allow comparison of differences between observed and predicted target values in a regression model across different predictor values. They can also be compared against known distributions to assess the residual size. Studentized residual is the regression residual divided by its adjusted standard error. (IBM, 2021, p. 1)

Submersion vs. Immersion. Memrise (2020) distinguishes submersion from immersion by noting that, “Immersing yourself into a language means that you’ve got tools, tips and tricks to support you when it comes to learning the language and culture. Submersion, on the other hand, would plunge you in at the deep end with no resources or support.”(section 5)

TESOL. Teachers of English to Speakers of Other Languages international association

WIDA. Formerly *World Class Instructional Design and Assessment* (WIDA) is a consortium of over 40 states who together have adopted the five English Language Development (ELD) standards which I can the languages of school, and the suite of language assessments called ACCESS.

CHAPTER II - LITERATURE REVIEW

Practically everyone I know - not just educators - has a theory about how people learn a new or second language. They base their theories on what they observe about others or themselves as they have worked (and sometimes struggled!) to acquire a new. Many people have told me they believe immersion is really the only way to truly acquire a language. Here's one definition of *immersion* from Memrise (2020), "Immersion-based learning means learning a language in the most natural and authentic way possible" (Memrise, 2020, para. 1). English-speaking Americans are for the most part monolingual (Palmer, 2013). Some of this is related to language policies, but mostly it's related to the increasingly faulty idea that 'everyone in America speaks English'. Even in places where Americans often go on vacation - where the natives speak other languages - everyone also speaks at least some English. So - why bother learning another language? My reason was my grandfather.

My Grandfather and I – Our Journeys to a New Language

Immersion as defined above has been a key for me in learning my second language, though it's not the only key. When my 9th grade guidance counselor told me I should really get the two-year requirement of taking a world language for college application 'over with' as soon as possible, I had a discussion with my mother about which language I should choose - Spanish, French, or German. I had pretty much ruled out Spanish because everyone took Spanish, and I wasn't 'everyone'. I thought French sounded romantic, but my mother said, 'Oh, Debbie, I really wish you would learn German! Your grandfather didn't teach me, and I've always felt sorry that he didn't.' So that's why I signed up for German in the 9th grade, and then majored in it in college.

After spending a high school summer immersed in German culture, studying German in Germany, I had advanced so far in my oral proficiency in German, it seemed crazy not to at least minor in it in college. But it turns out that making it my college major and eventually becoming a German teacher, required something more than taking courses back then. It required a reason for wanting to learn the German language. This reason provided the essential motivation to stick with it for all those years. The feeling that motivated me was the link and connection I felt to my grandfather by learning his native language. Even though he died when I was a young child, I consider myself a German-American because of him, and because I learned German. Identity and language are connected.

It turns out that immersion was also a key for my grandfather learning English. As the youngest of 14 children growing up in German-speaking Ukraine, he came alone to Nebraska to live with an uncle to escape the growing unrest that eventually led to World War I. When he arrived at Ellis Island with his Bible, his coronet, and an accordion, he spoke a smattering of English, but was well-educated and fluent in German, Russian, and Polish.

Similar to the unaccompanied minors, or Unaccompanied Alien Children (Office Of Refugee Resettlement, 2021) of today, he had the name and address of his uncle who was living and farming in Nebraska. Once he arrived in Nebraska, he was immersed in English, and also studied English in the one-room schoolhouse near his uncle's farm. He continued to write in German to his family living in Ukraine until World War II, when the family dispersed. My uncle reports that while his father was for generally reserved

and didn't speak much in English, he became animated and outgoing when speaking in German to a neighbor, also an immigrant.

For me, three years of formal study of German as a foreign language in high school preceded my first immersion experience. Though it certainly didn't seem like it for the first week I was in Germany, it turns out that formal training did help me to make sense of my surroundings. As I relaxed, I began to look around, listen closely, and gradually recognized the German vocabulary, grammar, and expressions I had learned at school. I noticed how similar German was to English, and began to use what I had learned, and to build on my prior knowledge.

The main difference between my grandfather and me, however, is that both his survival and his thriving in a new land was dependent on acquiring English. He had to know and use English to be able to keep his farming business affairs in order and to pass his citizenship test. For me, knowing German was great - and eventually I did support myself by teaching it. But there were options for me if that hadn't worked out, which wouldn't have required me to be able to speak German.

Several theories of language acquisition are borne out in the short anecdotes above, including Schumann's theory of Acculturation, Krashen's theories about Comprehensible Input and the Affective Filter, Swain's theory of Comprehensible Output, Cummin's theories of a common underlying proficiency (CUP) and the differences between basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP). I also see glimpses of Gee's theory of situated, socialized language learning, and Vygotsky's sociocultural learning theories and the zone of proximal development (ZPD). Even behaviorist theories of stimulus and response

which were behind all the flashcards, drill and practice in my early language learning days were observable in our language learning stories.

Researchers in the fields of psychology, sociology, philosophy, and education have been theorizing about learning, and language learning in particular, for many years (Bohren, 2018; Menezes, 2013). All of these theories interact, combine, and build on each other, attempting to explain this complex cognitive process of language acquisition. As the number of ELs in the U.S. has steadily grown, so have the number of studies related to how students acquire a new language, and the most effective, equitable way to provide a free and appropriate education to ELs. This review of literature focuses on some the underlying theories, concepts and previous research regarding language acquisition, as well as the emerging theory of translanguaging which in my understanding, draws parallels to Decartes' innate knowledge, Cummins theory of a common underlying proficiency, and Friere's pedagogy of the oppressed with its emphasis on social justice (1995).

Language Acquisition Theories

Reed and Railsback (2003) assert that,

While significant professional development is necessary to gain a full understanding of second language acquisition theory, some key concepts can be quickly understood and applied in the classroom (p. 15).

In particular, there are widely agreed upon theories regarding the stages of language acquisition, the importance of tapping into HL and cultures of students, providing comprehensible input via student engagement, interaction, and visuals, and understanding

the difference between social language and the academic or technical language needed for school success.

There is clear evidence to support the claim that second, third, and fourth language acquisition, as in my grandfather's case, truly is a complex adaptive process. Menezes (2013) argues that previous attempts to explain second language acquisition should not be disregarded. Instead, when they are put together, they provide a broader and deeper view of the acquisition process. Translanguaging as a language acquisition theory does just that, finding many of its tenets in the theories of the past, now interpreted and applied in the linguistically super diverse classrooms of the 21st century.

VanPatten and Williams (2006) describe the principles and best practices of effective LIEPs (reviewed in chapter 1) as “observations” of what many in the field of language education agree to be true. They further stipulate that the purpose of the development and research of language acquisition theories - or any theory - is, at a minimum, ‘to account for or explain observed phenomena’ (VanPatten & Williams, 2006, p. 2). A ‘good’ theory should also make accurate predictions about what is or isn’t possible, and should integrate and unify even seemingly contradictory generalizations about a complex phenomenon.

Early Language Learning Theories

One important, early figure of western thought and philosophy, Plato, believed there simply wasn’t enough time for humans to learn everything they know - not just about language, but about all kinds of things – implying that knowledge was therefore innate rather than something to be taught. However, he did establish an academy which Socrates, his mentor, would never do because he thought it was impossible to ‘impart’

knowledge (History.com, 2009). Similarly, French philosopher and mathematician, Descartes, famous for saying, “Cogito ergo sum,” or, “I think, therefore I am” believed you learned a language simply by noticing similarities between your own language and the target language and then manipulated what you already innately knew to learn a new language (Watson, 2021).

On the other hand, Tabula Rasa, or the blank slate, was one of philosopher John Locke’s more popular ideas (1690). He argued against innate knowledge, believing that nurture and experience caused us to develop knowledge. In this view, education is paramount to learning everything that we know (Fritscher, 2020). Behaviorism is a theory based on the belief that all behaviors are learned through interacting with our surroundings and by our responses to various stimuli in the environment. Because emotions, moods, and thoughts are too subjective, this view exhorts that only observed behavior should be considered evidence of learning (Cherry, 2021).

Skinner developed the Behaviorist Theory of Second Language Acquisition and used positive and negative reinforcement to cause language learning. This language acquisition theory can create stress by penalizing mistakes, but on the positive side, emphasizes the importance of feedback. Language learners need feedback and a feeling of accomplishment to find success in learning another language (OptiLingo, 2017). Examples of methodologies based on behaviorist theories included the Audiolingual Method, Total Physical Response, the Silent Way and Situational Language Teaching (Demirezen, 1988).

In a strong reaction to Skinner’s Theory of Behaviorism, Noam Chomsky argued that there is certainly some innate ability to develop language, which he called a

Language Acquisition Device (LAD). His proof was the fact that there are some universal elements in all languages (Pinheiro, 2016). Linguists like Chomsky noted that children develop their home language (HL) with little explicit help or assistance and in a relatively short period of time. Proponents of universal grammar agree that there are three basic steps or stages for learning a language - at least your first language: learning sounds, learning words, then learning sentences (Stanborough, 2019)

John Schumann, developer of the Acculturation Model, looked specifically at how immigrants like my grandfather, learned a new language once they relocated to a new country, culture, and language. The simplified form of speech displayed in ‘pidgin’ language, according to Schumann, “shows that social and psychological distance exists, and the speech 2 of the second language learner is restricted to the communicative function” (Schumann, 1978, p. 76). He believed that successful assimilation led to proficient use of the new language.

Unfortunately, assimilation also leads to the ‘subtraction’ of the HL. My grandfather, along with many German-speaking immigrants at the time, chose to assimilate, probably due to the negative view many held of German-speaking people at the time. As I interviewed my mom, my aunt, and uncles, they noted that by the time they came along, my grandfather no longer felt confident to teach them German himself, though he still read and conversed in German when in contact with others who also spoke German.

The influence of Schuman’s Acculturation model can also be seen in the development of the Affective Filter Hypothesis by Krashen nearly forty years ago. In this theory, students under a great deal of stress, put up a defensive shield, making it

difficult for them to acquire a new language (Krashen, 1982). The factor of how students feel emotionally at school can act as a door-keeper for the 'input' of the instruction and in the ability students to remember and apply what they have learned. A culturally and linguistically responsive classroom and school environment allows students to relax and enjoy social and academic interactions with others at school. Gee (2004) captures the importance of a student's sense of emotional inclusion stating,

Children cannot feel they belong at school when their valuable home-based practices are ignored, denigrated, and unused (p. 37).

Moving Toward Situated Learning Theory

Historically, second language classrooms in the U.S., primarily foreign language classrooms, were based on a grammar-translation approach focused on drill and practice of vocabulary and language forms. Often lessons were isolated from meaningful connected contexts for comprehending and producing language. Later, contextualized language forms, conversation, and other interactive activities came to the forefront in foreign language education resulting in a new paradigm of both communicative and cultural competence. Conversation and other kinds of interactive communication became the foundation for noticing how structures and vocabulary are used to relay meaning (Hymes, 1974)

Other theorists noting the importance of communicative competence, proposed a focus away from a teacher-centered pedagogy to a student-centered one. Friere (1995) asserts,

Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other.(p. 27).

Likewise, Turuk (2008) stressed that the learner is active and motivated by solving problems, noting that true learning takes place in the interactions between students and teachers as they engage in meaningful activities. Rarely does significant learning take place in, “the discrete teaching of skills” (p. 247)

Effective school language learning is likewise based on meaningful communication about contextualized tasks. When the situated context for language use changes, a language learner may find the language they were using to talk about a sporting event is insufficient for talking specifically about how to set up and evaluate a scientific experiment. As a result, language proficiency is not developed evenly across all the various situations where proficiency in the language of specific content areas is essential for school success. Instruction that places students in the center, and takes advantage of all the linguistic assets of students, leads to more effective language learning at school.

Depending on a person’s previous language learning opportunities, he might also have developed the language skills of speaking, listening, reading, and writing to different levels. For example, a student who studied English as a foreign language in a non-English speaking country may be quite proficient in reading and writing English, but have trouble comprehending their American peers chatting in the lunchroom or playing on the playground. Often these ELs are perceived to be extremely shy or even anti-social, when in fact they simply lack the specific pronunciation skills and self-confidence

to actually speak words they are able to read with high levels of comprehension. Further complicating their ability to comprehend oral interactions is the fact that oral discourse can be significantly different from written discourse. Written discourse varies too, according to the academic context and genre of the text (Bailey, 2006; TESOL, 2018).

The challenge in teaching anything – academic language in particular – is to set up situations in the classroom where students are required to take on certain roles and the corresponding kind of language needed to communicate effectively in that particular socio-cultural context. This in turn impacts the level of motivation students have toward communicating clearly and learning language. Students who want to acquire the language and who need to communicate their ideas clearly are more successful at learning the language. As they engage in meaningful discourse with peers, they have multiple models to mimic rather than having only the teacher as a model. Similarly, English-only (EO) speaking students benefit from interacting with multilinguals who bring additional linguistic, academic, and other funds of knowledge into the classroom (Bailey, 2006).

Gee (2015) adds to this discussion of constructing meaning by stressing the importance of not only activating background knowledge, but also of building it, stating,

In fact, most learners cannot learn deeply without starting with experience so that they have some fodder with which to give useful meanings to language in use (p.

11).

While it's possible for EL teachers to create meaning-based language learning opportunities in the Pull-Out ESL classroom, it's not easy to specifically align the language instruction directly to what the students are to learn in the mainstream

classroom. Once language learning is ‘situated’ somewhere else in the school, the actual learning of the students also changes.

CUP, BICS, CALP, Sociocultural Theory, and the Emergence of Translanguaging

Jim Cummins directly impacted classroom instruction when he distinguished two types of language: basic interpersonal communications skills (BICS) and cognitive academic language proficiency (CALP). Research by Cummins and others has shown that conversational language can be acquired within 6 months to two years, but developing proficiency in more technical, academic language can take much longer - from four to seven, or even ten years. Variables that impact the time it takes to become fluent in CALP include the starting language proficiency level, the student’s age and time of arrival at school, native language level of academic proficiency, and the amount of support in achieving proficiency. In addition, Cummins identified a common underlying proficiency (CUP) that individuals possess that expresses itself in all of an individual’s languages to a greater or lesser degree like the iceberg above the water (Cummins, 2008a; Hakuta et al., 2000; Thomas & Collier, 1997).

Vygotsky’s Sociocultural Theory is based in natural acquisition and communicative competence, rather than in a grammar translation theory. Vygotsky (1978) asserted the importance of engaging students in meaningful, contextualized learning, and by extension, language learning, rather than focusing exclusively on direct teaching of language. He describes the results of direct teaching as,

Nothing but empty verbalism - a parrot like repetition of words by the child, simulating a knowledge of the corresponding concepts but actually covering up a vacuum (p. 150).

Taken together, Cummins' CUP and Vygotsky's contextualized learning are consistent with theories of translanguaging that seem to better describe what bi/multilingual people do when they draw on all of their resources linguistically to communicate most effectively in strategic ways to learn in academic settings. One perspective of translanguaging states that translanguaging is,

A form of *dynamic systems' theory* that highlights the transformation of the cognitive linguistic system brought about by the use of multiple languages (Cummins, 2021, p. 2)

However, Cummins (2021) is critical of the expansion of the term by some to include the idea that languages per se don't exist, finding a contradiction in the fact that the same proponents of this idea, also advocate for students to be able to access and use these very same (non-existent?) languages in the classroom. Gee (2004) however, identified with a similar view to those translanguaging theorists stating that,

First: people do not primarily learn language at the level of things like 'English' or 'Russian'. Rather, they learn one or another of a great many different varieties of English that I will call 'social languages' (p. 13).

Likewise, some argue that concepts such as 'academic' and 'standard forms' of language are rooted in raciolinguistic ideologies that stigmatize and suppress authentic varieties of students' languages, and that an emphasis on explicit instruction of academic language should be rejected as a devaluation of minority students linguistic practices (Flores, 2019b; García et al., 2021). However, I concur with Cummins on this point – and also with Heath (2008), who notes in her forward to Fischer, et al.'s book called *Content-Area Conversations* that

Academic language consists not of lectures, examinations, force, or avoidance of questions that cry out for deliberation. Quite the opposite: true academic language lies in the details of vocabulary, syntax, and genres that characterize deliberative, democratic participation across roles and responsibilities. . . In the end, academic language is not just academic. It is life giving when it extends through the length, width, and depth of all that we can learn. Such language allows us to question, deliberate, negotiate, ponder, and imagine. Fluency and ease in this kind of talk help us find our way in the world and humanity to make the world a better place. (Fisher et al., 2008, para. 9).

In spite of these differences however, Cummins (2021) notes that,

Both theoretical perspectives [of translanguaging] view languages as socially constructed, they [both] reject rigid instructional separation of languages, and they deplore the frequent devaluation of the linguistic practices that many minoritized students bring to school. Both ... also endorse dynamic conceptions of multilingual cognitive functioning. ... both view translanguaging pedagogy as a central component in the struggle for social justice and equity in education (p. 4).

Coteaching for ELs (COTEL), a Review of the Literature

As reviewed earlier, sociocultural learning theory declares that learning, and by extension, academic and social language learning, is a developmental process that takes place as learners engage in everyday tasks with others at home, in the classroom, in the common areas of the school, and in the community. Effective learning occurs when a person with more knowledge or skills purposefully assists an individual within a real-life, authentic context of learning (Vygotsky, 1978). Coteaching for English learners

(COTEL) provides a structure by which the key concepts of translanguaging and sociocultural theory, namely the zone of proximal development (ZPD), scaffolding, and appropriation, can be more efficiently realized (Barnard & Campbell, 2005).

COTEL as a program model typically falls into the category of LIEPs that provide formal instruction in English in classrooms where ELs, often speaking a variety of different home languages, and English-only (EO) students learn together. It is based on a sociocultural, constructivist theory of language acquisition. This theory posits that developing language hinges on social learning and requires input and help from more knowledgeable others. Learners in this theory are viewed as active co-constructors of their own knowledge, who constantly add to and refine their own understanding and skills as they interact within a socially constructed reality (Vygotsky, 1978).

Cook & Friend (1995) were the first to develop a working definition of coteaching, differentiating it from other kinds of inclusive programming by stating that for true coteaching there must be two professionally certified teachers, one specialist and one classroom teacher, delivering coplanned, rigorous instruction together in the same room. The students are a diverse group of students clustered together for instruction designed to meet the needs of all students in the classroom, and to benefit from the strengths of every other student in the classroom. As one form of inclusion, coteaching assumes that the mainstream classroom is the most appropriate place for most, if not all students. As Wilson and Blednick state regarding effective coteaching,

Students do not have to earn their way into the general education classroom, and supports are put into place to ensure their needs are met. (2011, p. 5).

Wilson & Blednick (2011) also note that the purpose of pairing the specialized educator with the general educator in the general education classroom is to provide the highest level of instruction possible to meet the diversity of needs in the classroom. They clarify that team teaching is different from coteaching because team teaching typically involves two content area teachers combining their classes and teaching together, and doesn't focus explicitly on meeting the specific needs of identified students. Likewise, coteaching is different from having an instructional aide in the classroom who is focused on only the few identified students. Though originally conceived for students with disabilities, it is absolutely the case that multilingual students also have a civil right to participate in the general education classroom, learning alongside their English-only speaking peers.

When summarizing the research testing the impact of coteaching on student achievement, Solis, et al. (2012) report that findings both support and challenge the idea that coteaching positively impacts student learning. This is probably because there are very few empirical studies, and the variables involved are very complex. ELs are very diverse in their competencies and challenges. ELTs and CTs also have widely varying experiences and training in how to work together and in how to work with both general education students and ELs in the same instructional space at the same time. Reviews of the available data on student achievement from 2001 to 2012 report a continuing lack of data on actual student outcomes (Hannover Research, 2021; Landrum, 2012; Murawski & Lee Swanson, 2001b; Pappamihiel, 2012). However, York-Barr, et al. (2007) suggested administrators consider implementing Coteaching for ELs in the classroom, finding that ELs did make significant gains in achievement.

Historical and Current Rationale for Coteaching for ELs

Solutions to the lack of equal access to educational opportunities for ELs have developed slowly over time through the extraordinary advocacy efforts of parents and educators (Lindsey et al., 2003). While some educators may debate the impact of coteaching on student achievement, there are other good reasons to pursue collaborative instruction for ELs including to,

Increase instructional options for all students, improve program intensity and continuity, reduce stigma for students with special needs, and increase support for teachers and related service specialists (Cook & Friend, 1995, p. 3)

ELs' Perspectives on Coteaching

Regardless of the mixed and missing data about student achievement, consistently positive outcomes related to student perceptions of coteaching as being equitable and contributing to the experience of fair treatment, are more than enough for many schools to rationalize coteaching (Solis et al., 2012). ELs in COTEL programs recount similarly positive perceptions. Respondents from a student-focused survey emphasized benefits to participating in co-taught classes such as understanding the class content better, and increased willingness to ask more questions in class. They expressed a common belief that the increased participation of the students themselves contributed to their sense of success in co-taught classes (Gladman, 2011).

ALL teachers are Language Teachers – COTEL Increases Support for CTs and ELTs

Regarding coteaching for ELs, there's been a critical shift in thinking about who in the public school context is responsible for the explicit language instruction ELs need to

succeed at school. In fact, Turkan, et al. (2014) contend that all teachers must perceive themselves as both language and content teachers, stating that,

When all teachers are responsible for student learning, there should not be compartmentalization and diffusion of responsibility. Hence, the stance taken here has been that all teachers should have the essential specialized knowledge base to make content accessible to ELLs and engage them in the use of the language of the content. (p. 24)

When schools are reorganized for the collaboration of classroom teachers (CTs) and English learner teachers (ELTs), the essential integration of content and language can occur.

When I speak with EL teachers, they often express how overwhelming it is to be the only teacher working intentionally with students to develop all the different variations of both social and academic language, in both written and spoken form. They feel they are often unreasonably expected to teach ELs all the specialized English they need to achieve in school in a few short lessons a week. Many full-time EL teachers are expected to achieve this task with 30, 50, or as one teacher reported, even 300 students of varying proficiency levels, spread out in two or more schools (Gardner, 2020). The figure below is meant to illustrate this overwhelmed feeling when trying to balance teaching all the ‘languages’ of school, learning about and validating all the different home languages of their students, preventing excessive EL segregation, while also not letting ELs flounder in mainstream classrooms without support.

Figure 3

Schools Often Place EL Teachers in an Impossible Situation



Once school administrators understand the impossibility of this idea, they generally come to the same conclusion: All teachers must be language teachers for all their students – but particularly for students learning English as a new language. Researchers note that teacher education is influenced by a broad range of institutions which often have conflicting approaches to teaching teachers about language instruction. However, in spite of these differing approaches,

Most educators agree that improving the language and literacy skills of ELLs will depend on finding ways to deepen all teachers' knowledge of language and language development (Anstrom, et al., 2010, p. 4)

ELs in PreK-12 public education spend most of their school day in mainstream classrooms where English is the language of instruction, yet classroom teachers (CTs) of ELs are frequently not prepared to support ELs through linguistic scaffolding. Likewise, EL teacher preparation programs may not adequately prepare them to support ELs in their various content classrooms, particularly at the secondary level, where specialized content knowledge and certification is required for the CT but not for the ELT. As Lucas & Villegas (2013) note,

The language of school is fundamentally different from conversational language, and different academic genres are characterized by different linguistic features (p. 105)

In the sharing of teacher expertise by collaborating throughout the instructional cycle, the integration of language and content can be achieved to the benefit of all students. Instead of taking too much time as some may say, coplanning can actually reduce the time needed to plan and prepare over time. As all students are better prepared with the language they need, they can learn new content more efficiently, reducing the need for reteaching (Dove & Honigsfeld, 2017).

COTEL Increases Instructional Opportunities Through Greater Flexibility

In COTEL, two teachers design flexible grouping opportunities for students to get extra help, or to draw on home language resources. School-wide continuity can be achieved for ELs as coteachers collaboratively plan and provide instruction and reflect on assessment. Repeated opportunities to utilize complex language and making space for translanguaging, can be built in. Likewise, ‘handover/takeover’, when ELs internalize the language they have learned, and apply it spontaneously in extended learning

opportunities (van Lier, 1996), occurs more naturally in the mainstream classroom when CTs and ELTs coteach. This phenomenon is described by van Lier who stated,

Learners benefit from working in different kinds of groupings or participation structures. For some learning, working with a more mature or competent person may be useful. For other learning, perhaps it is useful to work with peers at the same level. Then again, we can also learn much from attempts to assist and teach others. Finally, our inner resources, our ‘resourcefulness’, can be instrumental at various points in learning complex abilities (2004, p. 159)

COTEL Reduces Stigma and Fragmentation for ELs and Provides an ‘Expanded ZPD’

ELs have reported feeling embarrassed about being singled out and having to leave the classroom for special instruction in English, but the stigma is removed when teachers integrate needed language instruction and assessment into the mainstream classroom. Keeping ELs in their mainstream classroom also provides for continuity of instruction for ELs, and avoids fragmenting the school day (Carrier, 2005; Dufour, 2003).

Including ELs in the mainstream classroom provides many more peer learning opportunities (Early Learning, 2015). This is in contrast to Pull Out LIEPs, where typically the ELT is the only ‘proficient’ speaker of English, who is likely not proficient in all the languages of his ELs, and where English-only students do not typically participate (Office of English Language Acquisition [OELA], 2019). In the mainstream classroom, with the multiplied opportunities to interact with English-only and multilingual peers and teachers, ELs can both learn more from others and show what they know with an ‘expanded’ zone of proximal development (ZPD) illustrated in the figure below (van Lier, 2004, p. 159).

Figure 4

An Expanded Zone of Proximal Development (ZPD) As Imagined by Van Lier, Building on Vygotsky's ZPD in Sociocultural Language Learning Theory

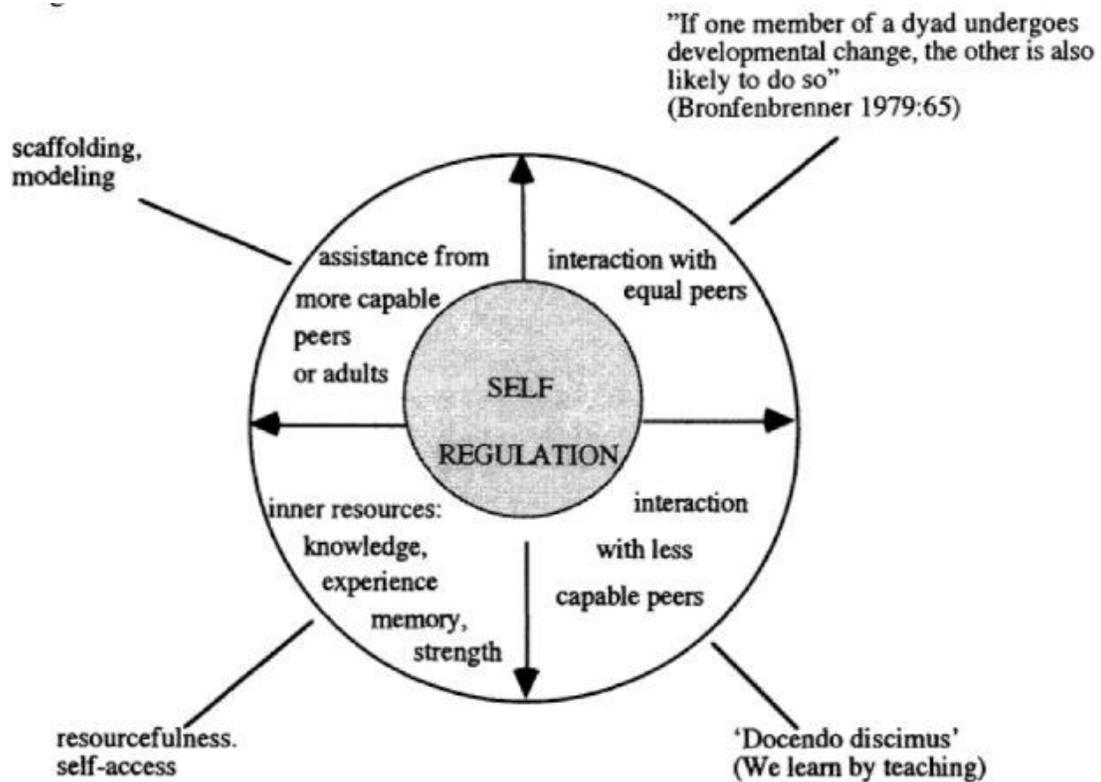


Figure 6.2 : An expanded ZPD

Note. Theories of translanguaging related to providing opportunities for ELs to access all of their own linguistic repertoire for learning (Flores & Garcia, 2014), are consistent with the idea of ELs' resourcefulness, and promotes a strengths-based or assets-based view of multilingual students in PreK-12 schools.

Frequently, well-meaning educators will advocate for students struggling in the mainstream classroom to receive all kinds of extra services. While this sounds like it should be good for students, it often results in a fragmentation of the school day for students as they are being pulled here, there, and everywhere, and rarely get the opportunity to truly communicate with others in an unforced, natural way. As Turkan, et al. observe,

When the learner is denied the equal opportunity to participate in the discourses of academic disciplines, it becomes an issue of equity. Thus, to provide access, it is important that teachers devise various pedagogical approaches or practices that provide ELLs with the opportunity to use and participate in the ways the community of the discipline thinks, talks, and writes (2014, p. 21).

When two teachers work together to design explicit language instruction to occur in tandem with content instruction, ELs can stay in the classroom and avoid the negative consequences of segregating them for explicit ELD instruction (Hendrickson, 2011).

Strategies of Effective Coteaching for ELs

Collaboration as Foundational to Successful Co-teaching

The importance of a collaborative context both for supporting coteachers and for maximizing the impact of teacher expertise cannot be over-emphasized. In, *How can Innovative Learning Environments Promote the Diffusion Of Innovation?*, Osborne (2016) notes that school change and improvement is notoriously slow. This may be because,

In a traditional ‘one teacher, one classroom, one class arrangement, it might take weeks, months or even years for an innovation to spread through an organization, partly because that innovation is locked away behind the walls and doors of the traditional classroom. Open, collaborative learning environments can radically decrease the amount of time between two crucial parts of the diffusion cycle: understanding and taking action (p. 15)

Coteachers Exhibit Parity

Heimboldt (n.d.) found that teachers identified resources, administrative support, planning time, and training as prerequisites to positive coteaching outcomes for both students and teachers. Pappamihiel (2012) reviewed studies regarding what is needed for Coteaching to succeed which are summarized as: 1. Administrative support; 2. Professional development; 3. Parity; 4. Voluntary partnerships; 5. Common planning time; 6. Establishment of common expectations; 7. Shared resources; 8. Shared accountability for outcomes; 9. Maintaining and developing the coteaching relationship; 10. Implementing different models of coteaching. There is an important word of caution, however, as Flores (2011) notes:

Educators interested in creating more collaborative, team-teaching relationships between ESL and mainstream teachers must challenge instances of pseudo-collaboration that may undermine the educational services provided to English language learners (ELLs) (p. 186)

Simply assigning teachers to collaborate doesn't ensure coteachers will want and be able to collaborate in a way that truly maximizes the training and passion of each teacher to the benefit of all students.

Language and Content are the Main Thing

This study hypothesized that when an ELT and a CT collaborate for the entire instructional cycle and use a wide variety of student grouping configurations made more feasible by having two teachers in the classroom, the same benefits of intense ELD instruction targeted toward each EL's current English proficiency level could be achieved without pulling students out of the classroom to receive the needed instruction (Conderman et al., 2008; Dove & Honigsfeld, 2017). In addition, the COTEL framework

provides more frequent and authentic opportunities for translanguaging and other culturally and linguistically proficient strategies for both language and content teaching to emerge (Flores & Garcia, 2014).

Using a Variety of Coteaching Models

In Cook and Friend's framework, there are six distinct approaches or models coteachers can utilize and adapt according to the goals of the content area each day. As teachers become skilled in utilizing these approaches, they are able to move in and out of them as if they are one teacher in two bodies, multiplying their impact (Cook & Friend, 1995).

In 2010, Honigsfeld and Dove wrote their foundational book outlining and advocating for collaborative practices essential for EL achievement followed by several chapters on the nuts and bolts of coteaching for ELs. They proposed a seventh model for COTEL that wasn't included in Cook and Friend's, (1995) framework. This 'extra' approach for ELs is an elaboration of the Alternative approach, where there are two student groups and one teacher working with each group. This additional alternative approach recognizes the importance of pre-teaching for ELs that can often reduce or even eliminate the need for re-teaching, which is the typical alternative coteaching approach. The strategic pre-teaching of vocabulary and building of background knowledge to prepare ELs for instruction, enhances their acquisition of language and content (Honigsfeld & Dove, 2010).

Coteachers Design Differentiated Pathways for Learning Language and Content

The skills and language students need to master have been clearly identified, modeled, and practiced to maintain high expectations for all. Only then are a variety of

options to meet the objectives clarified to individuals and small groups of students based on the proficiency levels of students. Coteachers design culturally differentiated options as well to enable students of various cultures the opportunity to express and apply their learning within the contexts of their various home cultures and languages.

Coteachers Engage Students in SWIRL

Students take advantage of a variety of authentic opportunities to listen to classmates and interactive media in both their home languages and in English to then consolidate what they've learned into English text or speech on a daily basis. Coteachers model pair interactions which students can also re-enact using a variety of sentence frames and illustrated word banks. Activities such as cocreating illustrated, multilingual word walls with accompanying actions help remind students of the language focus for instruction.

Coteachers Conduct Daily Formative Assessment of Language and Content

Both coteachers collect evidence related to specific measurable examples of students' content and language learning throughout and at the end of each lesson. Students used multilingual technology tools both to comprehend and produce performance-based products for culminating, summative assessment linked to daily assessment tasks. Rubrics with clear success criteria allow students to formulate specific feedback to their peers.

In addition to adding a seventh model for co-teachers to consider when co-teaching for ELs, Honigsfeld and Dove also created an observation and self-evaluation tool called the I-TELL (Integrated-Teaching for English Language Learners). Their observation tool includes specific items for teachers to consider when coteaching for ELs that includes items that would not likely have been considered when coteaching for students with disabilities (SWD) (2015). Collaborating leaders of a regional initiative for COTEL worked together to modify the I-TELL tool to create the Coteaching for ELs: Six key indicators (COTEL6) (Cole, 2020). This tool is designed to describe what is meant by implementing COTEL with fidelity. The COTEL6 reduced I-TELL's 13 items to six by combining several items as follows.

1. Parity between the co-teachers is established from the onset of the lesson and maintained throughout the lesson.
2. Both teachers address language and content objectives throughout the lesson. Both language and content are the “main thing” students are working on.
3. The two or more co-teaching models used in the co-taught lesson are intentionally selected based on students' needs, the specific content, the type of activities designed, and teachers' teaching styles
4. Co-teachers implement appropriate differentiated strategies for teaching academic language and content.
5. Co-teachers establish high levels of engagement and ensure all four language skills are integrated: speaking, writing, interaction, reading, and listening (SWIRL).
6. Co-teachers collaboratively conduct formative and summative assessments.

To improve interrater reliability across the region, Collaborators also developed quality indicators for three levels of implementation. See Appendix A for the entire COTEL6 tool.

When coteachers coplan and coteach regularly, incorporate known effective strategies for teaching ELs, adhere with fidelity to the six key indicators listed above, and most of all, develop a translanguaging stance of social justice for their students, ELs have the opportunity to not only succeed in their mainstream classrooms, but to truly thrive.

CHAPTER III - RESEARCH METHODS

This study was designed to address gaps in the literature noted by Faulkner-Bond and associates (2012). The authors recognized that the growing English learner (EL) population in US schools is highly heterogeneous, yet very few state and school district data systems are set up to disaggregate ELs' progress in language development by what are reasonably important variables, such as students' home languages (HL), grade levels, proficiency levels, and the kind of language instruction education programs (LIEPs) provided to the student. Their U.S. Department of Education report asserted that,

More fine-grained information about ELs by subgroup would be helpful both to practitioners and to researchers, to help them determine practices and assessments that may provide more effective support that targets the specific needs of different EL subpopulations (Faulkner-Bond et al., 2012, p. 120).

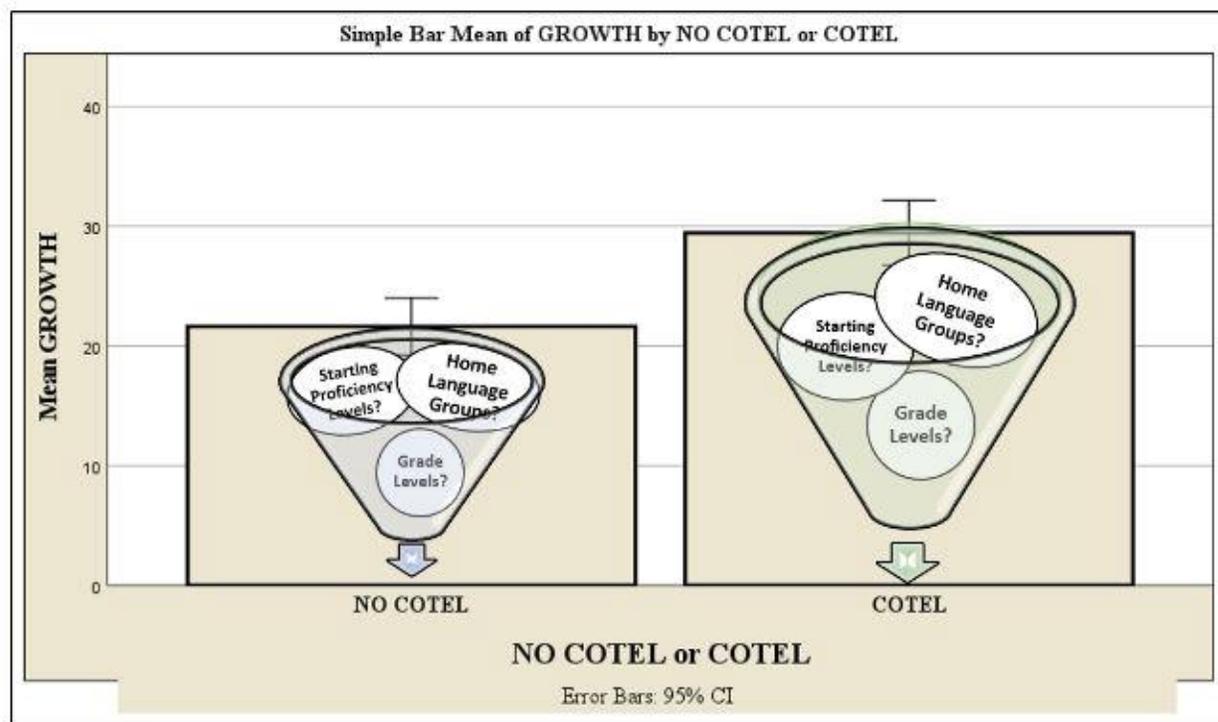
This study was also designed to add to the empirical evidence for COTEL, using quantitative methods that consider significant variables in the growth in English proficiency among diverse subset of students. This study examined standardized English proficiency test scores instead of examining achievement scores for ELs, focusing on a key purpose of LIEPs which is to accelerate growth toward English proficiency.

The figure below shows the result of an Independent-samples T-test with the data collected for this study. While results showed that ELs in COTEL grew more overall than ELs in NO COTEL, questions still remained. For example, did the ELs in COTEL grow more because they started with lower proficiency levels? Did ELs' home language groups matter? What about grade levels, or starting proficiency levels? Figure 5 also illustrates the three ways the data were organized and reorganized for comparison

between the two independent groups of NO COTEL or COTEL using five two-way ANCOVA analyses.

Figure 5

Independent-samples T-test was Insufficient to Answer the Question, “How Do Various Subgroups of ELs Grow in NO COTEL or COTEL?”



Note. ELs of various home language groups, grade level clusters and starting proficiency levels were placed into either NO COTEL or COTEL to facilitate their growth in English proficiency. Overall, unadjusted mean growth was larger for ELs in COTEL.

To help answer the remaining questions, a multidimensional approach was developed to analyze how different kinds of ELs respond to their LIEP in terms of growth in academic English proficiency as measured by WIDA’s ACCESS test (WIDA, 2021). ACCESS scores have been used by state education agencies (SEAs) to define ‘acceptable’ growth for ELs and to hold local education agencies (LEAs) accountable to change their LIEPs when a school’s ELs fail to meet their respective progress in English

goals (Missouri Department of Elementary and Secondary Education [MO-DESE], 2021b; U.S.Congress, 2017)

In this pretest-posttest design with intact groups, it was important to control for pretest differences because students were not randomly assigned to their LIEP and did not have the same chance of participating in either NO COTEL or COTEL. The mean growth scores were adjusted statistically by including the pretest score (PRE) as a covariate in each two-way ANCOVA analysis. Two-way ANCOVA was chosen to see if there were any interaction effects. Interaction effects occur when one level of an independent variable is dependent on the level of the other independent variable. In this study, for example, did the growth that ELs experienced in COTEL depend on what grade level they were in, or did all grade levels grow the same?

The following hypotheses provided the focus:

- Hypothesis 1: ELs of all home languages grow more in Coteaching for ELs (COTEL) than in NO COTEL, after controlling for pretest differences.
- Hypothesis 2: ELs of all grade levels grow more in COTEL than in NO COTEL, after controlling for pretest differences.
- Hypothesis 3: ELs of all starting proficiency levels grow more in COTEL than in NO COTEL, after controlling for pretest differences.

Participants

To avoid COVID-19 pandemic effects, eligible participants had to have taken the ACCESS test in the winters of both 2018 and 2019, and been enrolled for at least the first semester of the 2018-2019 school year. All eligible ELs from two Midwestern school

districts were included. One district was a small urban charter school district where all 156 of their K-8 ELs were enrolled in COTEL. The other was a mid-sized suburban district. In the suburban school district, 567 Grade 1-8 ELs were eligible for the study, with 371 in NO COTEL, and 196 in COTEL. The target districts were selected because together there were enough ELs in both COTEL and other kinds of LIEPs (NO COTEL) for the proposed study.

Table 2

Participants by Home Language and Grade Level for the Two Target School Districts

Small Urban Charter School – 156				Midsized Suburban School District			
LANG	N	GL	N	LANG	N	GL	N
BOS	6	1	24	BOS	324	1	124
SPA	69	2	32	SPA	56	2	88
ARA	34	3	23	ARA	25	3	85
VIE	20	4	22	VIE	43	4	85
MIX 12	27	5	18	MIX26	119	5	44
		6	8			6	50
		7	18			7	54
		8	11			8	37
		Total	156			Total	567

In total, EL participants reported having 35 different languages at home as measured by the Language Use Survey (LUS). The LUS was completed by each family upon enrollment in the districts for the first time, according to state guidelines. The starting proficiency levels (PL) of the ELs as measured by overall scale scores (OSS) on the ACCESS 2018 test (PRE) also varied widely, ranging from OSS 100-417 (100 – 600 possible). Participants were placed into a variety of English-instructed language instruction education programs (LIEPs) including Coteaching for ELs (COTEL), Pull Out

English instruction (POE), and Push-in (or consult) which was coded in the state and district information systems as Content-based English instruction (CBE). Placement into a LIEP was typically for one full school year and depended primarily on classroom teacher (CT) and principal support for clustering ELs and coteaching.

Other considerations included the number of ELs at each grade in the school, and proficiency levels of the ELs. ELs in COTEL were clustered into one, two, or three CTs' classrooms per grade level (Grades 1-5) or content area (Grades 6-8) to facilitate regular coplanning (30 minutes per week minimum) and coteaching (4 lessons or two 90-minute blocks per week minimum). Consistent coplanning and coteaching are well established as essential components of effective coteaching (Dove & Honigsfeld, 2017; Murawski & Lochner, 2010). Home language (HL) was not a consideration for EL placement in a particular LIEP and no bilingual LIEP was available in either district. The ELTs and CTs were considerably less diverse than their ELs, being primarily white, monolingual, English-only females (MO-DESE, 2021a).

Development of COTEL in the target districts

Both districts piloted COTEL in the 2014-2015 school year. In addition, most of the coteachers from both districts had participated together in a Coteaching for ELs regional initiative sponsored by the regional professional development center. This professional development initiative, now in its eighth year, involves four, full-day training sessions spread out over the school year. Coteaching teams learn about Honigsfeld and Dove's seven coteaching models (2012a), which elaborate essential practices for effective coteaching for ELs. Participants learn about and utilize a self-assessment and reflection tool, Coteaching for ELs: 6 Key Indicators (COTEL6). See

Appendix A for descriptions and rating scales of these effective instructional and collaborative practices which together define how to implement COTEL with fidelity. ELTs were typically assigned to work with all ELs within one or two schools which meant that ELs in NO COTEL usually had the same ELT as ELs in COTEL within the school.

A Glimpse into a COTEL Classroom: Third Grade COTEL Writing Lesson in the Suburban District

When you walk in to the classroom, color-coded Language and Content Objectives for the class are projected onto the white board.

Figure 6

Lesson Objectives Posted, Clarified, Referenced Throughout, and Reviewed at the End

<p>Content Objective: I can research African American inventors to learn about their place of birth, their schools, and their families, and list my sources.</p>	<p>S – Specific M – Measurable A – Attainable (in this lesson) R – Relevant (to the learning standard of research) T – Time bound (to this lesson)</p>
<p>Language Objective: I can work with my group to record facts we researched onto my graphic organizer using the sentence frames: _____ was born on the _____ th/nd of _____ in _____, _____. (city) (state) He/she attended _____. _____’s family is _____ / made up of / consists of _____.</p>	<p>Who (My research group and I) Why (language is needed) What (we are discussing) How (language I will speak and write) Scaffolds (who or what can help me when I need it)</p>

Student leaders for today are passing out Chromebooks to each student to use for research. Student desks are organized into groups of three or four, facing each other.

Each desk has a student name tag taped onto the top-right corner. The students in each group have all selected the same African American inventor to learn about. Spread out in the class are ELs speaking Bosnian, Vietnamese, Arabic, and Turkish, former ELs speaking Bosnian and Arabic, several English-only African Americans, and English-only white students. It looks a bit like a meeting of the United Nations.

Beginning–One Student Group: Two Teachers Teach the Same Content.

When it's time for class to start, both teachers are at the front of the class and one is calling the class together using a call and response, "Class, class." Most students respond, "Yes, yes". Everyone together says, "Let's go!" One teacher reads aloud the Content Objective for the day and all students repeat after her. The other teacher reads aloud the language objective and students repeat. One teacher turns and asks the other teacher, "What is our content objective today?" and the other teacher answers, repeating what was just read chorally by everyone in the class. Both then say together, "Class, class – pair, share!" Everyone in the room turns to another student seated near them and repeats the roleplay modeled by the teachers. The teachers then role-play again, asking each other what the language objective for the day is and students automatically partner with someone else to repeat the role play. Within less than five minutes, the objectives have been repeated and role-played twice – once by the coteachers, and once by all students in the class. This teaching approach is also called 'Team teaching'.

Middle–Multiple Student Groups: Two Teachers Monitor, Teach and Assess.

As students then move their focus toward their research groups, the two teachers circulate throughout the classroom, assisting students to find the correct websites, translate websites for researching in a variety of languages, pointing to graphic organizers,

answering questions, and eliciting full sentence feedback from students, while providing extensive wait time when needed. Both teachers are carrying a clipboard with a class list and the lesson objectives for the day, take anecdotal notes about what each student is doing, i.e., what language they are using to discuss their research, what common misconceptions they notice, student questions, etc. At one point, they confer with each other to make sure they have collected formative assessment data for every student in the class, and head out to engage anyone they missed. The middle part of the lesson incorporates at least two different coteaching approaches, ‘Station Teaching’ and ‘Two Teach, Two Assess’.

End–Two Student Groups: Two teachers Teach the Same Content (Parallel).

Now the two teachers are positioned in opposite corners of the classroom to prompt their half of the class to face them so students’ backs are facing the backs of the other group. Each research group has selected a spokesperson to report to their half of the class what was accomplished during the lesson using the sentence frames from the posted language objective. Each spokesperson has 2 minutes to speak, and in less than 6 minutes, all groups have reported out and assessed their mastery of the day’s objectives. One teacher says, “Class, class!” and all students respond, “Yes, yes,” The other teacher says, “Let’s get ready for lunch.”

Measures/Instruments

Two administrations (2018 and 2019) of one test measure (ACCESS) were utilized in this study. The ACCESS is administered annually by each school’s ELTs. Each EL’s home language (HL) was determined by the Language Use Survey (LUS) which was completed by parents upon enrollment. The LUS responses were entered into

the student information system (SIS) in each district. The LUS response and the LIEP as designated by the ELTs for the 2018-2019 school year, provided the data for two more key variables: Home Language (LANG) and Language Instruction Education Program group (LIEPgrp) of either COTEL or NO COTEL.

Language Use Survey (LUS)

State law requires public school districts to make a good faith effort to identify ELs enrolling in their schools via the state's Language Use Survey (LUS). Public schools are obligated to survey all parents or guardians regardless of surname, expected or suspected use of another language in the home, or completed surveys on file for older siblings. Trained and certified district personnel must then administer an English language proficiency screener within 30 days of enrollment in the district for the first time to any student who indicates use of another language at home (U.S. DOE, 2016). The target districts include the Language Use Survey (LUS) as a part of their enrollment processes to ensure all parents and guardians answer the survey questions. Interpreters are provided to assist multilingual families in completing the survey questions. Survey responses are monitored by EL program staff in each building and at the district level to determine who needs to be screened for English proficiency.

Parental consent is not required to administer a language proficiency screening to determine eligibility for a LIEP, but parents must be notified within 30 days of their child's enrollment in the district-selected LIEP. The notification should include the goals and instructional procedures of the LIEP, and the criteria for exiting the LIEP (U.S. Congress, 2017). Parents also have the right to refuse their child's participation in a particular LIEP, but if they do, districts retain the legal responsibility to differentiate

materials, instruction, and assessments to ensure each student progresses toward proficiency and is able to participate meaningfully in content area classrooms (U.S. DOE DOJ, 2015).

Validity and Reliability of the LUS

While home language surveys (HLS) have been utilized in the U.S. since the 1930s, there haven't been many studies testing the validity of home language measures to ensure the accurate and reliable measurement. The specific questions and processes have been vague and somewhat unreliable as each state or even district, has developed their own questions and procedures for administering the survey (Bailey & Kelly, 2013). In an attempt to clarify and standardize procedures, administration, and interpretation of the HLS, and to improve validity related to the purpose of the HLS, ESSA (U.S.Congress, 2017) required state education agencies (SEAs) to create and implement standardized, statewide entrance and exit procedures for ELs. The required questions and process in Missouri are as follows:

- What was the student's first language?
- Which language(s) does the student use (speak) at home and with others?
- Which language(s) does the student hear at home and understand?

If the answer to any of these questions notes a language other than English is either spoken or understood, or if an LEA [local education agency] feels that a child might have an English language learning need due to unreported exposure to another language, the student is potentially an English learner and the district must take active steps to determine if the student qualifies for a language

instruction educational program (LIEP). Every potential EL identified by the LUS is required to be screened. (MO-DESE, 2021a, p. 6).

ACCESS for ELLs (ACCESS)

According to WIDA, previously the World Class Instructional Design and Assessment (WIDA), ACCESS for ELLs (ACCESS) is the collective name for WIDA's suite of summative English language proficiency assessments. ACCESS is taken annually by ELs in Kindergarten through Grade 12 in WIDA Consortium member states (WIDA, 2021). ACCESS is aligned with the WIDA English Language Development (ELD) Standards which means each assessment item focuses on one or more of the five standards of Social and Instructional Language, Language for Language Arts, Language for Mathematics, Language for Science, or Language for Social Studies. The test assesses each standard across the four language domains or modalities of Listening, Speaking, Reading, and Writing.

Results are reported as proficiency level (PL) scores and scale scores (SS). PL scores are derived ordinal scores reported as 1.0 to 6.0 where 1.0 indicates a new entering score for that grade cluster, and a 6.0 is the most advanced PL score possible at that grade level. SS from 100-600 are continuous from grades K-12 where 100 is a new learner of English and 600 is the highest possible SS. In addition to PL and SS for each language domain, four composite scores are reported: Comprehension (Listening and Reading), Literacy (Reading and Writing), Oral Proficiency (Speaking and Listening), and Overall Proficiency. The overall proficiency score is derived from the four language domain scores where Reading and Writing are each weighted as 35% and Speaking and Listening are weighted as 15% each of the overall score.

Scale scores (SS) are useful for measuring progress or growth made in English language proficiency from year to year, while the PL scores are interpretations of the SS for each grade cluster. This means that a student's SS could go up while the PL score goes down, indicating that while the student did progress in English according to the SS, this increase was not enough for the student to perform at the same PL given the more extensive linguistic demands of the next grade level (WIDA, 2014). This study utilized the overall composite scale score (OSS) for ACCESS 2018 (PRE) and ACCESS 2019 (POST) to calculate the raw growth score: $POST - PRE = GROWTH$.

Regular evaluation and modification of LIEPs is federally required under the third part of the three-part test of *Castañeda v. Pickard* (*Castañeda V. Pickard*, n.d.). ACCESS exceeds federal requirements for the monitoring and reporting of ELs' progress toward English language proficiency, and the results are used by state education agencies (SEA) to hold schools accountable for this aspect of each school's LIEP (WIDA, 2021). WIDA researchers' historical examination reveals another significant aspect of language acquisition which is, "lower is faster, and higher is slower" (Cook & Zhao, 2013). In other words, ELs starting at a lower proficiency level grow faster in English proficiency, regardless of their LIEP.

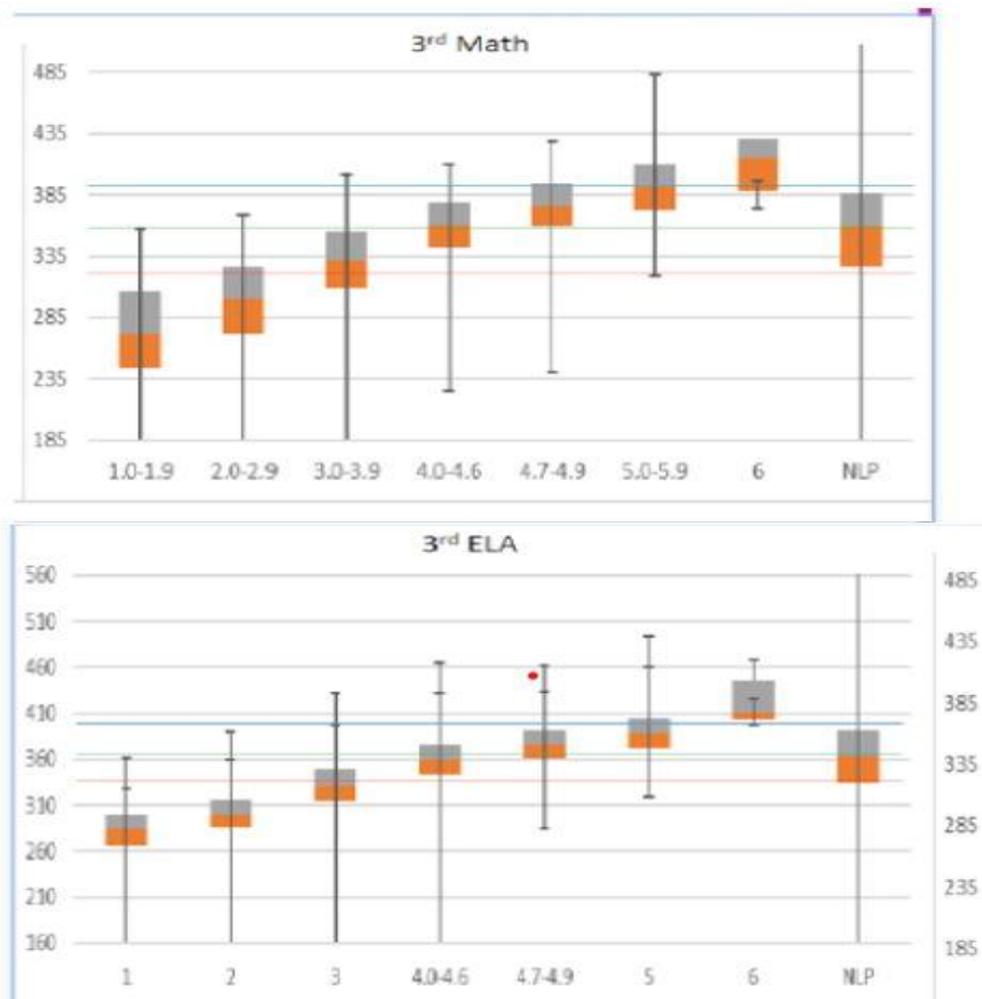
Predictive or Criterion Validity of ACCESS

ACCESS is one measure used to determine whether students are prepared to exit the LIEP. When ELs reach a state determined score on ACCESS, they are typically reclassified as "English proficient" and the district is no longer required to provide a LIEP for those students, though they are required to monitor them for two years after exiting. In Missouri, for example, state level data shows that a score of 4.7 or higher on

the ACCESS test predicts that ELs will likely score proficient or advanced on the state tests of achievement, providing predictive validity. The figure below shows the scores of third grade ELs in 2017 on ACCESS and on the grade level achievement tests in Math and ELA. The ‘proficiency’ line for each content assessment (not ACCESS) is drawn through the middle. The figure shows that ELs at PLs 2 or 3 are scoring below the content assessment proficiency line, while ELs at PL 4 are approaching proficient. ELs at PLs 5 and 6 score above the proficient line, and generally out-perform their never-EL or English-only (EO) peers, designated as ‘NLP’ on this chart below.

Figure 7

ACCESS Proficiency Level Scores Compared to Achievement Test Scores



Linguistic Validity

Turgut Dost (2016) completed a qualitative study on ways to prepare classroom teachers for assessing and instructing ELs. In their study, pre-service teachers were asked to complete a Math story problem in Turkish. Several teachers reported feeling cognitive overload and emotional distress after this “linguistic shock”. Afterwards, participants reported gaining empathy for ELs, and determined to better prepare ELs for assessments by pre-teaching keywords and phrases for story problems, and incorporating visuals and annotated glossaries.

Cultural Validity

Textbooks and articles on validity may include a discussion of cultural validity as related to content validity because content validity must consider how well a test compares to the real world. This begs the question, ‘Whose real world are we talking about?’ Surely we mean the real world of the students being assessed whose culture is inseparable from the concept of their real world. As Solano-Flores (2011) observes,

While key normative documents on testing ... recognize the importance of factors related to culture and language as a source of measurement error, current testing practices address culture as a threat to validity rather than the essence of validity (p. 3).

Solano-Flores encourages EL teacher (ELT) and classroom teacher (CT) collaboration to develop and modify classroom assessments. This CT and ELT collaboration can help to infuse cultural validity into the day-to-day life of classroom assessment (Solano-Flores, 2011).

Data Sources

ACCESS Score Reports for 2018 and 2019

ACCESS is the state required test of English proficiency administered in both districts in this study. Tests are usually administered by ELTs annually in the winter from mid-January through mid-March. This means that the ACCESS 2018 pretest score (PRE) was obtained in the winter of the 2017-2018 school year, and the ACCESS 2019 posttest score (POST) in the winter of the 2018-2019 school year, after one full semester in the LIEP analyzed in this study.

Student Information System (SIS) Reports for 2018-2019 School Year

The LANG, LIEP, and grade level (GL) that had been entered into the student information system (SIS) by school personnel during the 2018-2019 school year, were accessed by district officials and given to the researcher to complete data collection. The SIS reports included the reported home language (HL) and the LIEP for most ELs in the study. However, due to a variety of circumstances in both districts, there were a few missing and inaccurate LIEP designations for some participants in the SIS reports. Therefore, ELTs who oversaw and taught the students during the 2018-2019 school year were asked to verify each student's LIEP from that school year, confirming that ELs coded as COTEL met the definition for this study: ELs were in cotaught classes for four or more coplanned lessons (or two or more 90-minute blocks) per week. Potential participants were removed from the study when their 2018-2019 LIEP category could not be confirmed, leaving 723 cases in grades 1-8 at the end of phase two.

Data Collection Process

In the suburban school district, 567 Grade 1-8 ELs were eligible for the study, with 371 in NO COTEL, and 196 in COTEL. While all Two-way ANCOVA analyses for the suburban district alone showed similar results as reported in chapter four below, all 156 eligible ELs, all in COTEL, were added from the urban charter school to help even out the n-sizes between COTEL (N = 352) and NO COTEL (N = 371). Eligible cases were identified by combining each district's two ACCESS reports into one Excel file and sorting it by student ID number. This phase provided a pretest score (PRE) which was the ACCESS 2018 Overall Scale Score (OSS), and a posttest score (POST) which was the ACCESS 2019 OSS, for each participant in the study.

During the second phase, each district's Data and Assessment office generated and downloaded a student information system (SIS) report as an Excel spreadsheet according to the requirements of the approved IRB for this study. Each district's ELTs verified the SIS reports which were then combined with the PRE- and POST- ACCESS reports, and all student identifiers including ID numbers, first and last name, and school names were removed from the database and random case numbers were assigned to each participant. The researcher then removed the data to complete the statistical analysis. Table 2 below shows a sample of the data collection sheet which included the variables of home language (HL), LIEP during the 2018-2019 school year (LIEP1819), grade level (GL) in 2018-2019, PRE, and POST scores for each case. An additional column was added to calculate each case's raw score for growth in English proficiency from pretest to posttest (GROWTH) by subtracting the overall scale score (OSS) of the pretest from the

OSS of the posttest ($POST - PRE = GROWTH$). GROWTH became the dependent variable (DV) in the study.

Table 3

Sample Final Data Collection Sheet

Case #	HL	LIEP1819	GL	PRE	POST	GROWTH
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Study Design

This study was designed to examine how ELs' various home languages (HLs), proficiency levels (PLs) and grade levels (GLs) interacted with the type of LIEP to effect growth in English proficiency. It used a quasi-experimental, pretest – posttest design to examine differences in the amount of growth (GROWTH) in English proficiency between two independent groups (NO COTEL or COTEL). Statistical controls were substituted because the groups were pre-existing, and physical control of the experimental situation was not possible, i.e., the researcher could not control which group would get the treatment and participants did not have the same chance of being in the control or experimental group (Thomas, 2020). One type of causal-comparative research is called ex-post-facto or retrospective research, where the researcher is investigating a question after the effects have already taken place. To avoid the COVID pandemic effects, an ex-post-facto design was utilized.

The design was selected to discover and describe the effects of NO COTEL or COTEL on GROWTH by grouping and regrouping participants for analysis based on home language group (LANGgrp), grade level (GL), and starting proficiency level group (PREgrp). In each statistical test (Two-way ANCOVA), the covariate of the ACCESS 2018 overall scale score (OSS), designated as the pretest score (PRE), was included to

control for pre-existing differences between participants. PRE is also a significant covariate in terms of language acquisition, as research has shown that, “lower is faster, and higher is slower” in terms of the rate at which students grow in English proficiency (Cook & Zhao, 2013).

Age, as interpreted by grade level, was too highly correlated with the pretest scores (PRE) to analyze the effect of starting proficiency level and LIEP with Grades 1-8 together. For this reason, the data were split by grade level cluster (GLcluster) before analyzing the effects of NO COTEL and COTEL (LIEPgrp) on ELs of various starting proficiency levels. Three starting proficiency level groups (PREgrps) were created for the grade level clusters (GLclusters) 1–2 and 3–5, and two PREgrps for the 6–8 GLcluster. These GLcluster PREgrps were designed to have similar sized PREgrps for each analysis.

Variables used in the Two-way ANCOVA Models

Dependent Variable (DV)

The dependent variable for all five analyses was growth in English proficiency (GROWTH), calculated by subtracting the ACCESS 2018 (PRE) overall scale score (OSS) from the ACCESS 2019 (POST) OSS:

$$\text{ACCESS 2019 OSS} - \text{ACCESS 2018 OSS} = \text{GROWTH.}$$

Covariate

Starting proficiency level as measured by ACCESS 2018 OSS (PRE) was selected as the covariate to control for pretest differences. The covariate was used to ‘adjust’ the means of the categorical independent variable groups of LIEPgrp (NO COTEL or COTEL), LANGgrp, GLcluster, and PREgrp described below. The comparison of the

‘adjusted means’ and ‘adjusted marginal means’ provided a better assessment of the actual differences between the groups on the dependent variable, GROWTH.

Focal Categorical Independent Variable: NO COTEL or COTEL (LIEPgrp)

The focal or primary independent variable of interest was the categorical variable LIEPgrp with two levels, either NO COTEL or COTEL.

Categorical Independent Variable: Home Language Group (LANGgrp)

Participants were assigned to one of three home language groups (LANGgrp) where LANGgrp1 were all Bosnian speakers (BOS), LANGgrp2 were all Spanish (SPA) and LANGgrp3 (MIX33) were all other home languages together including Vietnamese (VIE), Arabic (ARA), Albanian (ALB), Kurdish (KUR), Turkish (TUR), and 28 other low-incidence languages with fewer than 20 speakers each.

Table 4

2 x 3, Two-way ANCOVA for LIEPgrp by Home Language Group (LANGgrp)

NO COTEL	COTEL
BOS	BOS
SPA	SPA
MIX33	MIX33

Ordinal Independent Variable: Grade Level (GL)

ELs in NO COTEL and COTEL were in Grades 1 – 8. In some grades there were fewer than 30 participants in either NO COTEL or COTEL, so only the results for grades 1, 2, 3, 4, and 7 were interpreted, though the results for all grades are reported.

Table 5

2 x 8, Two-way ANCOVA for LIEPgrp by Grade Level

NO COTEL	COTEL
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Grade 1 n=60	Grade 1 n=87
Grade 2 n=56	Grade 2 n=64
Grade 3 n=60	Grade 3 n=48
Grade 4 n=66	Grade 4 n=41
Grade 5 n=38	Grade 5 n=24*
Grade 6 n=40	Grade 6 n=20*
Grade 7 n=34	Grade 7 n=37
Grade 8 n=17*	Grade 8 n=31

**N-sizes for these cells were below 30 participants*

Ordinal Independent Variable: Starting Proficiency Level Group (PREgrp)

ELs were placed in one of three PREgrps in both GLcluster 1-2 and GLcluster 3-5, and in one of two PREgrps in GLcluster 6-8, based on their overall scale scores (OSS) for ACCESS 2018 (PRE). The PREgrps were called Emerging (EMR), Developing (DEV), and Expanding (EXP) for GLclusters 1 and 2, and EMR-DEV and DEV-EXP for GLcluster3.

Table 6

Two 2 x 3 and One 2 x 2 Two-way ANCOVA for LIEPgrp by PREgrp in GLclusters

GLcluster	NO COTEL	COTEL
1 st & 2 nd	EMR	EMR
	DEV	DEV
	EXP	EXP
3 rd – 5 th	EMR	EMR
	DEV	DEV
	EXP	EXP
MS 6 th – 8 th	EMR-DEV	EMR-DEV
	DEV-EXP	DEV-EXP

Statistical Analyses: Two-way ANCOVA using SPSS software

Five Two-way Analyses of Covariance (ANCOVA) were conducted to test the three hypotheses. ANCOVA was used instead of ANOVA because including the covariate increased the power to detect actual differences in the effects on growth between groups by holding the covariate constant. Two-way ANCOVA is a statistical procedure that enables the researcher to compare groups on some quantitative or continuous dependent variable (DV), in this case GROWTH, while simultaneously controlling for a covariate which is a continuous independent variable (IV), in this case pretest (PRE) (Field, 2016).

The covariate of ACCESS 2018 OSS or pretest (PRE) was introduced in this study to discover if the *adjusted* mean, i.e. adjusted average, GROWTH score was different between two or more groups. The adjusted mean GROWTH was used rather than the raw mean GROWTH because the adjusted mean takes into account participants' starting proficiency level (PRE). It helps to answer questions such as,

- Is the adjusted mean GROWTH value different based on whether a participant was in language group (LANGgrp) 1, 2, or 3?
- Or grade level (GL) 1, 4, or 6?
- Or in starting proficiency level group (PREgrp) Emerging (EMR), Developing (DEV), or Expanding (EXP)?

In addition, with two-way ANCOVA, the researcher can determine if there were any interaction effects between two categorical IVs, i.e., did GROWTH in NO COTEL or COTEL depend on being a Spanish speaker or a Bosnian speaker? If so, how significant was this interaction? Did the effect on GROWTH vary for an expanding (EXP) proficiency level student in COTEL or were only DEV proficiency participants effected

by participating in COTEL? If so, how much of a difference did it make? Thus, it combined both qualitative (categorical) and quantitative IVs (Allen, 2017; Field, 2016; Laerd Statistics, 2018) .

Effect Types reported for Two-way ANCOVA

Two-way ANCOVA is a somewhat complex analysis that provides detailed information about if and how various categorical IVs affected each other on the one DV, in this case GROWTH. In the results chapter, the following effects of each Two-way ANCOVA are reported:

Interaction Effects

A statistically significant two-way interaction effect indicates that the effect that LIEP (NO COTEL OR COTEL) had on GROWTH depended on the level or category of the other IV, i.e., which LANGgrp, GL, or PREgrp they were in, and vice versa. In other words, the difference in GROWTH that resulted from participants being in COTEL or NO COTEL may have depended on whether participants also fell into the BOS, SPA, or MIX33 LANGgrp. Likewise, the GROWTH in COTEL or NO COTEL may have depended on whether participants were in GL 7, or in the EXP PREgrp, or a speaker of one of the languages in MIX33. A statistically significant two-way interaction effect is typically followed by interpreting the simple main effects, also known as simple effects (Laerd Statistics, 2018)

Simple Main Effects

If there was a statistically significant two-way interaction effect, the simple main effects were examined and reported. In a two-way ANCOVA, there will be as many simple main effects as there are groups or levels in both of the two independent variables.

Therefore, if both IVs have two groups there would be four simple main effects (Laerd Statistics, 2018). In this study, for example there were two PREgrps (EMR-DEV and DEV-EXP) in GLcluster MS 6th - 8th, and two LIEPgrps, NO COTEL and COTEL, for a total of four simple main effects (i.e. 2x2 model).

Main effects

When the two-way interaction effect was not statistically significant, this indicated that the effect of one IV, i.e., GL, on GROWTH was statistically the same for each level of the other IV, i.e. LIEPgrp, NO COTEL or COTEL, making it unnecessary to analyze the differences in GROWTH for each GL in both NO COTEL and COTEL. In this study when there was no interaction effect, the main effects of the IVs were examined, and if they were significant the post hoc analysis (pairwise comparison) was also examined. A main effect is similar to a one-way ANCOVA, and is used to determine the difference in GROWTH between the adjusted means of the DV (i.e., adjusted for the covariate) in terms of the two or more groups of an IV.

However, two-way ANCOVA main effects are slightly different from one-way ANCOVA because the main effects of two-way ANCOVA still consider the other IV overall. In this study for example, the main effect of NO COTEL or COTEL considers the average effect of LANGgrp, GL, or PREgrp, but ignores whether a participant was in the EMR, DEV or EXP group of PREgrp by averaging over each groups' adjusted means. The other main effect in this example, considers the effect of PREgrp on GROWTH, while averaging over the effect of LIEPgrp (NO COTEL or COTEL).

Because main effects in two-way ANCOVA average over the levels of the second IV, main effects test for the differences between the adjusted **marginal** means, while

simple main effects test for the differences between the adjusted means (i.e. ‘adjusted’ only by the covariate PRE in this study). Main effects in this study may or may not have been interpreted if there was a statistically significant interaction effect, but were always interpreted if there was no interaction effect (Laerd Statistics, 2018).

Figure 8

SPSS Output of Statistically Significant Main Effect of NO COTEL or COTEL

Univariate Tests						
Dependent Variable: GROWTH						
	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	3768.587	1	3768.587	8.995	.003	.012
Error	299992.190	716	418.984			

The F tests the effect of NO COTEL or COTEL. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

Post Hoc Analysis

In the results' chapter to follow, the main effects were reported when there was not a statistically significant two-way interaction effect. If a main effect was statistically significant (as shown above), it was followed up with a post hoc analysis (i.e., all pairwise comparisons) (Laerd Statistics, 2018). This means for example, as is shown in the figure below, that since there was a statistically significant difference between the adjusted marginal means of participants in NO COTEL and COTEL, the pairwise comparisons table produced by SPSS was examined to determine if the effect of NO COTEL or COTEL for each LANGgrp, SPA, BOS, or MIX33, was statistically significant, and to understand the size of the difference for each group, as shown below

Figure 9

SPSS Output of Pairwise Comparisons of LIEPgrp for each Home Language Group

Pairwise Comparisons

Dependent Variable: GROWTH

LANGgrp	(I) NO COTEL or COTEL	(J) NO COTEL or COTEL	Mean Difference (I-J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
						Lower Bound	Upper Bound
BOS	NO COTEL	COTEL	-3.659	2.337	.118	-8.246	.929
	COTEL	NO COTEL	3.659	2.337	.118	-.929	8.246
SPA	NO COTEL	COTEL	-3.493	3.963	.378	-11.273	4.287
	COTEL	NO COTEL	3.493	3.963	.378	-4.287	11.273
MIX33	NO COTEL	COTEL	-8.597 [*]	2.508	.001	-13.522	-3.672
	COTEL	NO COTEL	8.597 [*]	2.508	.001	3.672	13.522

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

So, while both BOS and SPA speaking participants in COTEL had higher adjusted marginal means than those language groups in NO COTEL, only the MIX33 language group had a statistically significant difference of 8.597 GROWTH points higher than MIX33 speakers in NO COTEL.

Statistical Significance: $p < .05$

All analyses were set to a significance level of $p < .05$. The statistical significance cut score was set before completing the analyses and was chosen based on the nature of the study and the importance of not over-identifying either negatively; meaning COTEL made no difference in how ELs growth in proficiency; or positively; meaning that COTEL made a difference when it actually didn't. In medical test for example, it's much less dangerous to have a false positive result than a false negative one, so researchers may choose to set the significance band to $p < .10$ for example. In this case however, I chose the typical standard significance level, but have reported the actual p-level to inform the reader exactly how close or far the results were from this somewhat arbitrary significance level (Bevans, 2022).

When reporting the statistical significance, the actual p-level was reported to three decimal points. P-values less than .001, were reported as $p = .000$. This could be interpreted to mean that we can be more than 99% confident that the result was due to participation in COTEL rather than due to chance. Statistically significance does not *prove* that this was not due to chance, and because of the ‘nonequivalent groups’ used in the study, it’s difficult to generalize to the entire population of ELs in COTEL everywhere. Results can only be applied with confidence to participants in the study.

Partial η^2

Whenever there was a statistically significant result, the effect size was also reported. An effect size of ‘partial $\eta^2 = .029$ ’ means that approximately 3% of the difference in GROWTH is explained by the independent variable. While there were several statistically significant effects in this study, the effect sizes were all under 10%, which is considered to be a small effect size.

95% Confidence Interval for Difference

For Pairwise Comparisons, the Lower and Upper Bound scores were reported for adjusted marginal mean differences, using the following notation: 95% CI [Lower Bound difference, Upper Bound difference] to give the reader an idea of the approximate possible range of predicted differences.

CHAPTER IV – RESULTS

In this chapter, I will summarize all descriptive statistics, and report the detailed results of five Two-way ANCOVA analyses used to test the three hypotheses for this study. Overall, ELs in COTEL did grow more than ELs in NO COTEL. A closer look at GROWTH by LANGgrp, GL, and PREgrp within each GLcluster showed that ELs in COTEL in the MIX33 LANGgrp, in the 4th and 7th GLs, and the DEV and EXP PREgrps of GLclusters 2 and 3 (Grades 3 – 8) benefited in a statistically significant way from participating in COTEL. The implications of these findings are discussed in Chapter 5.

Hypothesis 1: ELs of all LANGgrps Grow More in COTEL

A two-way ANCOVA was used to test the null hypothesis. There was no statistically significant interaction effect between LANGgrp and LIEPgrp, so main effects were examined. There was a statistically significant main effect of COTEL on GROWTH, $p = .003$, so the null hypothesis was rejected. The simple main effect NO COTEL or COTEL in LANGgrp3 – MIX33 was also statistically significant, showing that participants in LANGgrp MIX33 benefitted most from their participation in COTEL in terms of growth in English proficiency.

Participants by Home Language Group

Because of the large number (35) of home languages reported by ELs in this study, they were combined to create three groups. Table 7 below shows the number of participants in the three home language groups (LANGgrp), and how many of each were enrolled in COTEL and NO COTEL.

LANGgrp 1 included 334 Bosnian (BOS) speakers with 123 in COTEL and 208 in NO COTEL.

BOS speaker participants in the study were primarily the grandchildren of the Bosnian refugees who settled in the region from 1996-2004 during the war in Bosnia. Many of the refugees had first fled to Germany, acquiring German as a new language, before adding English as at least a third language. The group is still highly distinctive, maintaining its cultural, religious and linguistic ties to Eastern Europe, and the grandchildren generally speak primarily Bosnian before starting school. Recently, there has been a push to teach Bosnian as a heritage language to these second and third generation students.

LANGgrp 2 were 124 Spanish (SPA) speakers with 85 in COTEL and 39 in NO COTEL. Spanish speakers, unlike the Bosnian speakers, were a very diverse group, with ties to Mexico, Puerto Rico, Guatemala, Honduras, and other Latin American countries. While there were fewer participants speaking SPA than BOS, Spanish speakers were placed in their own language group due to the linguistic differences between Spanish and the other two top languages of Vietnamese and Arabic, and because there were enough Spanish speakers in NO COTEL and COTEL to make a valid comparison.

LANGgrp 3 (MIX33) had a total of 268 participants with 144 in COTEL and 124 in NO COTEL. This included 63 Vietnamese (VIE), 60 Arabic (ARA), 23 Turkish (TUR), 20 Kurdish (KUR), 16 Albanian (ALB), and 85 speakers of another 28 different languages (MIX28). There were 2-9 participants with the following 17 home language groups, listed here in alphabetical order: Amharic, Chinese, Farsi/Persian (FAS/PER), French (FRE/FRA), Lao, Logudorese Sardinian (SRC), Nepali, Oromo, Philippine languages (PHI/FIL/TGL), Polish, Pashto, Russian, Serbian (SCC/SRP), Swahili, Thai, Wolof, and Yoruba. In addition, there was one speaker each of the following 11

language groups: Afro-Asiatic languages (AFA), Arawak (ARW), Bantu Languages (BNT), Czech (CES), Croatian (HRV), Greek, Italian, Niger-Kordofanian languages (NIC), Nyanja/Chichewa (NYA), Portuguese, and Urdu.

Table 7

EL Participants by Home Language Group in NO COTEL or COTEL

Language Group	EL home languages	Total # ELs in LANGgrp	Total ELs enrolled in COTEL	Total ELs enrolled in NO COTEL
Group 1	BOS	331	123	208
Group 2	SPA	124	85	39
Group 3	VIE – 63	268	124	144
MIX 33	ARA – 61 KUR – 20 TUR – 23 ALB – 16 MIX28 – 85			

Home Language Group by LIEPgrp Two-way ANCOVA – Descriptive Statistics

The two-way ANCOVA compared the adjusted GROWTH means of the various home language groups. They were adjusted for the covariate PRE. ACCESS 2018 overall scale score (OSS) served as the pretest score (PRE) in this pretest – posttest research design. As can be seen in Table 8 below, the adjusted means for all LANGgrps were higher for ELs in COTEL than in NO COTEL. LANGgrp3- MIX33 in COTEL grew more than the other two LANGgrps after adjusting for PRE. There was a difference of nearly 10 points in adjusted mean growth between NO COTEL and COTEL for the MIX33 LANGgrp. MIX33 – COTEL had an adjusted mean GROWTH of 29.42 while MIX33 – NO COTEL had 19.58.

In LANGgrp1 – BOS, ELs in COTEL had an adjusted mean growth of 26.954 compared to NO COTEL with 23.295, a difference of 3.659. Finally, ELs in LANGgrp2 – SPA in COTEL had an adjusted mean growth of 24.960 compared to SPA in NO COTEL with 21.467, a difference of 3.493. In NO COTEL, all LANGgrp means were adjusted up based on the covariate PRE. This means, on average, ELs in NO COTEL likely started with higher than average PRE scores. In COTEL, the mean GROWTH was adjusted down by the covariate, meaning these ELs likely had lower than average PRE scores. Only in MIX33 in COTEL were the adjusted means similar to the raw score mean.

Table 8

LIEPgrp by Home Language Group: Means, Adjusted Means, Standard Deviations, and Standard Errors for GROWTH for Six Cells of the 2 by 3 Model.

Participants by LANGgrp N = 723						
	NO COTEL N = 371			COTEL N = 352		
GROWTH	BOS	SPA	MIX33	BOS	SPA	MIX33
M	21.77	19.59	22.03	28.98	26.33	31.72
(SD)	23.037	22.182	24.740	29.409	22.015	24.614
Madj	23.295	21.467	22.528	26.954	24.960	31.125
(SE)	1.422	3.279	1.838	1.849	2.221	1.706
N	208	39	124	123	85	144

Note. Mean GROWTH (M) = ACCESS 2019-ACCESS 2018. Adjusted Mean (Madj) was adjusted for the covariate PRE (ACCESS 2018 OSS).

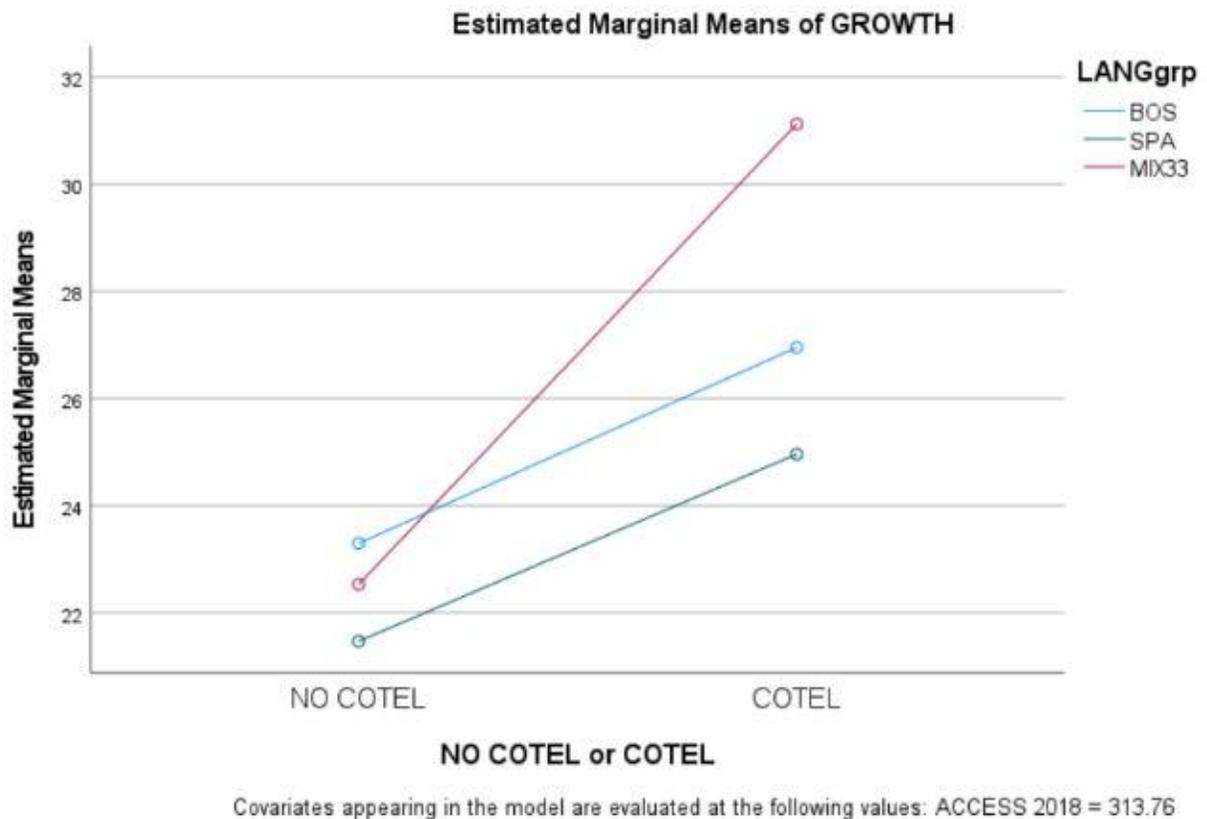
Interpreting the Effects of Home Language Group in Each of Two LIEPgrps

While it appears possible from the intersecting plot lines in the figure below that there could be a significant interaction effect, there was actually not a statistically

significant interaction between LIEPgrp and LANGgrp on GROWTH, while controlling for PRE, $F(2, 716) = 1.201, p = .301, \text{partial } \eta^2 = .003$.

Figure 10

Plotlines of Home Language Groups in Each of Two LIEPgrps



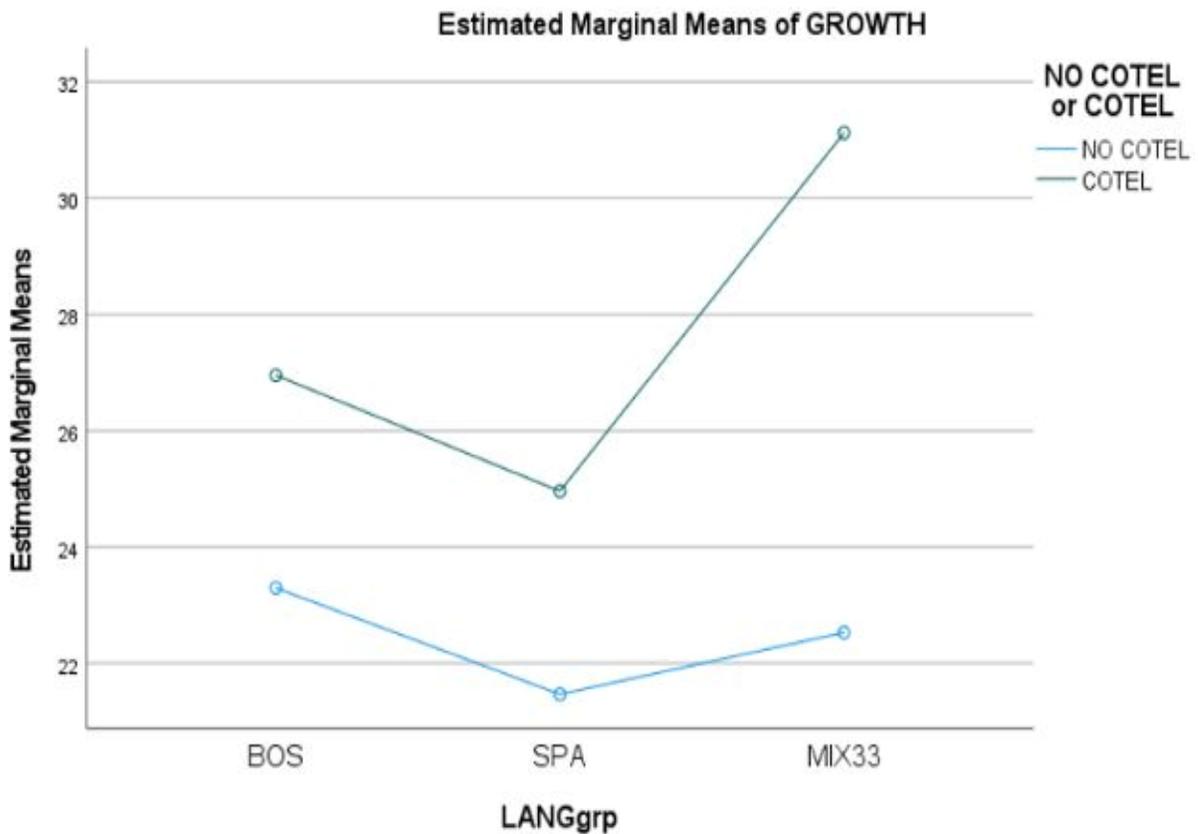
Because there was no significant interaction effect, main effects were examined next. The adjusted marginal mean value of GROWTH in COTEL overall was 5.249 higher than in NO COTEL, 95% CI [1.813, 8.686], which was a statistically significant main effect of COTEL on GROWTH, $p = .003$. There was not a statistically significant main effect of LANGgrp on GROWTH, $F(2, 716) = 1.279, p = .279, \text{partial } \eta^2 = .004$.

To follow up on the statistically significant main effect of NO COTEL – COTEL the simple main effects were examined. The simple main effect of NO COTEL – COTEL for the MIX33 language group was statistically significant, $F(1, 716) = 11.745,$

$p = .000$, partial $\eta^2 = .016$. As the figure below shows, while the adjusted mean for BOS and SPA was higher in COTEL than in NO COTEL, statistical significance was not accepted for BOS, $F(1, 716) = 2.452$, $p = .118$, partial $\eta^2 = .003$. Nor was the effect of NO COTEL – COTEL statistically significant for SPA, $F(1, 716) = .777$, $p = .378$, partial $\eta^2 = .001$. Of the three simple main effects in NO COTEL – COTEL, only the simple main effect in LANGgrp3 – MIX33 was statistically significant. Adjusted marginal mean GROWTH in COTEL for MIX33 was 8.597 higher than in NO COTEL, 95% CI [3.672, 13.522], $p = .001$.

Figure 11

Plotlines of Two LIEPgrps in Each Home Language Group



Covariates appearing in the model are evaluated at the following values: ACCESS 2018 = 313.76

Hypothesis 2: ELs of All Grade Levels Grow More in COTEL

This study hypothesized that ELs in all grade levels 1 -8 would grow more in COTEL than in NO COTEL, after controlling for pretest differences (PRE). The 2 by 8, Two-way ANCOVA showed statistically significant higher GROWTH for ELs in COTEL in GL 4 and 7, with ELs in GL 7 benefiting most from participating in COTEL rather than in NO COTEL, after adjusting for PRE. While adjusted marginal mean GROWTH for all other grade levels was higher in COTEL than in NO COTEL, the difference in GROWTH was not statistically significant.

Participants by Grade Level

There were more participants in Grades 1 and 2 than in Grades 5-8 together. This is typical, because it takes an average of 4-7 years for students to become proficient in what Cummins (2008a) calls cognitive academic language proficiency (CALP). Many ELs in 4th grade are transitioned out of their school's LIEP and reclassified as proficient in English and no longer eligible for a LIEP. Below are the total number of ELs by grade level (GL) who were enrolled in either NO COTEL or COTEL. Sources for this table were the districts' student information system (SIS) reports for 2018-2019, along with ELTs and EL department coordinators who verified the LIEP for each EL.

Table 9

ELs by Grade Level in NO COTEL or COTEL

Grade Level	Total ELs enrolled	NO COTEL	COTEL
1	147	60	87
2	120	56	64
3	108	60	48
4	107	66	41
5	62	38	24

6	60	40	20
7	71	34	37
8	48	17	31

Grade Level by LIEPgrp Two-way ANCOVA – Descriptive Statistics

Table 10 shows the adjusted means for all GLs were higher for ELs in COTEL than in NO COTEL. The GROWTH means for 1st & 2nd in both NO COTEL and COTEL were adjusted down by the covariate PRE. This is because ELs who are younger and who start with lower PRE scores typically grow faster than older students and ELs with higher starting proficiency levels. MS 6th – 8th mean scores were adjusted up by PRE because of the higher starting proficiency levels for ELs in that GLcluster.

Table 10

LIEPgrp by Grade Level: Means, Adjusted Means, Standard Deviations and Standard Errors for GROWTH for 16 Cells of the 2 by 8 Model

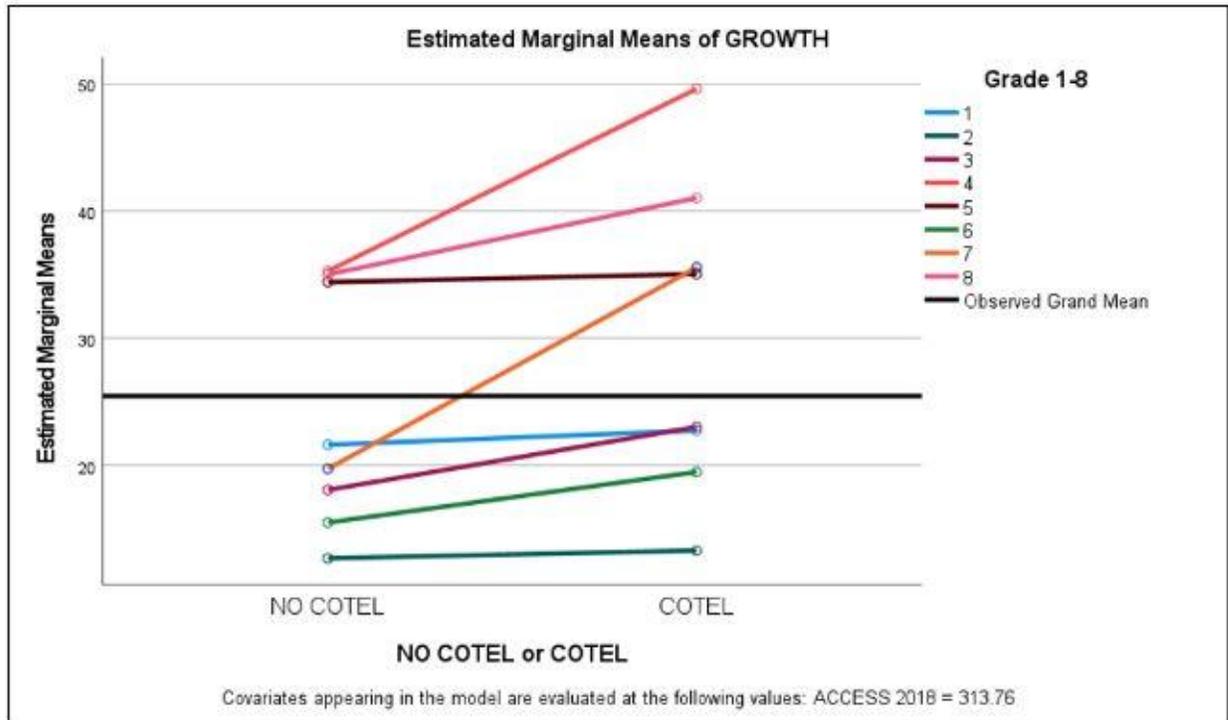
GL N = 723								
GL	NO COTEL N=371				COTEL N=352			
	M	(SD)	Madj.	(SE)	M	(SD)	Madj	(SE)
1	43.85	30.997	21.606	2.855	48.07	30.352	22.728	2.668
2	20.04	16.928	12.681	2.522	22.95	18.602	13.285	2.407
3	17.32	14.891	18.059	2.385	24.15	21.736	23.015	2.667
4	28.86	18.772	35.274	2.305	42.24	13.403	49.611	2.930
5	-.42	14.013	34.402	3.144	21.00	16.837	35.041	3.897
6	4.97	16.937	15.490	3.128	2.60	14.616	19.468	4.297
7	18.59	20.676	19.724	3.334	18.51	19.689	35.559	3.266
8	21.63	23.482	35.013	4.626	18.97	22.079	41.027	3.664
Total	21.63	23.482	24.031	1.098	29.46	25.846	29.967	1.150

Note. GROWTH mean (M) was adjusted (Madj) for the covariate PRE

Interpreting the Effects of Grade Level for Each LIEPgrp

There was a statistically significant interaction effect between grade level and LIEPgrp (NO COTEL – COTEL) on GROWTH, while controlling for pretest differences (PRE), $F(7,706) = 2.351$, $p = .022$, partial $\eta^2 = .023$. This indicates that the differences in GROWTH that resulted from ELs' grade level depended on whether participants were in NO COTEL or COTEL. Likewise, the differences in growth that resulted from ELs' being in either NO COTEL or COTEL depended on participants' grade levels. Because the two-way interaction effect was statistically significant, it was appropriate to investigate whether the differences in adjusted marginal means in each of the simple main effects was also statistically significant. First the simple main effects of NO COTEL – COTEL for all eight grade levels were examined.

The simple main effects in Grade 4, $F(1, 706) = 15.223$, $p = .000$, partial $\eta^2 = .021$ and Grade 7, $F(1, 706) = 13.012$, $p = .000$, partial $\eta^2 = .018$ were statistically significant. In Grade 4, GROWTH in COTEL had an adjusted marginal mean difference of 14.337, 95% CI [3.990, 24.684], $p = .000$, higher than in Grade 4 in NO COTEL. In Grade 7, GROWTH in COTEL had adjusted marginal mean difference of 15.836, 95% CI [3.474, 28.197], $p = .000$. Figure 11 below is a plot line showing the simple main effects of NO COTEL – COTEL within each grade level. ELs in COTEL had more GROWTH than those in NO COTEL overall, and the differences were statistically significant in Grades 4 and 7.

Figure 12*Plotlines of Grades 1 – 8 in Each of the Two LIEPgrps*

Note. The raw mean growth scores for Grades 4 – 8 were adjusted up because of the covariate PRE, meaning ELs in those grade levels started with a higher PRE score than ELs in other grades. The raw mean growth scores for Grades 1-2 were adjusted down meaning ELs in those grade levels started at much lower proficiency levels than students in the upper grades.

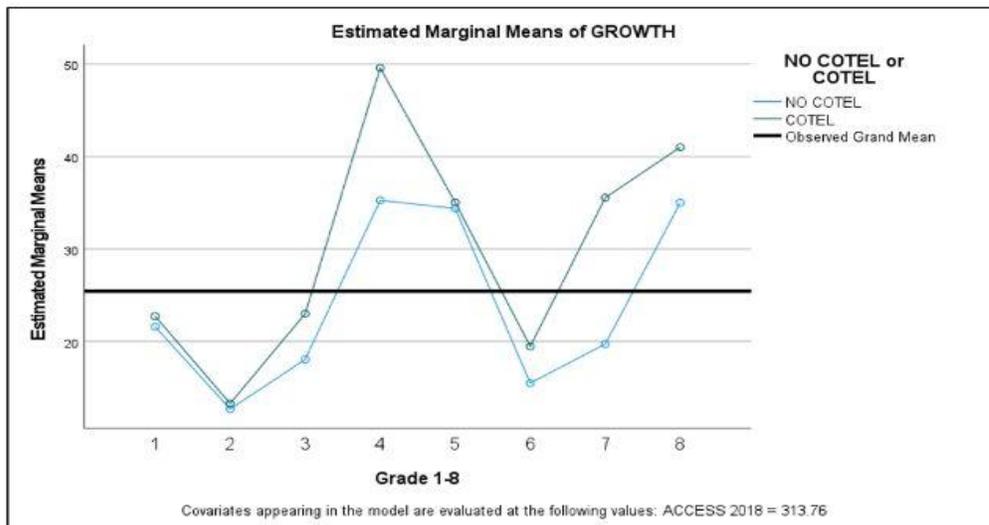
The simple main effects of grade level in both NO COTEL and COTEL were also significant in both NO COTEL, $F(7,706) = 10.980$, $p = .000$, partial $\eta^2 = .098$ and in COTEL, $F(7,706) = 15.423$, $p = .000$, partial $\eta^2 = .133$. This means that there were significant differences between the grade levels in both NO COTEL and in COTEL. Pairwise comparisons for each GL were examined to identify statistically significant differences. In NO COTEL, the Grade 4 adjusted marginal mean growth of 35.274 was 13.667 higher than Grade 1, 22.593 higher than Grade 2, 17.215 higher than Grade 3, and

15.550 higher than Grade 7 which were all statistically significant differences. Other differences are not reported because of the low n-size for Grades 5, 6, and 8.

In COTEL, the Grade 4 adjusted marginal mean growth of 49.611 was 26.882 higher than Grade 1, 36.326 higher than Grade 2, 26.595 higher than Grade 3, and 14.051 higher than Grade 7. The Grade 7 adjusted marginal mean growth of 35.559 was also significantly higher than Grade 2 by 22.274, 95% CI [6.245, 38.303], $p = .000$. This means that overall, ELs in Grade 4 and Grade 7 had significantly higher adjusted marginal means than the other grade levels, regardless of participating in NO COTEL or COTEL, but the highest adjusted marginal mean growth of 49.611 95% CI [41.359, 57.862] in Grade 4 in COTEL, depended on participating in COTEL rather than NO COTEL. Similarly, in Grade 7, the adjusted marginal mean growth of 35.559, 95% CI [26.364, 44.755] in COTEL was statistically significant, 19.724, 95% CI [10.336, 29.111] higher than in Grade 7 in NO COTEL. Figure 12 below shows the simple effects of GL within NO COTEL and COTEL.

Figure 13

Plotlines of the Two LIEPgrps in Each Grade Level



Note. N-sizes in Grades 5, 6, and 8 were too small to interpret the results.

These results indicate that ELs in Grade 4 and Grade 7 had the most to gain from being in COTEL rather than NO COTEL, while ELs in Grades 1 and 2 seem to have benefited equally from participating in either NO COTEL or COTEL in terms of growth in English proficiency.

Hypothesis 3: ELs of All Starting Proficiency Levels Grow More in COTEL

Finally, this study hypothesized that ELs of every starting proficiency level would grow more in COTEL than in NO COTEL. To test this hypothesis, the data were split into the three grade level clusters and were analyzed separately with a two-way ANCOVA for each grade level cluster (GLcluster) to examine more fine-tuned results by subgroup.

For GLcluster 1-2, the adjusted means for starting proficiency level groups (PREgrps) Emerging (EMR) and Expanding (EXP) were somewhat higher in COTEL than in NO COTEL and for the PREgrp Developing (DEV) the adjusted means were somewhat higher in NO COTEL. However, there was not a statistically significant main effect of NO COTEL or COTEL in any of the PREgrps for GLcluster 1-2, meaning these differences were likely due to chance.

For GLcluster 3-5, ELs in all three PREgrps in COTEL grew more than those in NO COTEL, with ELs in the Expanding (EXP) PREgrp benefiting most from being in COTEL. In GLcluster 6-8, the higher growth for COTEL participants of both PREgrps was statistically significant. Those with higher starting proficiency levels, in PREgrp DEV-EXP, gained the most.

Participants by Grade Level Cluster and Starting Proficiency Level Group

GLclusters 1-2 and 3-5 were divided into three approximately same-sized groups based on their ACCESS 2018 OSS (PRE), to form three PREgrps in each of these two GLclusters. The lower third OSS were designated as ‘Emerging’ (EMR), the middle third as ‘Developing’ (DEV), and the highest third as ‘Expanding’ (EXP). Because there were fewer participants in GLcluster 6-8, they were divided into two similar sized groups based on their pretest scores, to form two starting proficiency level groups (PREgrps) designated as ‘Emerging-Developing’ (EMR-DEV), and ‘Developing-Expanding’ (DEV-EXP).

These PREgrps are not based on the WIDA ACCESS proficiency level scores which are grade level interpretations of the OSS participants across all WIDA states. Any resemblance is coincidental. For example, a 7th grader with an OSS of 250 could be designated by WIDA as proficiency level 2.5 ‘Beginning’, while a 2nd grader with the same OSS of 250 could be designated as proficiency level 3.5 ‘Developing’, because the language demands for second grade are not as complex as they are for seventh grade. This is what is meant by saying the proficiency level score is an interpretation of the scale score that varies for each grade level. The starting proficiency level groups for this study were based solely on the overall scale scores (OSS) of the participants in the study, divided to create similarly sized groups for comparison within each GLcluster.

Summarized in Table 11 below are the total number of ELs for each GLcluster by PREgrp designation who were enrolled in either COTEL or OTHER. Only ELs who took ACCESS in both 2018 and 2019, and whose 2018-2019 LIEPgrp (NO COTEL or COTEL) could be confirmed were included.

Table 11*ELs by GLcluster and Starting Proficiency Level Group (PREgrp) in Each LIEPgrp*

GLcluster	PREgrp	Total	NO COTEL	COTEL
1-2, N = 268	EMR	89	32	57
	OSS 100 – 251			
	DEV	89	40	49
	OSS 252 – 286			
	EXP	90	44	46
	OSS 287 – 334			
3-5, N = 276	EMR	95	58	37
	OSS 178 – 322			
	DEV	88	50	38
	OSS 323 – 341			
	EXP	93	56	37
	OSS 342 – 374			
6-8, N = 182	EMR – DEV	89	49	40
	OSS 271 – 367			
	DEV – EXP	93	44	49
	OSS 368 – 394			

GLcluster 1-2: Starting Proficiency Level Group by NO COTEL or COTEL

As can be seen in Table 12 below the means were higher for ELs in COTEL than in NO COTEL in EMR and EXP, but once the means were adjusted based on the covariate PRE, the adjusted means for PREgrp – Emerging (EMR) and PREgrp Expanding (EXP) were very similar between NO COTEL and COTEL. Adjusted mean GROWTH in NO COTEL in the Developing PREgrp (DEV) was somewhat higher than

in COTEL in DEV. None of the differences between NO COTEL and COTEL, or between EMR, DEV, and EXP were statistically significant.

Table 12

GLcluster 1-2: Starting Proficiency Level Group by LIEPgrp: Means, Adjusted Means, Standard Deviation, and Standard Error for Six cells of the 2 by 3 Model

GROWTH	GLcluster 1-2 N = 268					
	NO COTEL N = 116			COTEL N = 152		
	EMR	DEV	EXP	EMR	DEV	EXP
M	55.25	31.83	16.18	63.02	24.88	21.17
SD	32.833	19.322	17.121	28.274	19.950	16.698
Madj.	27.722	34.841	44.018	30.605	28.656	47.214
SE	4.145	2.992	3.780	3.829	2.714	3.628
N	32	40	44	57	49	46

Note. GROWTH = ACCESS 2019 OSS - ACCESS 2018 OSS. The adjusted mean GROWTH (Madj) was adjusted for the covariate PRE (ACCESS 2018 OSS).

Interpreting Effects of Starting Proficiency Level in Each LIEPgrp in GLcluster 1-2

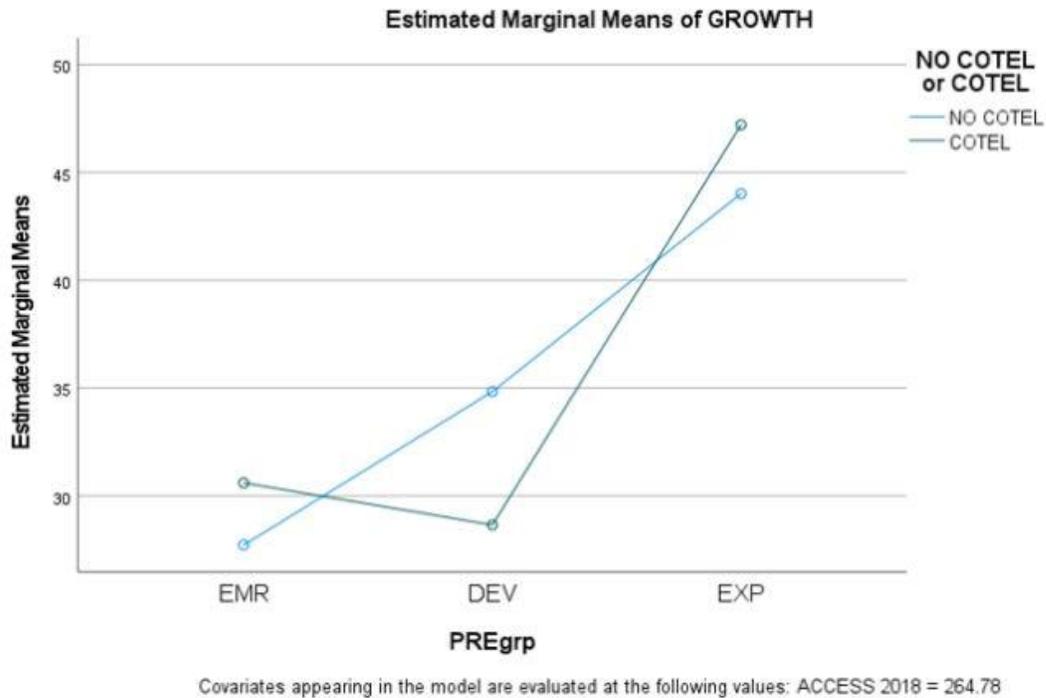
There was no significant interaction between starting proficiency levels (PREgrp) and NO COTEL – COTEL on GROWTH for GLcluster 1-2, after controlling for pretest differences, $F(1,261) = 1.739$, $p = .178$, partial $\eta^2 < .013$. This indicates that the effects of PREgrp were essentially the same in NO COTEL or COTEL, and the effects of NO COTEL or COTEL were the same in each PREgrp. Therefore, the main effects are reported next.

There was no significant main effect of PREgrp in NO COTEL or COTEL, $F(1,261) < .001$, $p = .968$, partial $\eta^2 < .001$, and the null hypothesis was accepted. The figure below shows how similar the results were in both NO COTEL and COTEL, though GROWTH for participants with Emerging (EMR) and Expanding (EXP)

proficiency levels was somewhat higher in COTEL than in NO COTEL and GROWTH for participants with Developing (DEV) proficiency levels was somewhat higher in NO COTEL in Grades 1 and 2.

Figure 14

GLcluster 1-2: Plotlines for LIEPgrps in Each Starting Proficiency Level Group

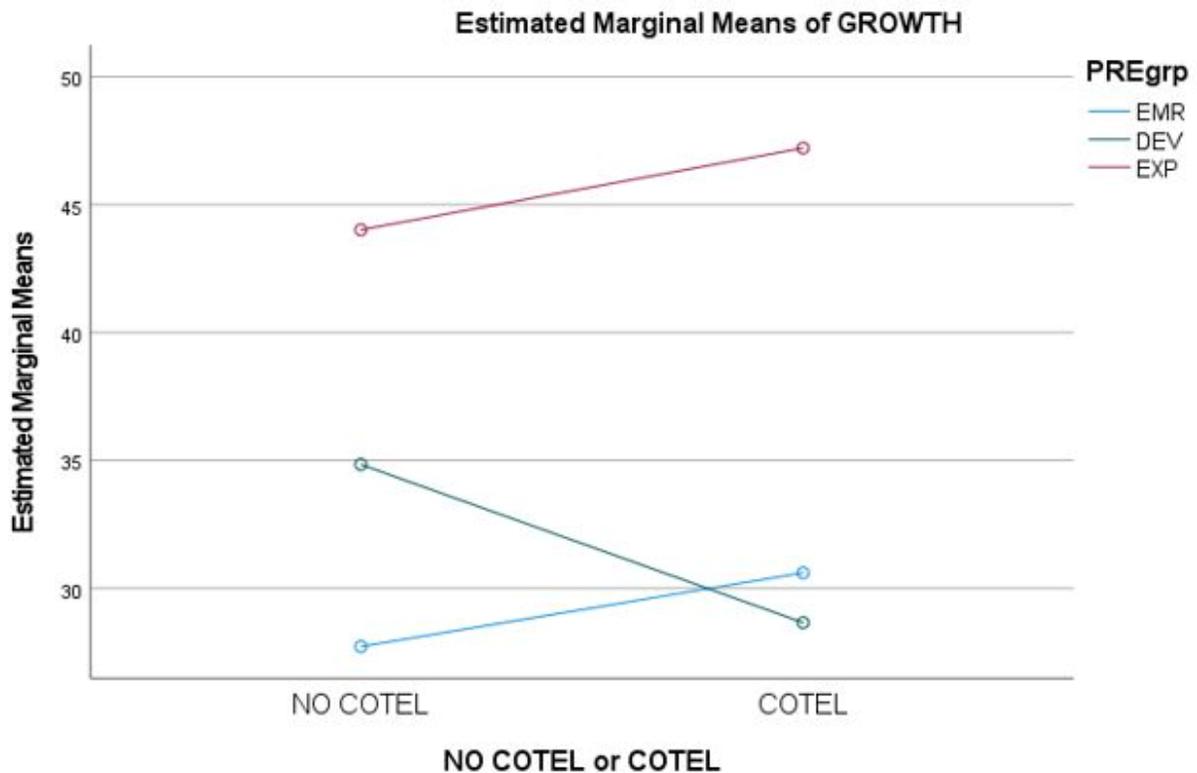


Note. The differences in adjusted marginal means of each PREgrp between NO COTEL and COTEL were not statistically significant.

There was a statistically significant main effect of starting proficiency level group on GROWTH after controlling for pretest differences, $F(2, 261) = 7.737, p = .001$, partial $\eta^2 = .056$. The figure below shows how much higher the estimated marginal mean growth was for the Expanding PREgrp than for the Beginning and Developing PREgrps in both NO COTEL and COTEL.

Figure 15

GLcluster 1-2: Plotlines for Each Starting Proficiency Level Group in LIEPgrps



Covariates appearing in the model are evaluated at the following values: ACCESS 2018 = 264.78

Pairwise comparisons showed that EXP was 16.452 higher than EMR, 95% CI [2.348, 30.556], $p = .016$, a statistically significant difference. In addition, EXP was 13.867 higher than DEV, 95% CI [2.348, 22.36], $p = .000$, also a statistically significant difference. These results indicate that EXP proficiency ELs in both NO COTEL and COTEL in the 1st & 2nd GLcluster benefited the most from their EL programs after adjusting for pretest differences.

GLcluster 3-5: Starting Proficiency Level Group by NO COTEL and COTEL

There were 276 3rd – 5th participants, with 95 in the Emerging (EMR) PREgrp with OSS of 178-322, 88 in the Developing (DEV) PREgrp with OSS of 323 – 341, and 93 in the Expanding (EXP) PREgrp with OSS of 342 – 374. As Table 14 below shows,

the adjusted means were higher for ELs in COTEL than in NO COTEL for all three starting proficiency level groups.

Table 13

GLcluster 3-5 Participants: Starting Proficiency Level Groups in NO COTEL or COTEL

GLcluster	PREgrp	Total	NO COTEL	COTEL
3 rd – 5 th N = 276	EMR	95	58	37
	OSS 178 – 322			
	DEV	88	50	38
	OSS 323 – 341			
	EXP	93	56	37
	OSS 342 – 374			

Table 14

GLcluster 3-5 LIEPgrp by Starting Proficiency Level Group (PREgrp): Means, Adjusted Means, Standard Deviation, and Standard Error for Six Cells of the 2 by 3 Model

GROWTH	GLcluster 3-5 PREgrps			N = 276		
	NO COTEL N = 164			COTEL N = 112		
	EMR	DEV	EXP	EMR	DEV	EXP
M	26.17	21.56	21.55	28.70	29.05	31.08
SD	18.345	16.084	16.917	24.547	16.998	17.260
Madj	22.180	22.007	25.423	24.377	29.517	34.728
SE	3.233	2.592	3.221	3.812	2.971	3.596
N	58	50	56	37	38	37

Note. Each cell in the analysis had a minimum of 37 participants.

Interpreting Effects of Starting Proficiency Level in GLcluster 3-5

There was not a statistically significant *interaction* effect between starting proficiency level (PREgrp) and NO COTEL – COTEL on GROWTH, while controlling for pretest differences, $F(2,269) = 1.152$, $p = .318$, partial $\eta^2 = .008$, meaning that growth

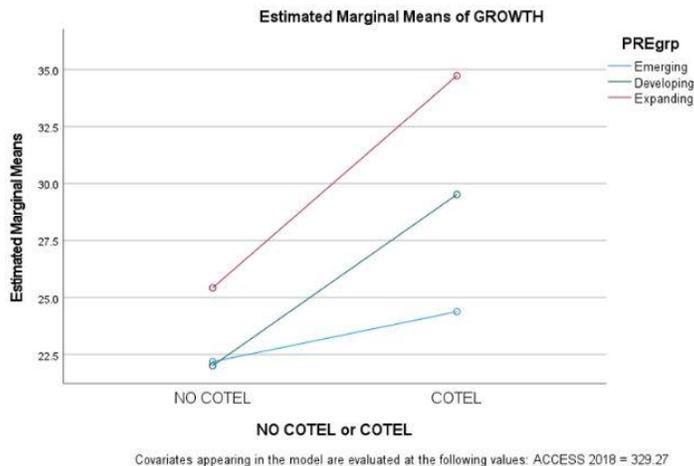
in COTEL or NO COTEL did not depend on the PREgrp, and growth in the PREgrps did not depend on being in COTEL or NO COTEL. Main effects of PREgrp and NO COTEL or COTEL were examined next.

There was a statistically significant main effect of NO COTEL or COTEL, $F(1,269) = 7.997, p = .005, \text{partial } \eta^2 = .029$. Pairwise comparisons were examined to better understand these specific differences. Overall, the adjusted mean for COTEL was 6.337 growth points higher than NO COTEL which was a statistically significant difference, 95% CI [1.925, 10.749], $p = .005$. However, this result holds the PREgrps constant, masking the differences between the PREgrps. Therefore, the simple main effects were examined next.

Examining the simple main effects of NO COTEL or COTEL, showed a statistically significant difference within the EXP PREgrp, $F(1,269) = 5.787, p = .017, \text{partial } \eta^2 = .021$. As Figure 15 below shows, ELs in all three PREgrps in COTEL grew more than the PREgrps in NO COTEL for this GLcluster. Based on this result the null hypothesis was rejected.

Figure 16

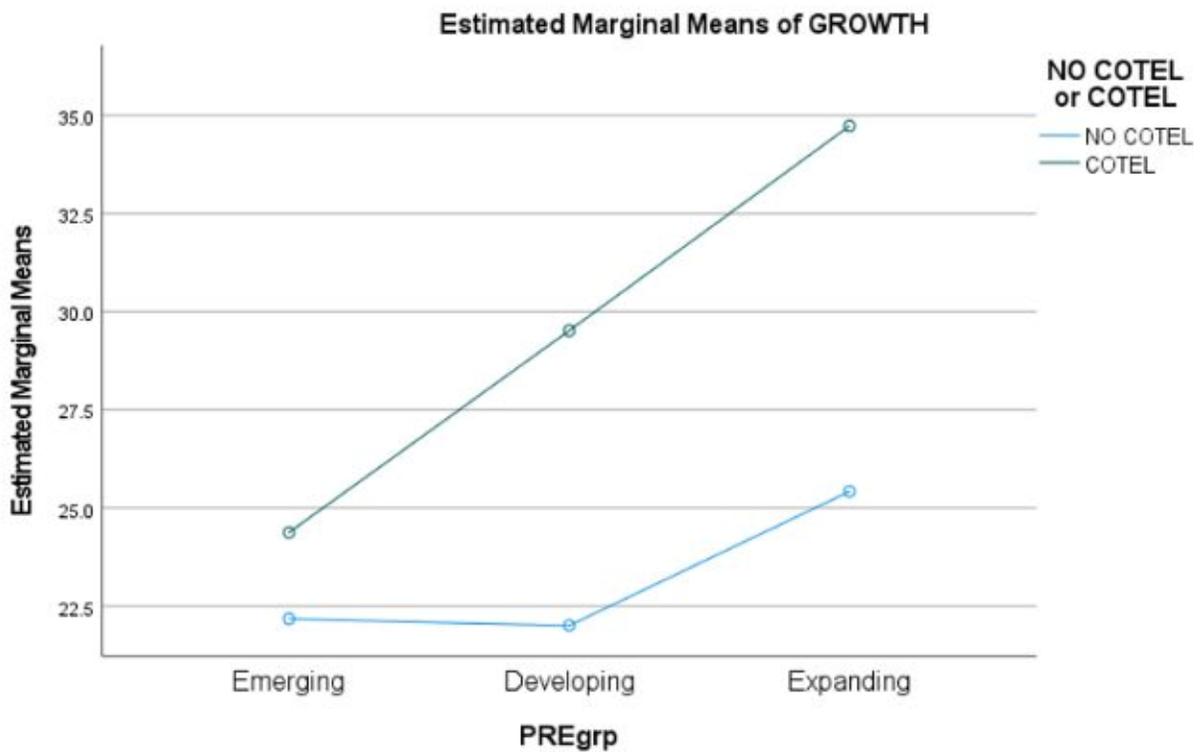
GLcluster 3-5: Plotlines for Each Starting Proficiency Level Group in the LIEPgrps



There was not a statistically significant main effect of PREgroup for this GLcluster, $F(1,269) = 1.039$, $p = .355$, partial $\eta^2 = .008$. Pairwise comparisons were examined to better understand these differences. The adjusted marginal mean for EXP was 6.797 growth points higher than EMR, and 4.313 higher than DEV which was a statistically significant difference, 95% CI [1.925, 10.749], $p = .005$.

Figure 17

GLcluster 3-5: Plotlines for the LIEPgrps in Each Starting Proficiency Level Group



Covariates appearing in the model are evaluated at the following values: ACCESS 2018 = 329.27

Note. Only the difference between the Expanding (EXP) PREgrp in NO COTEL and in COTEL was statistically significant.

GLcluster 6-8: Starting Proficiency Level Groups by NO COTEL and COTEL

In the GLcluster 6-8, there were two PREgrps created rather than three to maintain n-sizes greater than 30. The Emerging and Developing (EMR-DEV) group had

86 participants with OSS of 271 – 367, and Developing-Expanding (DEV-EXP) group had 93 participants with OSS of 368 – 394. The lowest OSS of 271 on the pretest (PRE) was nearly 100 points higher than the lowest OSS of 178 for Grades 3-5. This indicates that there were very few newcomers in this GLcluster.

Table 15

GLcluster 6-8 Participants: Starting Proficiency Level Groups (PREgrp) by LIEPgrps

GLcluster	PREgrp	Total	NO COTEL	COTEL
MS 6 th – 8 th N = 182	EMR – DEV	89	49	40
	OSS 271 – 367			
	DEV – EXP	93	44	49
	OSS 368 – 394			

Table 16

GLcluster 6-8 – Starting Proficiency Level Group by LIEPgrp: Means, Adjusted Means, Standard Deviation, and Standard Error for Six Cells of the 2 by 3 Model

GROWTH	GLcluster 6-8 PREgrps N = 153			
	NO COTEL N = 93		COTEL N = 89	
	EMR – DEV	DEV – EXP	EMR – DEV	DEV – EXP
M	5.43	1.93	13.98	17.24
SD	21.098	18.402	22.931	20.392
Madj	3.866	1.857	13.306	19.421
SE	2.939	3.054	3.210	2.981
N	54	37	32	56

Note. EMR-DEV and DEV-EXP PREgrps were arranged to create similar n-sizes, and so that each cell would have at least 30 participants.

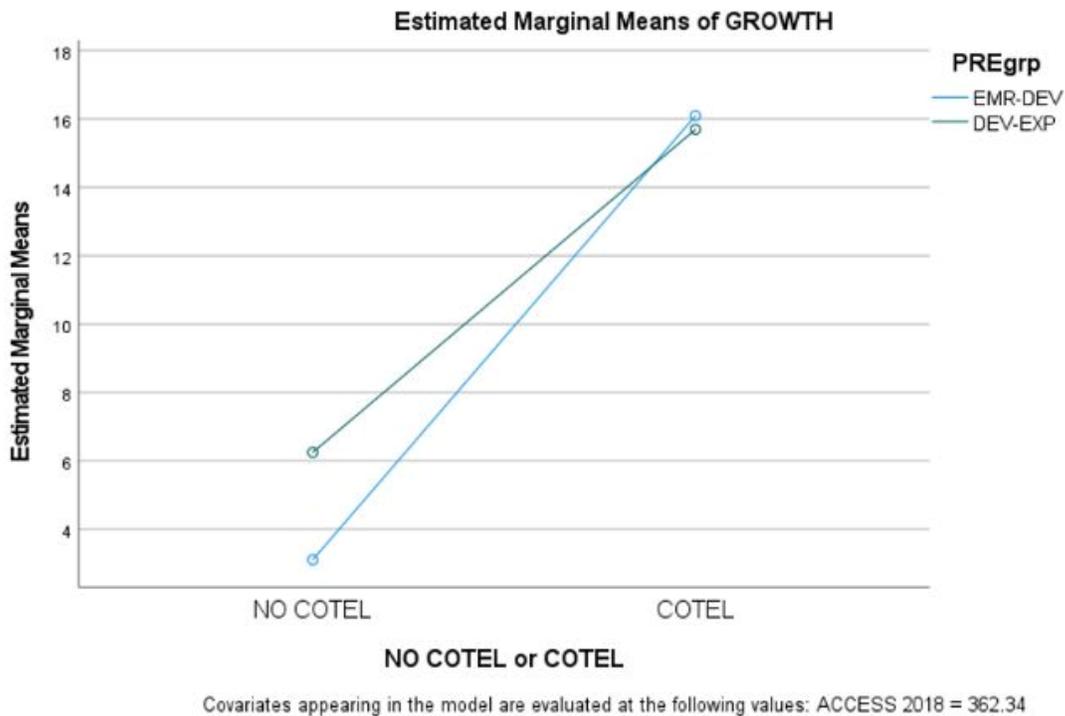
Interpreting Effects of Starting Proficiency Level in GLcluster 6-8

There was no statistically significant interaction effect between NO COTEL or COTEL and PREgrp. Therefore, the main effects of PREgrp and NO COTEL or COTEL

were examined next. The effect of NO COTEL or COTEL on GROWTH for ELs of both PREgrps in GLcluster 6-8 was statistically significant: $F(1,174) = 14.635, p = .000$, partial $\eta^2 = .078$. This was the largest effect size of all analyses in this study, where nearly 8% of the change was likely accounted for by being in COTEL. The adjusted marginal mean value of GROWTH in COTEL (15.897, 95% CI [11.735, 20.058], $p = .000$) was 11.219 higher than in NO COTEL (4.677, 95% CI [.655, 8.700], $p = .000$), a statistically significant difference.

Figure 18

GLcluster 6-8: Plotlines for Each Starting Proficiency Level Group in LIEPgrps



Note. Both PREgrps in COTEL grew about the same amount, after adjusting for the covariate.

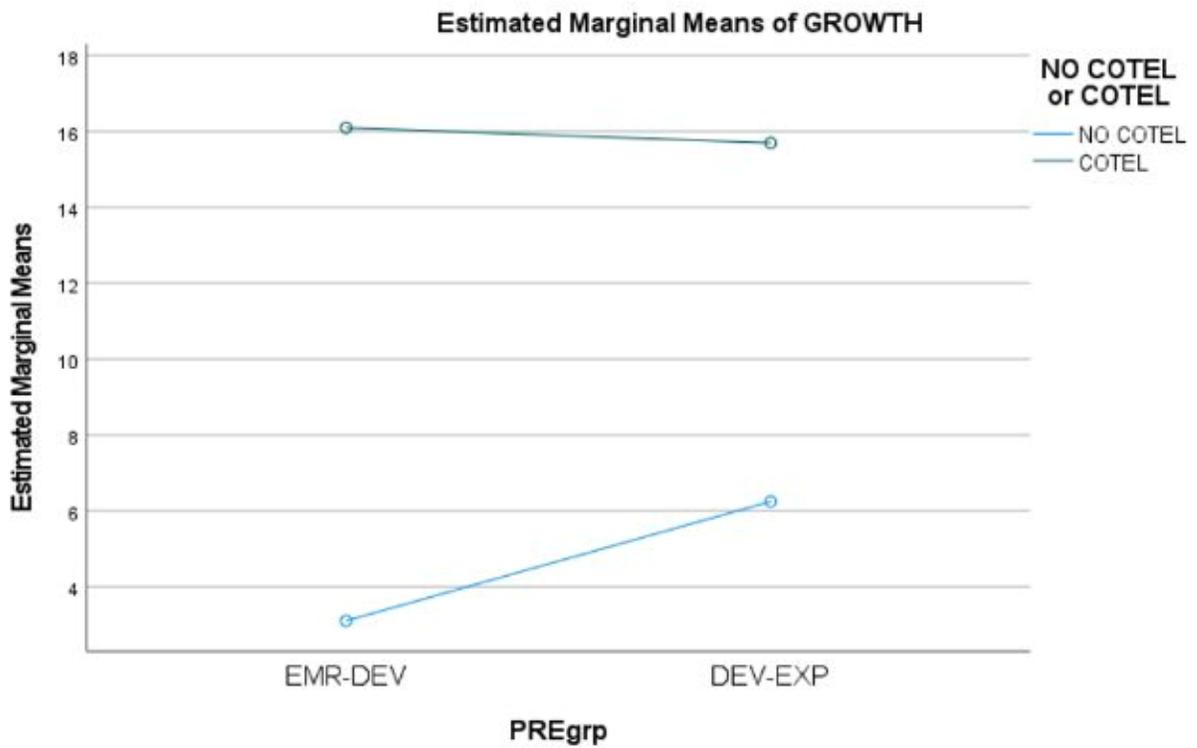
Pairwise comparisons showed that the difference between DEV-EXP in COTEL and DEV-EXP in NO COTEL was 9.440, 95% CI [-1.324, 7.047], $p = .300$, which was smaller than the difference of 17.564 between EMR-DEV in COTEL and EMR-DEV in

NO COTEL, 95% CI [9.133, 25.994], $p = .000$. This shows that while COTEL participants of all starting proficiency levels grew significantly more than NO COTEL participants, those with lower starting proficiency levels gained the most. This is in contrast to the other grade level clusters where more advanced students benefitted most.

See Figure 19 below.

Figure 19

GLcluster 6-8: Plotlines for LIEPgrps in each Starting Proficiency Level Group



Covariates appearing in the model are evaluated at the following values: ACCESS 2018 = 362.34

Note. The adjusted means for PREgrps in this GLcluster were nearly the same as the raw mean scores, meaning that the starting proficiency level scores (ACCESS 2018) were close to the overall average of 362.34 for all participants.

CHAPTER FIVE: DISCUSSION

No one can whistle a symphony. It takes a whole orchestra to play it. H. E. Luccock
(n.d.)

The Problem, Purpose, Research Questions and Methodology

K-12 multilingual English learners (ELs) in the U.S. are an increasingly diverse population (Park, et al., 2018), presenting challenges for both multilingual and monolingual educators. It also implies an exquisite opportunity for everyone to come together to create something that couldn't exist without each individual voice – just as a symphony requires a wide diversity of instruments in the orchestra to each play their part. Since at least 1920, U.S. policies have been drafted and enacted to help define what we in the U.S. mean by equitable opportunity and access for multilingual students in public education. The Castañeda three-pronged test, developed in 1981 is still the standard in place today. According to Wright (2010),

The Castañeda standard mandates that programs for language-minority students must be (1) based on a sound educational theory, (2) implemented effectively with sufficient resources and personnel, and (3) evaluated to determine whether they are effective in helping students overcome language barriers (p. 2)

This study proposed to go beyond just showing that overall, ELs grew more language proficiency in Coteaching for ELs (COTEL) than in other English-instructed language instruction education programs (LIEPs). Rather, it sought to fill in gaps in the literature, disaggregating evidence of growth in English proficiency by the variables of home language, grade level, and starting proficiency level, to determine the more fine-tuned effects of COTEL for each group.

Quantitative methods with non-equivalent, pre-existing groups, were used to develop a multidimensional perspective of the evidence. Specifically, five, Two-way Analyses of Covariance (ANCOVA) were conducted to test the three hypotheses. The results are summarized next.

Summary of Findings

Hypothesis 1 was that ELs of all home languages groups would grow more in COTEL, after controlling for pretest differences (PRE). It was tested with a 2 x 3, Two-way ANCOVA test. Statistical significance was accepted for the language group made up of thirty-three, lower incidence languages (MIX33), which means that while ELs in every LANGgrp grew more in COTEL than in NO COTEL, ELs in MIX33 language group benefited most.

Hypothesis 2 was that ELs of all grade levels would grow more in COTEL. A 2 x 8, Two-way ANCOVA showed that the adjusted marginal mean growth for all grade levels were in fact higher in COTEL than in NO COTEL. There was a significant interaction effect on GROWTH between NO COTEL or COTEL and GL, which means that the statistically significant growth for ELs in COTEL depended on what grade they were in. The higher simple main effect of COTEL was statistically significant in Grade 4 and Grade 7, while ELs in Grades 1-2 grew approximately the same amount in NO COTEL as in COTEL.

Hypothesis 3 was that ELs of all starting proficiency levels would grow more in COTEL. It was tested with three separate Two-way ANCOVAs, one for each of three grade level clusters (GLclusters). ELs in each GLcluster were placed into starting

proficiency level groups (PREgrps) based on their ACCESS 2018 overall scale scores (OSS) to create approximately equal sample sizes for each PREgrp.

1. For GLcluster 1-2, the adjusted marginal means of GROWTH for the Emerging (EMR) and Expanding (EXP) PREgrps were somewhat higher in COTEL than in NO COTEL. However, the adjusted mean growth score for Developing (DEV) proficiency level ELs was somewhat higher in NO COTEL. There was not a statistically significant main effect of NO COTEL or COTEL in any of the PREgrps for GLcluster 1-2.
2. In GLcluster 3-5, ELs in all three PREgrps, meaning all starting proficiency levels, grew more in COTEL than those in NO COTEL, and the null hypothesis was rejected for this GLcluster. ELs in the EXP PREgrp benefited most from being in COTEL.
3. In GLcluster 6-8, the higher adjusted marginal GROWTH means for participants of all starting proficiency levels (PREgrps) in COTEL were statistically significant, and the null hypothesis was rejected. This was the largest effect size of all analyses in this study (partial $\eta^2 = .078$), where nearly 8% of the difference was likely accounted for by being in COTEL. Unlike participants in other grade level clusters, those with lower starting proficiency levels (EMR-DEV PREgrp) gained the most.

Discussion of the Effects of COTEL on Various ELs' Growth in English

ELs with Lower-incident Home Languages Grew Significantly More in COTEL

Perhaps COTEL is better for learning school English because ELs in COTEL are not segregated into a separate EL-only learning environment and therefore have better

opportunities and an intrinsic motivation for learning along with their English-only peers. The first Two-way ANCOVA divided participants into three groups based on their family-reported home languages. ELs in each language group were a mixture of grade levels (Grade 1 – 8) and starting proficiency levels. Results showed that while Bosnian and Spanish speakers did grow more in COTEL than in NO COTEL after controlling for pretest differences, these differences were not statistically significant. Only participants in the language group called MIX33 had statistically significant, higher growth in COTEL than in NO COTEL. This was one of the most interesting findings for me personally, and hopefully for other educators of super diverse ELs, where bilingual programs are impracticable or unfeasible.

While this study doesn't explain why students with such a wide diversity of home languages do better in COTEL, I suspect, that this is where the theory and practices of translanguaging are coming into play, albeit unconsciously. Perhaps it's the clustering of multilingual students together into classrooms where two teachers take special notice of them and seek to learn about their linguistic assets and language learning profiles. Or, as COTEL teachers work together to design and enact linguistically proficient instruction and interaction, they can encourage ELs to use and build on their home languages, regardless of the fact that there may be the only one speaker of that language in the classroom. Perhaps ELs in COTEL were more likely to be provided with a 'third space' (Flores & Garcia, 2014) during their learning to tap into their home language strengths and to develop metalinguistic awareness that would have been less available to them in content classrooms that were not cotaught. The COTEL classroom likely encouraged

them to tap into their own home language knowledge to help them build their English skills and content knowledge.

Bosnian and Spanish speakers were the two largest language groups in the study. This means there were likely more speakers of these languages in all classrooms, not only in the COTEL classrooms. They could take better advantage of these informal opportunities for translanguaging than ELs who were the only speaker of their particular home language. Observations by Lucas and Katz (1994) bear repeating here, that even when schools or educators have rules against it or assume it is irrelevant, multilinguals seem compelled to use their home languages to learn.

ELs in Grades 4 and 7 Grew Significantly More in COTEL

The second Two-way ANCOVA grouped participants by grade level to determine where the higher adjusted means were statistically significant, and found that COTEL was critical to accelerating growth in English proficiency for ELs in grades 4 and 7. Most of the ELs in Grade 4 and Grade 7 were enrolled in the EL program at their school since kindergarten. According to Cummins (2008a), cognitive academic language proficiency (CALP) is developed after 4 – 7 years, meaning that participants in Grades 4 and 7 were likely nearing this threshold. Frequently when ELTs have large caseloads, they focus their time to assist lower proficiency students first. However, with COTEL, ELs of all proficiency levels benefit from the language-rich, coplanned instruction, and more access to the ELT without having to leave the mainstream classroom.

It's also important to consider that by Grade 4, all students are reading to learn. Grade level standards are more complex, taking into account the growing intellectual abilities of students of this age group. When ELTs and CTs combine their expertise at

this grade level, ELs of all proficiency levels have better access to appropriately differentiated instruction of these more complex grade level standards. In Grade 7, ELs face even more complex texts and learning tasks, while also experiencing the pre-adolescent challenges that all middle school age students face.

ELs of Every Starting Proficiency Level in Grades 6-8 Grew More in COTEL

Participating in COTEL at the middle school level, where ELs are clustered with other multilinguals for at least one class, provides multilingual learners a sense of belonging that is difficult to achieve when there are only a one or two ELs in the class. This also has implications for ELs who are called ‘long-term’ ELs, i.e., participants who have been in EL programs for seven years or more (RELwest - WestEd, 2016). The expanded opportunities to work on developing CALP, abundant in the COTEL classroom, were likely missing in content classrooms where there was only one teacher. ELs in NO COTEL were likely in content classrooms where the focus on language development in addition to developing content knowledge was less feasible, particularly if the CT hadn’t had training to differentiate instruction for multilingual students.

ELs With Expanding (EXP) Starting Proficiency Levels in Grades 3-5 Grew Significantly More in COTEL

Many ELTs in this study had high caseloads, nearing 80 students per ELT in some cases. This meant that those with expanding proficiency levels who were not in COTEL, would likely not have received the same intensity of instructional time with the ELT as those ELs of lower proficiency.

This is the beauty of COTEL – ELs with higher proficiency levels can be clustered with ELs of lower proficiency and with English-only students into the COTEL

classroom, and therefore experience the benefits of the language-infused, culturally and linguistically proficiency classroom environment, without having to be pulled out of the mainstream classroom. English-proficient multilinguals, who no longer qualify for a LIEP, can also be clustered into the COTEL classroom and contribute their multilingual assets to the benefit of all other students in the classroom. Perhaps this was why Grade 4, Grade 7, and the higher proficiency students grew significantly more in COTEL than in NO COTEL.

Why did ELs Grow More in COTEL?

Castañeda v. Pickard's second prong of the three-part test requires schools to implement their chosen LIEP with fidelity. So, what does 'fidelity' for coteaching look like? In this study's definition of COTEL, ELs were intentionally clustered into a classroom that also included English-only and English proficient students for a minimum of four lessons per week (or two 90-minute blocks). The two coteachers coplanned regularly, and coconstructed the coplanned lessons. In addition to this definition, most coteaching teams in the study all participated in year-long professional development with their coteachers. In each of the four sessions, two of the six key indicators were presented and coteachers practiced incorporating these indicators into their plans during each training. See Appendix A for the indicators and the self-evaluation

Two Heads are Better Than One – Especially When there's Time to Coplan.

I have observed that COTEL seems to take the best advantage of an expanded view of the ZPD (van Lier, 2004), going beyond the simple inclusion of ELs, by partnering two 'most capable others', aka teachers, to codesign their coconstructed lessons. With two teachers in the classroom, COTEL also infuses nimble flexibility into the learning

environment, multiplying by 2 the opportunities to “shift” during the lesson to better accommodate and challenge ELs in their dual tasks as students of both language and content (Flores & Garcia, 2014). As was already mentioned, ELs in this study were also clustered to reduce the number of classroom teachers for each EL teacher to work with. Reducing the number of CTs for ELTs to partner with made it possible for coteachers to regularly coplan and to codeliver a minimum of four cotaught lessons or two 90-minute blocks, per week.

In some cases, I have observed a decision by school administrators to move away from COTEL when a school reaches that critical number or percentage of multilingual learners, where there are five or more ELs in every classroom, making it impossible with the current level of staffing to implement COTEL with fidelity, i.e. regular coplanning and four or more cotaught lessons per week in every classroom. ELT shortages, apparent before the pandemic (Mitchell, 2018) are such that increasing the number of ELTs in the building seems too difficult or cost-prohibitive.

However, I contend, based on these findings and my experience, that schools full of multilingual learners, where the demographics do not support dual language programs, cannot afford to revert to the old Pull-Out ESL program taught traditionally, especially for Grades 3 and higher. Often, these programs feel like ‘triage’ programs, where harried ELTs run around, sacrificing their personal and coplanning time, to focus most of their limited English language development (ELD) efforts toward lower proficiency students. It feels to me like these schools may be falling back into a ‘compliance’ point of view, that perceives multilingual students as primarily having a deficit or a problem to be fixed before they can succeed in the mainstream classroom, rather than as truly exceptional

students with so much to offer their English-only peers in an academic setting (WIDA, 2020). I propose these schools consider utilizing COTEL as an option for ‘growing their own’ ELT s, rather than reverting to what are known to be, at best, less effective program options for their multilingual learners (Sánchez, 2021; Thomas & Collier, 1997).

Others may hope to pick up the slack for their higher proficiency ELs by training and coaching their classroom teachers to shelter their instruction, which likely would make a difference for their multilingual students (Short et al., 2012) if well-implemented and supported by sufficient resources. Additionally, classroom teachers could be trained and supported to infuse translanguaging pedagogy into their daily instruction and assessment to be more effective with their ELs on their own. However, I believe training for classroom teachers is significantly enhanced, if while they are learning to shelter their instruction and to incorporate translanguaging, they also have the opportunity to coteach with an ELT for a year or two. This kind of ‘job-embedded’ professional development would more effectively lead them to build and develop their translanguaging stance to the benefit of all their students (García et al., 2016b).

Others have found that providing sheltered instruction only isn’t enough, and that dedicated opportunities for ELD are required for most students to reach full proficiency in the language needed for school (Saunders et al., 2013). This study showed that COTEL did provide that extra boost for Developing and Expanding proficiency level ELs in Grades 3-5, and for all proficiency levels in Grades 6 – 8.. It also showed that absent COTEL, ELs floundered, with some actually losing in English proficiency as they progressed through the higher grade levels and risked falling into ‘Long-Term EL’ status (RELwest - WestEd, 2016).

Professional Development for Coteaching Teams. An important aspect to consider for these participants, was the professional development their coteachers received. In fact, most of the ELTs in the study had participated in the four session, year-long regional training course more than once, with a different CT each time. Coteachers participated in the training together, to better capture and build on ELT and CT expertise.

Each professional development session had two foci. The first was helping teachers learn and practice effective collaborative teaching approaches, also called models, and emphasized developing and utilizing coplanning protocols. The second was to clarify and demonstrate essential practices for the instruction of ELs (reviewed in chapter 1), emphasizing that while effective instruction for ELs helps all students', what we do for all students is likely not all that's needed when ELs of varying proficiency levels are included in the cotaught classroom. In particular, the training emphasized the centrality of culturally and linguistically proficient instruction that revolves around seeking out and tapping into all students' home languages and cultures – and moving toward a translanguaging stance.

The Secret Sauce – Classroom Teachers (CTs) with Knowledge and Skill in Teaching ELs. In the review of literature regarding the rationale for COTEL, building the capacity of CTs to better serve the growing number and diversity of multilinguals in U.S. schools was a common theme. As was already mentioned ELTs in this study had in fact cotaught with several CTs, partnering with a new CT each year over several years which helped to build a school cultural of collaboration, coplanning, and coteaching in several of the schools, particularly in the lower grades where there were too many ELs in too many classrooms for the ELTs to feasibly coteach with all of them. Anecdotal

evidence from elementary CTs with an ELT showed that CTs regularly infused the rest of the school day with the effective strategies they had coplanned with their ELT partner. At the secondary level as well, CTs would incorporate the effective language learning strategies in their non-cotaught sections to the benefit of all their students.

Several CTs in the study were so inspired by their work with ELs, they took advantage of university grant programs to become certified EL teachers who then cotaught with new CTs, and so it goes. Little by little, inservice classroom teachers became better prepared to go well beyond tolerating diverse students, beyond the simple inclusion of multilingual students, to truly valuing what multilingual students brought to the classroom, and what their families contributed to the overall school and community culture.

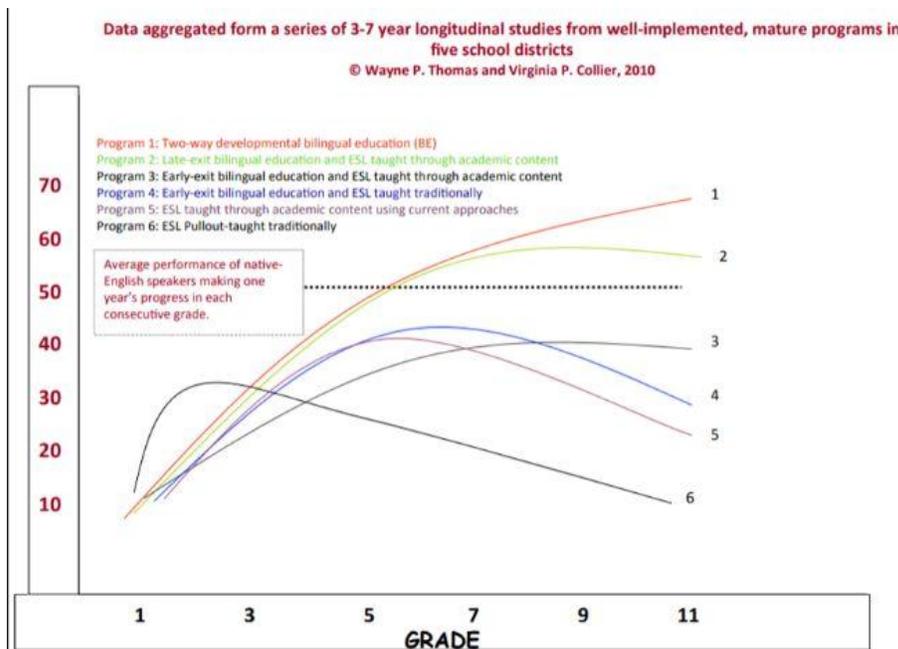
Why did ELs in Grades 1 and 2 Grow About the Same in English Proficiency in NO COTEL as in COTEL? While this study doesn't claim to answer specifically why this occurred, but I'll make a couple of suggestions regarding why I believe ELs in COTEL did not grow more than ELs in NO COTEL in Grades 1 and 2. First, ELs in these grade levels on average were also lower in English proficiency than the ELs in higher grade levels. As such, they may have received the same intensity of instruction from the ELT in NO COTEL as they did in COTEL (four or more lessons per week). Second, developing school language is a primary focus of the content standards for all students in these grade levels, while some school language proficiency is 'assumed' for older students. This means that ELs in Grades 1 and 2 likely received explicit instruction in school language in both the Pull Out ESOL class and in the mainstream classroom. Beginning in Grade 3 however, ELs in NO COTEL would have been more proficient in

general, and would therefore likely not have received the same intensity of support from the ELT. At the same time, the focus on language development in their mainstream classrooms would be more limited, as the content standards shift their focus from learning to read, to reading to learn. Third, in both districts there were more ELs in grades 1 and 2 than in other grades combined. This means that all CTs had likely had more experience and some training in best practices for teaching ELs. Some may have possibly even cotaught with an ELT in previous years as described above.

As illustrated in the figure below, Collier and Thomas(1997) found that ELs in Pull Out ESL outperformed ELs in other LIEPs in the lower grades. But over time, ELs in every other kind of LIEP performed better those who were in Pull Out ESL (Calderon-Ramos, 2020, p. 8).

Figure 20

General Pattern of K12 Language Minority Student Achievement on Standardized Tests in English Reading Compared Across Six Program Models © Wayne P. Thomas and Virginia P. Collier, 2002, 2010



Note. COTEL would most likely be similar to ‘Program 5, ESL taught through academic content using current approaches.’ This graph overall demonstrates that wherever it’s feasible to offer well-implemented Dual Language programs, ELs would likely experience better outcomes than in short term bilingual or English-only instructed programs.

Another point to consider is that the ELs in NO COTEL in Grades 1 and 2 may have lost proficiency in their home languages or in their sense of well-being compared to their COTEL peers. Growth in English proficiency is, after all, only one measure of the effectiveness of a LIEP. As the graph in Figure 19 above shows, ELs in Program 5 (most similar to COTEL) did outperform those in Program 6 (Pull Out ESL) over time on standardized tests of English reading. Growth in home language proficiency was not formally measured in this study, so we don’t know if ELs in COTEL, with an emphasis on culturally and linguistically proficient instruction and translanguaging grew more in home language than those in NO COTEL.

Nor do we know if ELs in COTEL overall felt more ‘at home’, included, and accepted at school than ELs in NO COTEL. We also don’t know if the communication between home and school was improved for ELs in COTEL compared to those in NO COTEL, though other studies have shown evidence of these positive educational outcomes from programs focused on translanguaging (Baker & Wright, 2021).

Implications for Practice and Policy

After years of research, much is known about the principles and practices of effective LIEPs, but the over-arching and undergirding practice that seems to infuse the rest, is the practice of cultivating what has become known of as a ‘translanguaging stance’, that views all students’ languages as essential to learning both English and

content (Flores & Garcia, 2014). Baker and Wright (2021) note additional educational advantages to translanguaging that go beyond simple growth in English proficiency:

- It can lead to a deeper and fuller understanding of the subject matter.
- It can facilitate stronger connections and cooperation between home and school.
- It provides space and opportunities for ELs of all proficiency levels and home languages to integrate and collaborate.

A review of the literature regarding theories about how people acquire new languages shows how historical language acquisition theories build upon and contribute to each other, though not necessarily in a linear way, as some theories come in and out of fashion based on the political and sociocultural norms of the day. However, Vygotsky's (1978) conception of the zone of proximal development (ZPD) and the more capable other assisting the learner, has had staying power. The ZPD conceives of the learner as one who needs a hand-up from a caring other nearby, to do the next new or improved thing. This theory does what a 'good theory' should do in that it explains observed phenomena and makes predictions about what is possible (VanPatten & Williams, 2006).

Particularly in its expanded form (van Lier, 2004), ZPD describes what anyone can observe in a COTEL classroom, where peers of equal and even lesser skills within the EL's learning situation can also become critical language learning partners, in addition to the 'more capable' others. Through metalinguistic awareness, i.e., noticing similarities and differences between one's home language and the school-based English around them, ELs may also tap into their own linguistic resources to promote their own language learning. Coteachers who intentionally design lessons that incorporate

opportunities for translanguaging to occur, can enhance this process, even though they themselves do not speak all the languages of their students (Tkachenko et al., 2021).

Recommendations for Further Study

This study does not provide evidence for which of the three aspects of the COTEL definition had the most impact. For example, it is unknown if the amount of time with the ELT (intensity level of ELD instruction) was similar in NO COTEL and in COTEL, especially for the higher proficiency and higher grade level students. Would the results have been the same if the NO COTEL programs had included at least four lessons per week?

ELs in this study were clustered into willing CTs' classrooms, with the direct support of their principals. Would the results have been the same if ELs were not intentionally clustered together? Other research has indicated that the choice of CTs and ELTs to coteach was key to the success of COTEL, and that COTEL is undermined when there isn't a truly collaborative relationship (Flores, 2011). What if coteachers had been 'volun-told' that they would be coteaching for ELs?

Or, would the results have been the same if the lessons were coplanned, but not cotaught? Others have found the reverse to be true – i.e., that when coteachers don't coplan, they really can't coteach as effectively (Dove & Honigsfeld, 2017). But how much of the effect would be lost if teachers only coplanned, but didn't coteach?

This study also did not examine issues of quality in the cotaught environment. Were the cotaught classrooms where ELs grew most, significantly different from those where they didn't? If so, why was that? Was it a student-based factor, i.e., grade level, home language, SLIFE (WIDA, 2015) or refugee status (Habitat for Humanity, 2016)?

Or was there an instructional quality issue that could have been measured by the COTEL6 tool? Were there greater effects in classrooms with experienced coteachers, who would have scored high on all the COTEL6 indicators?

Additionally, there are many unanswered questions of a qualitative nature from the student perspective. What did they like best or least about being in the COTEL classroom? How would they have improved the cotaught classes?

Finally, what impact did translanguaging have? Is it, as I have suggested, that ELs in Grades 1 and 2 in NO COTEL began to lose their home language proficiency faster than they would have in COTEL? If so, could that have been reversed if students' home languages were central throughout the entire instructional cycle, fostered and developed in every classroom? What if there was a school-wide commitment to translanguaging and *all school staff* approached students with that mindset (Calderon et al., 2019)? That would be great, wouldn't it?

Summary

While the overall main effect of COTEL on GROWTH was statistically significant, this study purposefully examined particular subgroups of ELs to uncover more fine-tuned evidence about how various ELs responded to COTEL. This was accomplished by grouping and regrouping the data to conduct five separate two-way analyses of covariance (ANCOVA). This study showed that middle school multilinguals of all proficiency levels, ELs of higher proficiency levels, and those speaking lower-incident languages, may especially benefit from participating in COTEL, likely because of having more access to the ELT, and receiving coplanned instruction with a dual focus of language and content.

ELs in schools where dual language programs are infeasible due to a low number of students of the same language background or to a shortage of qualified bilingual teachers, will likely grow more in English proficiency in COTEL than in other kinds of English-instructed LIEPs. However, this assumes that coteachers have training in collaborative teaching practices, built-in time for regular coplanning, and enough time to coteach regularly. Only when COTEL is well-implemented, featuring the key indicators of quality as described in the COTEL6 evaluation tool, can we hope for the benefit of accelerated growth in English proficiency uncovered in this study.

I am passionate about helping schools facilitate an environment where everyone assumes ownership for ELs' success, and where instruction truly is connected to all students' full identities - but how do we get there? I contend that COTEL provides the best foundation and most inclusive framework leading to student success in super diverse classrooms. As a capacity-building LIEP, whenever COTEL is chosen for an individual school, that school is gradually better able to incorporate multilingual students' assets, celebrate each student's contributions, and generally enrich educational opportunities for all students. Together, we can whistle a symphony.

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Appendix A

Coteaching for ELs: Six Key Indicators (COTEL6)

Figure 6

Key Indicator 1

<i>1. Parity between the co-teachers is established from the onset of the lesson and maintained throughout the lesson. (Session 1)</i>			
4 – Well Done (Clear and effective)	3 – Satisfactory	2 – Attempted (Needs improvement)	1 – Missing
<p>Co-teachers:</p> <ul style="list-style-type: none"> * Demonstrate respect and collegiality for each other throughout the lesson. * Equally share roles and responsibilities * Always use “we” or “us” or parity is very well established. * Are always actively involved during instruction and activities * Always begin and end the lesson together * Are always difficult to distinguish as the ELD or Classroom teacher 	<p>Co-teachers:</p> <ul style="list-style-type: none"> * Demonstrate respect and collegiality for each other. * Share teaching roles and responsibilities * Often use “we” or “us” or parity is well established. * Are actively involved during instruction and activities * Generally begin and end the lesson together * Are sometimes difficult to distinguish as the ELD or Classroom teacher 	<p>Co-teachers:</p> <ul style="list-style-type: none"> * Demonstrate respect and collegiality for each other. * Sometimes share teaching roles and responsibilities * Rarely use “we” and/or “us” or parity is not well established. * Are somewhat involved during instruction and activities * Begin or end the lesson together * Are easy to distinguish as the ELD or Classroom teacher 	<p>Co-teachers:</p> <ul style="list-style-type: none"> * Interact in a disrespectful and/or disruptive manner. * Most teaching roles and responsibilities are assumed by one of the co-teachers at a time.

Figure 7

Key Indicator 2

2. Both teachers address language and content objectives throughout the lesson. Both language and content are the “main thing” students are working on. (Session 3)			
4 – Well Done (Clear and effective)	3 – Satisfactory	2 – Attempted (Needs improvement)	1 – Missing
<p>* Clear, specific, and measurable written language and content objectives are orally presented near the beginning, referred to during the class, and reviewed /revisited at the end.</p> <p>* Challenging language objectives are specific to the language needed for students to achieve the content objectives.</p> <p>* Language and content objectives are written in student friendly language.</p> <p>*Language objectives are modeled and practiced throughout the lesson.</p>	<p>* Clear written language and content objectives are orally presented near the beginning, referred to during the class, and reviewed/revisited at the end.</p> <p>* Language objectives mostly reflect the language needed for students to achieve the content objectives.</p> <p>* Language and content objectives are written in <u>somewhat</u> student friendly language.</p> <p>* Language objectives are modeled or practiced.</p>	<p>* Language and content objectives are orally presented (but not written) near the beginning and/or reviewed/revisited at the end, but are not referred to throughout the lesson.</p> <p>* Language objectives somewhat reflect the language needed for students to achieve the content objectives.</p> <p>* Language and content objectives are not presented in student friendly language</p> <p>* Language objectives are not modeled nor practiced during the lesson.</p>	<p>* Language and/or content objectives are missing.</p>

Figure 8

Key Indicator 3

3. The two or more co-teaching models used in the co-taught lesson are intentionally selected based on students’ needs, the specific content, the type of activities designed, and teachers’ teaching styles (Session 1)			
4 – Well Done (Clear and effective)	3 – Satisfactory	2 – Attempted (Needs improvement)	1 – Missing
<p>* Two or more models were intentionally planned and used to enhance students’ understanding and production of English and the outcome of the lesson.</p> <p>* Classroom arrangements and materials are differentiated, organized and ready to use for each model.</p> <p>* Directions for transitions were clear and did not interrupt the lesson flow.</p>	<p>* Two or more models were used to enhance students’ understanding and production of English and the outcome of the lesson.</p> <p>* Classroom arrangements and materials are well organized for at least one model</p> <p>* Directions for transition between each of the models were somewhat clear and required minimal classroom distraction.</p>	<p>* At least one co-teaching model was used to enhance students’ understanding of English.</p> <p>* Classroom arrangements and materials were somewhat organized for the model</p> <p>* Directions for transition between models were unclear and create distraction from the teaching and learning process</p>	<p>* Only one model is used which does not enhance students’ understanding of English and the outcome of the lesson.</p> <p>* Classroom arrangements and materials were not differentiated or organized for the selected model.</p>

Figure 9

Key Indicator 4

4. Co-teachers implement appropriate differentiated strategies for teaching academic language and content. (Session 2)			
4 – Well Done (Clear and effective)	3 – Satisfactory	2 – Attempted (Needs improvement)	1 – Missing
<p>* Multiple different and appropriate supports are offered for various language proficiency level students</p> <p>* Varied expectations for content, process, and/or product for specific groups of students are clearly communicated.</p> <p>* The skills and language students need to master have been clearly identified, modeled, and practiced to maintain high expectations for all.</p>	<p>* Different and appropriate supports are offered for various language proficiency level students.</p> <p>* Expectations for content, process, or product for specific groups of students are communicated.</p> <p>* Skills and/or language students need to master have been identified to maintain high expectations for all.</p>	<p>* Supports are inconsistently offered for some students.</p> <p>* There is no variation in expectations for students according to language proficiency level or differentiated expectations are not communicated.</p> <p>* Skills and/or language students need to master have not been communicated resulting in low expectations for students.</p>	<p>* One size fits all</p> <p>* No scaffolds offered</p>

Figure 10

Key Indicator 5

5. Co-teachers establish high levels of engagement and ensure all four language skills are integrated: speaking, writing, INTERACTION, reading, and listening (SWIRL). (Session 3)			
4 – Well Done (Clear and effective)	3 – Satisfactory	2 – Attempted (Needs improvement)	1 – Missing
<p>* Meaningful, authentic, varied opportunities <u>engage culturally and linguistically diverse students</u> and <u>integrate</u> all four modalities and expand language production.</p> <p>* Directions for using collaborative structures are clear, explicit and visually supported.</p> <p>* Clearly aligned interactive activities use appropriate scaffolds and supports to highly engage culturally and linguistically diverse learners.</p>	<p>* Activities allow all students to engage, integrate all four modalities, and expect basic language production.</p> <p>* Directions are clear.</p> <p>* Aligned interactive activities use appropriate scaffolds and supports to engage culturally and linguistically diverse learners.</p>	<p>* Activities may engage some learners, integrate some modalities, but miss opportunities to increase production of language.</p> <p>* Directions are unclear.</p> <p>* Interactive activities are not clearly aligned to the objectives and engagement of culturally and linguistically diverse learners is not supported.</p>	<p>* Teachers primarily lecture and there is no expectation for student language production.</p>

Figure 11

Key Indicator 6

6. Co-teachers collaboratively conduct formative and summative assessments (Session 2)			
4 – Well Done (Clear and effective)	3 – Satisfactory	2 – Attempted (Needs improvement)	1 – Missing
<p>* Both co-teachers collect evidence, elicit, and give specific feedback related to student language and content learning throughout the lesson.</p> <p>* Summative assessments include a wide range of questions, including higher order thinking questions.</p>	<p>* Both co-teachers collect evidence, elicit, and give feedback related to student language and/or content learning throughout the lesson.</p> <p>* Summative assessments include a range of questions, including some higher order thinking questions.</p>	<p>* Co-teachers collect evidence, elicit, or give feedback related to content learning only.</p> <p>* Summative assessments do not include a range of questions.</p>	<p>Co-teachers do not collaboratively conduct assessments.</p>

Appendix B: Testing the Assumptions of the TWO-way ANCOVA

There are ten “assumptions” about the data that are assessed when undertaking a Two-way ANCOVA statistical test. The first four assumptions were met in the design for each grouping and regrouping for this study.

Assumption #1: There was one dependent variable measured at the continuous or scale level – GROWTH. $GROWTH = POST - PRE$ for each case.

Assumption #2: There were two independent variables where each independent variable consisted of two or more categorical groups:

- LIEPgrp was either NO COTEL or COTEL
- LANGgrp was either BOS, SPA, or MIX33
- GL was either 1, 2, 3, 4, 5, 6, 7, or 8
- PREgrp for GLcluster 1st & 2nd and 3rd - 5th were either EMR, DEV, or EXP
- PREgrp for GLcluster MS 6th - 8th): was either EMR-DEV or DEV-EXP

Assumption #3: There was one covariate measured at the continuous level – PRE (the ACCESS 2018 OSS with a potential range of 100-600). This covariate was used to adjust the means of the groups of the categorical independent variables before comparison.

Assumption #4: There was independence of observations, or there was no relationship between the observations in each group or between the groups themselves. This means that no ELs were in both COTEL or NO COTEL, or in both LANGgrpBOS and LANGgrp MIX33, or PREgrp EMR and PREgrp EXP.

The remaining six assumptions were tested using SPSS Statistics software for each of the five two-way ANCOVA analyses:

Assumption #5: The covariate (PRE) was linearly related to the dependent variable (GROWTH) for each combination of groups of the two independent variables (i.e., each cell of teach design) as assessed by examining scatterplots of GROWTH by PRE to determine if the values looked linear. This assumption was met for all five two-way ANCOVAs

Assumption #6: Homogeneity of regression slopes was determined by a comparison between each two-way ANCOVA model with and without interaction terms where $p > .05$. Significance was accepted at the $p < .05$ level. The homogeneity of regression slopes results for each Two-way ANCOVA were not statistically significant except for GL by LIEPgrp. This was not surprising because students in lower grades typically would have lower OSS than older students, so the analysis was completed anyway, taking into account the moderating effect of age, expressed as GL, on GROWTH.

Assumption 7: There was homoscedasticity was assessed by visual inspection of the studentized residuals plotted against the predicted values within each combination of groups for all five two-way ANCOVAs.

Assumption 8: There was homogeneity of variances for all five ANCOVAs, as assessed by Levene's test of homogeneity of variance.

Assumption 9: There were 2 outliers total in all the analyses, as assessed by two cases with studentized residuals greater than ± 3 standard deviations. However, after investigation these were found to be true values (i.e. not a data entry error). In addition, there were no high leverage values above .20 and no Cook's Distance values above 1, so no cases were removed from any of the analyses.

Assumption 10: Studentized residuals were normally distributed for all five ANCOVAs, as assessed by Shapiro-Wilk's test ($p > .05$).