Journal of Language Teaching, *6*(1), 1-19, 2026
https://doi.org/10.54475/jlt.2026.008

Check for updates

Original Research OPEN ACCESS

Teachers' beliefs in the critical period and language instructional practices across different groups

Shu Jen Chen-Worley

Graduate School of Education, Touro University, New York, New York, United States
Received: July 22, 2026 / Accepted: September 11, 2026 / Published Online: October 2, 2026
© 2026 Shu Jen Chen-Worley. Published by Pioneer Publications Ltd.
This article is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).

Abstract

The study employed a mixed-methods approach to investigate teachers' beliefs about the critical period for language acquisition and their instructional practices across various groups (B-2, Grades 1-6, Grades 7-12, and TESOL-Literacy). Survey-based descriptive and correlational analyses were used to examine the quantitative data, while thematic analysis was used to identify patterns in participants' open-ended responses. Findings indicated that most participants believed in the existence of a critical period for language acquisition and emphasized the importance of understanding this concept in order to support language learning. Participants also viewed translation and the use of an ELL's L1 as beneficial instructional strategies for promoting English acquisition. These beliefs are analyzed comparatively across various groups and discussed in relation to existing scholarship on language acquisition and instructional practice. The study concludes with insights and recommendations for teacher education reform.

Keywords teachers' belief; critical period; language instruction

1. Introduction

The concept of a critical period has been examined across multiple domains of human development, including physical, cognitive, emotional, and language development. In neuroscience, a critical period refers to a developmental window during which neural systems are especially responsive to environmental input. Bear et al. (2007) define it as "a period of time in which intercellular communication alters a cell's fate" (p. 715). Originating in Hans Spemann's embryo-transplantation research, for which he received the Nobel Prize in 1935, the concept has since become central to theories of development and learning. In language development, the critical period is particularly relevant because it has been associated with language function (Crain, 2005; Thor, 2008), ultimate language proficiency (Hartshorne et al., 2018), and age-related differences in pronunciation and accent attainment (Acton, 1984; Lenneberg, 1967). Brain maturation and lateralization further help explain why children and adults often approach language learning differently (Bear et al., 2007; Berger & Batterink, 2024; Birdsong, 2018; Gurunandan et al., 2020; Lenneberg, 1967; Paradis, 2004). Younger learners tend to acquire language through natural, informal, and often implicit interaction, whereas older learners more commonly rely on conscious learning, explicit instruction, and analytical attention to grammatical rules in formal educational contexts (Krashen, 1982).

Teachers' beliefs about language learning, together with their professional knowledge of English-language concepts and principles, shape how they design and implement instruction. Such knowledge informs teachers' use of differentiated instruction and their selection of age-appropriate language-teaching approaches for learners with diverse educational backgrounds. Relevant pedagogical knowledge includes foundational linguistic concepts, such as phonological awareness, vocabulary, spelling, reading comprehension, and grammar, as well as an understanding of the critical period and its implications for language acquisition (Chen-Worley, 2024b).

These issues are especially important in the context of rapid demographic change in the United States,

where teachers and school administrators are increasingly responsible for meeting the needs of culturally and linguistically diverse learners, particularly English Language Learners (ELLs). ELLs have also been disproportionately represented in special education, raising concerns about assessment, instruction, and educational equity. At the same time, persistent literacy achievement gaps remain a central concern across elementary and secondary education. Because early literacy skills predict later reading comprehension and academic achievement (Leahy & Fitzpatrick, 2017), it is important to examine the beliefs and knowledge that guide teachers' instructional decisions and classroom practices (Amiryousefi, 2015; Nation & Macalister, 2010). Accordingly, this mixed-methods study examined teachers' beliefs and understandings of the critical period for language learning and the ways in which those beliefs informed language instruction.

Quantitative and qualitative findings were analyzed in relation to existing research on the critical period, language acquisition, and instructional practice. By addressing the relationship between teacher knowledge, language instruction, and learner diversity, this study seeks to inform teacher education and preparation efforts aimed at reducing special education disproportionality and narrowing literacy achievement gaps.

Teachers' beliefs play a pivotal role in shaping their judgments concerning learners' abilities, classroom activities, and instructional approaches. The present study investigates teachers' perspectives on the critical period for language acquisition and examines their instructional practices across four groups: B-2, Grades 1-6, Grades 7-12, and TESOL-Literacy. In addition, the study explores the knowledge, experience, and pedagogical understanding of both preservice and in-service teachers in language teaching, with the broader aim of contributing evidence that may inform and strengthen teacher education programs.

2. Literature Review

2.1. Teachers' Beliefs and Instructional Practices

In the 21st century, U.S. schools have experienced substantial political, demographic, and educational changes that have intensified two related challenges for educators. First, rapid demographic shifts have made it increasingly important for teachers to meet the needs of culturally and linguistically diverse students, particularly English Language Learners (ELLs), who continue to be disproportionately represented in special education. Second, persistent literacy achievement gaps remain a major concern, as many fourth-grade students continue to struggle with reading, a foundational skill for later academic success (Lee et al., 2007; Castles et al., 2018). Teachers' language knowledge, instructional practices, and beliefs therefore play a central role in shaping classroom decisions and student learning outcomes. These beliefs influence how teachers judge students' abilities, select instructional methods, and respond to learners' linguistic needs. For example, some teachers view translation and translanguaging as useful strategies for supporting immediate comprehension and language development, whereas others emphasize the importance of the critical period and age-sensitive instruction for long-term proficiency (Hartshorne et al., 2018). Teachers' beliefs are influenced by their knowledge and experiences and, in turn, help shape instructional decisions and classroom practices. Understanding these beliefs is important because they may affect the selection of instructional strategies used to support ELLs.

2.2. Critical Period of Language Development

In child development, Montessori (1870–1952), an educator and pediatrician, identified six "sensitive periods" involving walking, attention to detail, order, language, and hand movements. Although Montessori developed this concept within the broader context of child development rather than specifically for second language acquisition (SLA), it provides an important foundation for understanding how developmental maturation may influence learning. In language research, the related concept of a critical period has traditionally been associated with the idea that biological maturation and neurological development create a period during which language learning may be particularly efficient.

In neuroscience, a critical period refers to "a period of time in which intercellular communication alters a cell's fate" (Bear et al., 2007, p. 715). This concept originated in Hans Spemann's research on embryonic development and has since been applied more broadly to developmental processes involving neural plasticity. Research on brain development indicates that the developing brain has a heightened capacity to reorganize in response to experience and that this capacity changes as the brain matures. Studies of children who experience brain injury before puberty have also shown greater potential for recovery of language functions than is typically observed following comparable injury later in development. These findings provide a biological and neurological foundation for understanding how developmental timing may influence language learning.

Earlier research associated puberty with increased difficulty in second language learning and native-like pronunciation (Acton, 1984; Lenneberg, 1967). Crain (2005) observed, "There is growing evidence that a critical period for rapid second language learning ends even prior to puberty perhaps at the age of 7 years" (p. 367). This statement should not be interpreted as establishing age seven as a universal endpoint. Rather, it suggests that the period of particularly rapid language learning may end before puberty and, for some individuals, may end even earlier. Thus, the timing and effects of age-related developmental changes may vary across individuals and across aspects of language learning.

Contemporary research further suggests that the relationship between age and language-learning capacity is more complex than a single chronological cutoff. Hartshorne et al. (2018), analyzing data from 669,498 participants, found that English grammar-learning ability remains relatively strong throughout childhood and adolescence before declining thereafter. Chen and Hartshorne (2021), using data from more than 1.1 million participants, similarly reported a decline in syntax-learning ability toward the end of adolescence. These findings support the importance of developmental timing while suggesting that the critical period should be understood as a developmental process rather than a fixed age boundary.

Age-related differences are also reflected in how children and adults tend to approach language learning (Long, 1990; Paradis, 2004; Ullman, 2001). Although neural plasticity continues throughout adulthood, its characteristics change as the brain matures (Birdsong, 2018). Children tend to acquire language through extensive exposure, interaction, imitation, and meaningful experience, often without consciously analyzing grammatical rules. Adults, in contrast, tend to rely more heavily on conscious attention, formal instruction, metalinguistic awareness, grammatical analysis, practice, and sustained effort. Thus, children tend to acquire language first, whereas adults tend to learn language first (Chen, 2015). This distinction describes a developmental tendency rather than an absolute division: children can engage in conscious learning, and adults can acquire language through meaningful exposure and interaction.

The distinction between unconscious acquisition and conscious learning is therefore important for language teaching. Chen (2015), published under the author's former surname, distinguishes more unconscious, informal, and spontaneous learning from more conscious, formal, and trained learning. Recognizing these differences can help teachers determine when and how to apply instructional strategies appropriate to individual learners. Rather than assuming that one approach is equally effective for everyone, teachers can consider learners' developmental characteristics, prior linguistic experience, and opportunities for meaningful exposure when designing instruction.

Hartshorne (2022) further reviews the critical-period literature and notes that children generally demonstrate an advantage over adults in language learning while emphasizing that the mechanisms underlying this advantage remain an active area of investigation. Neural plasticity, cognitive development, motivation, language exposure, and interactions between first and additional languages may all contribute to age-related differences. The critical-period hypothesis therefore need not be understood as a biological boundary after which language learning becomes impossible. Instead, it can be understood as a developmental period in which the brain is particularly receptive to language learning and in which the efficiency and manner of learning may change across development.

The importance of learning conditions is also evident in research showing that English Language Learners typically require approximately 3–5 years to develop oral proficiency and 4–7 years to develop academic proficiency (Hakuta et al., 2000). These findings demonstrate that language outcomes depend not only on biological development but also on the amount, duration, and quality of language exposure and instruction. Age is therefore an important factor in SLA, but it interacts with instructional conditions, meaningful interaction, cognitive development, motivation, and the linguistic environment.

Overall, contemporary research refines rather than rejects the concept of a critical or sensitive period. Biological and neuroscientific research provides a foundation for understanding developmental changes in neural plasticity, while behavioral research demonstrates that language-learning capacity and processes change across the lifespan. Children generally tend to acquire language through unconscious, informal, and experience-based processes, whereas adults tend to rely more heavily on conscious, formal, and effortful learning. Because the timing and effects of developmental changes may vary across individuals and aspects of language, teachers need to consider not only **what** to teach but also **when and how** to teach it. Understanding the relationship among neural development, unconscious acquisition, and conscious learning can therefore help teachers select instructional strategies that better support individual learners.

2.3. Language Instructional Practices

Teachers' instructional methods often reflect their beliefs, shaped by their knowledge, experience, culture, and understanding. Teachers familiar with multiple languages and cultures and equipped with strong conscious professional content knowledge in English can more effectively help language learners develop proficiency.

Theory shapes teaching methods, while practice can refine these theories based on research and analysis. For decades, debate has centered on how best to teach or learn language, with approaches targeting both verbal and non-verbal communication across four key skills: listening, speaking, reading, and writing, with a focus on structure, meaning, and context. Each method, such as Audiolingual Method, Communicative Language Teaching, Phonics, Whole Language, Translation, and Translanguaging, is developed according to the key concepts related to age, conscious versus unconscious learning, language learning goals, and form (linguistic/grammatical competence) vs. content (meaning/communication). The main features of these approaches are briefly summarized below.

2.3.1. Audiolingual Method and Communicative Language Teaching

The Audiolingual Method (AM) and Communicative Language Teaching (CLT) reflect distinct theoretical and pedagogical orientations (Richards & Rodgers, 2001, 2014). AM is grounded in structural linguistics and behaviorist psychology and views language learning largely as habit formation through imitation, repetition, reinforcement, and controlled practice. Brooks (1964) characterized language learning within the audiolingual tradition as a process of habit formation rather than problem solving.

Accordingly, AM emphasizes linguistic form, structural accuracy, pronunciation, and error prevention while minimizing explicit grammar explanation, L1 use, and translation, particularly at early stages (Richards & Rodgers, 2001, 2014). These characteristics make AM an implicit-oriented approach in which learners develop language patterns through repeated exposure and practice rather than conscious grammatical analysis.

The principles of AM are broadly compatible with younger learners' spontaneous and less consciously mediated learning tendencies. Berger and Batterink (2024) found that both children and adults could implicitly learn a novel linguistic rule through exposure, but children detected and generalized the rule more rapidly. This finding supports the possibility that younger learners may be particularly efficient at extracting linguistic patterns implicitly. This perspective is also consistent with research on age and language attainment. Hartshorne et al. (2018) found that grammatical learning ability remains strong through childhood and adolescence but declines substantially beginning around late adolescence, with earlier exposure associated with a greater likelihood of attaining native-level proficiency. Thus, AM's emphasis on repetition, pattern formation, limited explicit explanation, and minimal reliance on learners' L1 and translation may be particularly compatible with younger learners, although this does not imply that older learners cannot benefit from implicit learning processes.

In contrast, CLT prioritizes meaning, interaction, communicative competence, and functional language use (Canale & Swain, 1980; Richards & Rodgers, 2001, 2014). Unlike AM's emphasis on error prevention, CLT allows learners to make errors as they experiment with language and negotiate meaning. It also permits L1 use or translation when these resources facilitate communication. CLT therefore places greater emphasis on learners' ability to communicate meaning than on the immediate production of structurally accurate language. These characteristics make CLT more compatible with conscious and formal language learning, particularly among older learners who have greater metalinguistic awareness and experience with formal learning. Nevertheless, the distinction is relative rather than absolute: both younger and older learners can engage in implicit and explicit learning (Lichtman, 2016). The pedagogical value of distinguishing AM from CLT lies in enabling teachers to recognize these different orientations and select or adapt instructional practices according to learners' developmental characteristics, needs, and learning contexts.

2.3.2. Phonics & Whole Language

Whole Language is a reading model that employs a top-down approach grounded in constructivist learning theory, emphasizing meaning and communication rather than traditional word-by-word (bottom-up) strategies (Goodman, 2006). More recent research comparing Whole Language and phonics approaches suggests that systematic phonics instruction provides important advantages for the development of foundational reading skills, particularly when introduced during the early stages of literacy development (Akan et al., 2024; Rehfeld et al., 2022). Foundational skills such as phonemic awareness and knowledge of letter–sound correspondences do not develop fully through exposure to meaningful language alone; rather, many learners benefit from explicit

and systematic instruction in these areas (Rehfeld et al., 2022). For example, the word friend consists of five phonemes (/f/-/r/-/ɛ/-/n/-/d/) represented in writing as f-r-ie-n-d. Thus, teachers need to explicitly help students connect spoken sounds with their corresponding written representations. Such systematic instruction supports the development of phonemic awareness, word reading, spelling, and vocabulary and provides a foundation for more advanced literacy skills (Rehfeld et al., 2022; Hall et al., 2023). Students who experience reading difficulties may particularly benefit from explicit instruction targeting phonological awareness, word reading, and spelling (Hall et al., 2023). Therefore, rather than treating Whole Language and phonics as mutually exclusive approaches, early literacy instruction can incorporate systematic phonics alongside meaningful reading and comprehension activities (Akan et al., 2024). This balanced approach also underscores the importance of teachers' knowledge of linguistics and literacy development, enabling them to make informed instructional decisions about the relationship between sound, print, meaning, and communication (Freeman & Freeman, 2014; Chen-Worley, 2024a). Accordingly, functional phonics, which requires explicit and systematic instruction, should be introduced early in literacy development. At the same time, aspects such as pronunciation and accent, which can develop implicitly through sustained exposure to spoken language, should be provided to children from the earliest stages of language learning.

2.3.3. Translation and Translanguaging

What matters about these instructional practices, AM, CLT, Phonics, or Whole Language, is not which one is the best but to understand which instructional practice matches a learner's biological and cognitive developmental stage in order to help the learner achieve ultimate language learning attainment (the long-term language learning effect). Factors like age and the distinction between conscious and unconscious learning are linked to language acquisition during the critical period (typically ages 0-7; Crain, 2005). Ignoring these factors and misapplying instructional approaches may hinder long-term language development in favor of short-term gains (Chen-Worley, 2024b).

In language development, conscious learning involves formal instruction and deliberate effort to analyze and understand grammatical rules, often including translation. In contrast, unconscious learning occurs informally and spontaneously, as learners acquire pronunciation, accent, and grammar through exposure and interaction with native speakers in natural settings. Young children, especially those within critical periods, tend to rely more on unconscious learning, whereas adults or learners beyond critical periods depend more on conscious processes. Language learning is a complex, long-term endeavor (Larsen-Freeman, 1997). Although translation can support both children and adults, its short- and long-term effects must be considered in relation to the critical period. Research suggests that English Language Learners (ELLs) typically require 3-5 years to develop oral proficiency and 4-7 years to achieve academic proficiency (Hakuta et al., 2000), and age is strongly associated with ultimate language attainment (Hartshorne et al., 2018).

Similarly, translanguaging, a non-traditional instructional approach, emphasizes communication through the flexible use of two or more languages within a single context. First introduced by Cen Williams in Wales in the 1980s, when English and Welsh were used together for learning (Baker, 2001), translanguaging gained wider recognition in the 2010s. Its core principle is that learners draw on multiple linguistic resources in informal, collaborative ways to understand content, before transitioning to more formal and precise English in their final outputs (Li, 2018). Importantly, assessing children's proficiency in a specific language is not equivalent to evaluating their overall linguistic competence (Otheguy et al., 2015).

Translation and Translanguaging may lower the affective filter (Krashen, 1988), thereby enhancing learner engagement through collaboration, identity affirmation, and equitable assessment. However, concerns remain regarding their potential impact on long-term language development, learner autonomy, and the accurate and formal use of English (Chen-Worley, 2024b). For example, the following sentences are all communicative with the same meaning, "The food tasted good today." The first two sentences "Today food good and Today's food good) are grammatically wrong but they remain communicatively effective. Similarly, the last two sentences (今日の food Hěn hào chī and Today 食物 Hěn hào chī) are translanguaging. Both sentences integrate three languages (Japanese, English, and Mandarin Chinese). While such expressions may facilitate meaning-making among multilingual learners, they may be inaccessible to others because one needs to know the languages to understand the meaning. More critically, persistent reliance on these structures may impede the acquisition of target-like syntax particularly the standard structure in which "the food" functions as the subject and "today" as an adverbial element (Chen-Worley, 2024b).

The food tasted good today. Today food good

Today's food good

今日の food Hěn hào chī

Today 食物 Hěn hào chī

The challenge is further amplified in more complex grammatical forms, such as tense, particularly the subjunctive mood, as illustrated in following sentences like "If I were rich, I would travel around the world" and "I wish I had had enough money, so I would have had a beautiful house," These constructions require a high degree of syntactic control and are often difficult for learners to master.

"If I were rich, I would travel around the world."

"I wish I had had enough money, so I would have had a beautiful house."

While translanguaging and translation practices are often praised for lowering the affective filter and increasing engagement (Krashen, 1988), their role in long-term language development warrants critical examination. Although these approaches promote inclusivity, identity affirmation, and equitable assessment, their long-term effects on syntactic accuracy, learner independence, and control over formal English warrant further investigation. After all, children and adults differ in ways they learn syntax (Berger & Batterink, 2024; Chen & Hartshorne, 2021; Hartshorne et al., 2018).

For example, simplified forms such as "Today food good" and "Today's food good" successfully convey meaning but deviate from standard English syntax. Similarly, translanguaging expressions like "今日の food h ěn hǎo chī" and "Today 食物 hěn hǎo chī" reflect multilingual competence but rely on hybrid structures that may not transfer to academic or formal contexts. The central issue is not intelligibility but syntactic entrenchment: repeated exposure to non-target structures may reinforce patterns that are difficult to restructure later. Learners may internalize "Today food" as a subject, making it more challenging to produce target-like constructions such as "The food tasted good today."

This concern becomes more significant with complex grammatical forms, such as tense, particularly the subjunctive mood. Structures such as "If I were rich…" and "I wish I had had…" require not only vocabulary knowledge but also precise control over tense, modality, and hypothetical meaning—features that are unlikely to develop through communicative approximation alone.

From a theoretical perspective, this tension reflects the distinction between language acquisition and language learning (Krashen, 1982, 1988). While translanguaging may support comprehension and facilitate subconscious acquisition, it does not necessarily guarantee the development of target-like grammatical competence. Given that older learners rely more heavily on conscious learning processes (Kuldas et al., 2013), explicit instruction may be necessary to prevent fossilization of non-standard forms.

Therefore, although translanguaging serves as a valuable pedagogical tool, it should be implemented strategically and in conjunction with explicit focus on form. Without such balance, questions remain regarding the relationship between short-term gains in engagement and long-term linguistic accuracy and proficiency. However, further pedagogical empirical research is needed to determine how translanguaging affects learners' long-term linguistic accuracy and proficiency.

3. Methods

This study used a convergent mixed-methods survey design in which quantitative and qualitative data were collected concurrently through the same Qualtrics survey. Quantitative data from closed-ended survey items, including dichotomous and Likert-scale items, were analyzed using descriptive statistics and Spearman's rank-order correlation in SPSS v. 31 to address the research questions. Qualitative data from participants' open-ended survey responses were analyzed using thematic analysis (Braun & Clarke, 2021) to examine participants' beliefs and viewpoints about the critical period in language acquisition and learning, as well as their views on whether translation and the use of learners' native language (L1) benefit ELLs' English learning. The two strands of data were interpreted together to provide a more comprehensive understanding of teachers' beliefs and instructional practices.

3.1. Research Questions

1. What were teachers' beliefs about the critical period of language development across different groups (B-2,

Grades 1-6, Grades 7-12, and Literacy-TESOL)?

2. How did teachers' beliefs in the critical period affect their choices of language instruction for ELLs and the inclusive education setting?

3.2. Participants

A total of 222 participants from the Graduate School of Education at a university in New York were included in the final analyses. Participants completed a Qualtrics survey using a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree). The final sample ranged in age from 20 to 63 years and consisted of 194 females and 28 males. Approximately half of the participants were certified P–12 teachers, while the remainder were paraprofessionals, substitute teachers, or graduate students.

Data collection took place during the 2017–2018 academic year following Institutional Review Board (IRB) approval. Electronic survey invitations were distributed to more than 6,000 current students and alumni associated with the School of Education. Approximately 650 individuals responded to the survey. Of these respondents, approximately 230 were excluded because they did not complete the survey or were determined to be ineligible. The remaining 420 responses were screened for completeness and data quality. After excluding cases with substantial missing data, 222 responses were retained for the final analyses.

Participants were categorized into four specialization groups: Birth–Grade 2 (B–2; n = 79), Grades 1–6 (n = 69), Grades 7–12 (n = 44), and TESOL-Literacy (n = 30). The teacher education program offered certification pathways in Early Childhood Education (Birth–Grade 2), Childhood Education (Grades 1–6), and Secondary Education (Grades 7–12), while the TESOL-Literacy specialization focused on English language learning and literacy instruction. The inclusion of both preservice and in-service educators allowed for comparisons across groups with different levels of professional experience and areas of preparation. The primary purpose of the study was to examine differences among these four groups in their knowledge of second language acquisition, beliefs about the critical period for language development, and reported instructional practices related to language learning.

3.3. Instrument

The survey for this study was adapted from a second language acquisition project and developed based on a review of the literature. It included both quantitative and qualitative items designed to examine participants' beliefs about second language acquisition, the critical period for language development, and language instructional practices. To support content validity, all survey items were reviewed by professionals and researchers with expertise in language acquisition and teacher education. The instrument consisted of 10 items. Questions 1 and 2 were dichotomous (Yes/No) items assessing participants' prior coursework in second language acquisition and personal second-language learning experience. Question 4 assessed participants' belief in the existence of a critical period for language development using three response options (Yes, No, Not Sure). Questions 3 and 5–10 employed a 5-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree, 5 = Strongly Agree) to measure participants' perceptions of second language acquisition, the critical period, and selected instructional practices. The survey consisted primarily of single-item measures assessing distinct constructs rather than multiple items designed to measure a single underlying latent variable. Consequently, internal-consistency reliability measures such as Cronbach's alpha were not considered appropriate because the items represented conceptually different beliefs and instructional preferences. The use of single-item measures is supported when constructs are concrete, specific, and clearly understood by respondents (Bergkvist, 2014; Diamantopoulos et al., 2012; Ginns & Barrie, 2004). Because the survey responses were primarily ordinal in nature, Spearman's rank-order correlation was used to examine associations among selected variables and to address the study's research questions. Spearman's rho is appropriate for analyzing monotonic relationships among ordinal variables and does not require the assumptions associated with parametric procedures (Schober et al., 2018). The purpose of the correlation analyses was to investigate the strength and direction of relationships among participants' beliefs and instructional preferences rather than to establish measurement reliability.

1. Have you taken any classes in second language acquisition?
2. Do you have a second language (L2) learning experience?
3. I understand how a second language is acquired.
4. I believe there is a critical period for language development.

5. It is important to understand the concept of the critical period for language development in order to help ELLs learn English
6. I think both adult ELLs and child ELLs learn English in the same way.*
7. Doing translation is very helpful for younger ELLs in the English learning process.*
8. As a teacher, I think learning an ELL's 1st language can help an ELL learn English.
9. As a teacher, I think learning an ELL's culture can help an ELL learn English.
10. I think ELLs benefit most from English learning in the general/inclusive education setting.

*Reverse-coded for selected analyses.

3.4. Data Sources

Data collection took place following IRB approval during the 2017–2018 academic year. More than 6,000 current graduate students and alumni from the School of Education at a New York college were initially invited to participate in the study. Approximately 650 individuals voluntarily responded to the survey. Of these, 230 did not complete the survey, either because they were not eligible at the time or chose to withdraw. The remaining 420 responses were further screened for completeness, resulting in 222 responses with minimal missing data.

Although the data were collected during the 2017–2018 academic year, the findings remain relevant because the study examined teachers' beliefs about the critical period, second language acquisition, translation, learning an ELL's first language (L1), culture, and inclusive educational settings, issues that continue to play important roles in teacher education and second language acquisition research. The purpose of the study was to investigate teachers' beliefs and reported instructional practices rather than to evaluate a particular contemporary pedagogical approach.

The dataset of 222 complete responses was analyzed using both quantitative and qualitative methods. Quantitative analysis included descriptive statistics and Spearman's rank correlation, conducted in SPSS (v. 31), with statistical significance set at $p < .05$. Qualitative data were examined using thematic analysis (Braun & Clarke, 2021) to investigate the perspectives of four subgroups on the critical period in language development, as well as their views on translation, native language and culture learning, and inclusive education as effective practices in language teaching and learning.

4. Results and Discussion

4.1. Quantitative Results

Quantitatively, some items were reverse-coded as needed before analysis. The major findings for this research study based on participants' self-report were as follows:

1. What were teachers' beliefs about the critical period of language development across different groups (B-2, Grades 1-6, Grades 7-12, and TESOL-Literacy)?

Of all participants, 77.9% (173/222) had never taken SLA courses at either the graduate or undergraduate level. For B-2, 87.3% (69/79) participants had not taken SLA courses; Grades 1-6, 89.9% (62/69); Grades 7-12, 77.3% (34/44); and TESOL-Literacy, 26.7% (8/30). In other words, a huge number of participants in each of the three subgroups (B-2, Grades 1-6, and Grades 7-12) had not taken SLA courses at the graduate or undergraduate level, whereas most participants in TESOL-Literacy had taken SLA courses (see Table 1 in the Appendix; all tables are provided in the Appendix).

Of all participants, more than half (51.4%, 114/222) did not have a second-language (L2) learning experience. For B-2, 53.2% (42/79) of participants did not have L2 learning experience; Grades 1-6, 59.4% (41/69); Grades 7-12, 54.6% (24/44); and TESOL-Literacy, 23.3% (7/30). In other words, more than half of the participants in each of the three groups, B-2, Grades 1-6, and Grades 7-12, did not have L2 learning experience, whereas most participants in TESOL-Literacy had L2 learning experience (see Table 2).

However, most participants (76.1%, 169/222) self-reported that they understood how a second language is acquired. More than half of the participants in each group of B-2, Grades 1-6 and Grades 7-12 self-reported that

they understood SLA – 65.8% of participants (52/79) for B-2; 62.3% (43/69) for Grades 1-6, and 56.8% (25/44) for Grades 7-12. TESOL-Literacy stood out with a high number of participants (96.7%, 29/30) self-reporting to have knowledge of SLA (see Table 3). Additionally, most participants (82%, 182/222) believed in the importance of understanding critical period for language development.

More than 70% of the participants in each of the subgroups, B-2, Grades 1-6, and Grades 7-12 believed in critical period - 78.5% of participants (62/79) for B-2; 85.5% (59/69) for Grades 1-6, and 72.7% (32/44) for Grades 7-12., TESOL-Literacy has a high percentage of 96.7% (29/30) (see Table 4).

Based on Spearman Correlation, there was an overall positive correlation between Q3 (knowledge of SLA) and Q5 (importance of understanding critical period) for the participants, which reached statistical significance (r_s =.152, $p < .05$). This suggested that most participants who participated in this L2 study believed in the importance of understanding the critical period and their understanding in second language acquisition. The finding was statistically significant and therefore unlikely to be due to chance. There was also a positive correlation between Q3 and Q5 for each individual subgroup – B-2 (r_s = .148, $p > .05$); Grades 1-6 (r_s = .009, $p > .05$); Grades 7-12 (r_s = .111, $p > .05$) and TESOL-Literacy (r_s = .352, $p > .056$). Although the TESOL-Literacy group was borderline (r_s = .352, p = .056) and no individual subgroup reached statistical significance, this suggested a positive association between the variables for each individual subgroup with the TESOL- Literacy group showing a relatively stronger effect than the others (see Table 5).

2. How did teachers' beliefs in the critical period affect their choices of language instruction for ELLs and the inclusive education setting?

78.4% of participants (62/79) for B-2 believed in the importance of understanding critical period; 85.5% (59/69) for Grades 1-6, and 72.7% (32/44) for Grades 7-12. TESOL-Literacy has a high percentage of 96.7% (29/30). In addition, 70.8% of participants (56/79) for B-2 did not think that adults and children learning language in the same way; 68.1% (47/69) for Grades 1-6; 68.2% (30/44) for Grades 7-12; and 70% (21/30) for TESOL-Literacy (see Table 6). Although there was a positive Spearman correlation between the two variables, Q5 (understanding the importance of critical period) and Q6R (children and adults not learning in the same way), the correlations for the combined sample and for each subgroup were statistically non-significant (see Table 7). This suggested that most participants, including the participants in each individual group, believed in the importance of understanding the critical period and children and adults learning in different ways. The results were congruent with literature and research for L2 acquisition; however, the findings should be interpreted cautiously because they were not statistically significant.

Most participants (70.7%, 157/222) in this L2 study found translation helpful for younger ELLs: 73.4% (66/79) for B-2, 72.4% (50/69) for Grades 1-6, 54.5% (36/44) for Grades 7-12, and 83.3% (25/30) for TESOL-Literacy (see Table 8). In addition, uncertainty about the benefits of translation also existed across subgroups: 21.5% (17/79) for B-2, 14.5% (10/69) for Grades 1-6, 36.4% (16/44) for Grades 7-12, and 13.3% (4/30) for TESOL-Literacy. Spearman correlation analysis showed a significant negative relationship (r_s = -.248, $p < .001$) between belief in a critical period and not using translation as instruction for younger ELLs in the combined sample. This finding also held for the B-2 group, which reached statistical significance (r_s = -.313, $p < .005$). This suggested that most of the participants, including the B-2 group believed in critical period but they considered using translation as a great way of instruction to benefit younger ELLs' language learning. These reliable results contrasted with research on conscious and unconscious learning related to the critical period (see Table 9)

For teachers' learning an ELL's L1 in facilitating an ELL's language instruction, most participants (75.6%, 168/222) supported the concept as an effective way of language instruction: 73.4% (58/79) for B-2, 81.1% (56/69) for Grades 1-6; 68.1% (30/40) for Grades 7-12; and 80% (24/30) for TESOL-Literacy (see Table 10). Spearman correlation indicated a positive but non-significant relationship (r_s = .124, $p > .05$) between belief in understanding critical period and learning an ELL's L1 (Q5 & Q8) across the combined sample and most subgroups. Only group B-2 showed a significant positive correlation (r_s = .284, $p < .01$), suggesting their views were statistically reliable. These results generally align with literature but may be due to chance, except for the findings in B-2 (see Table 11). Most participants (90.5%, 201/222) recognized understanding ELL's culture as an effective way for language instruction: 89.9% (71/79) for B-2; 91.3% (63/69) for Grades 1-6, 84.1% (37/44) for Grades 7-12, 100% (30/30) for TESOL-Literacy (see Table 12). Spearman correlation revealed a strong positive relationship with statistical significance (r_s =.145, $p < .05$) between belief in the importance of understanding the critical period and learning an ELL's culture (Q5 and Q9) for the combined sample. There was also a positive relationship with no statistical significance for subgroups, Grades 1-6, Grades 7-12, and

TESOL-Literacy. Only group B-2 showed a significant positive correlation (r_s =.219, $p < .05$) suggesting that their views were statistically reliable. These results were generally congruent with literature; however, the non-significant subgroup findings should be interpreted cautiously because they may have been due to chance or random factors, except for the combined sample and the B-2 group (see Table 13).

4.2. Qualitative Results

Qualitatively, thematic analysis (Braun & Clarke, 2021) was used to analyze participants' open-ended responses. Initial codes were generated from recurring ideas and patterns in the responses and were subsequently grouped into broader themes. The qualitative analysis focused on participants' beliefs and viewpoints about the critical period in language acquisition and learning, as well as their views on whether translation and the use of learners' native language (L1) benefit ELLs' English learning. Four major categories emerged across the four groups: (1) critical period/age and brain development, (2) children vs. adults, (3) instructional strategies and translation, and (4) education setting.

4.2.1. Critical Period/Age and Brain Development

Spearman correlation analysis showed a statistically significant positive relationship between Q3 (knowledge of SLA) and Q5 (importance of understanding critical period) among participants (r_s = .152, $p < .05$). Although the TESOL-Literacy group was borderline (r_s = .352, $p > .056$) and no individual subgroup reached statistical significance, this suggested a positive association between the variables for each individual subgroup with the TESOL-Literacy group showing a relatively stronger effect than the others (see Table 5). The following sections present the breakdowns for each group about what they think about critical period associated with age and brain development:

In B-2, the "critical period" for language acquisition was frequently associated with early childhood and brain plasticity. Research generally links age-related differences in language learning to developmental changes occurring from childhood through adolescence (Bear et al., 2007; Hartshorne et al., 2018), although some scholars have suggested that particularly rapid language learning may decline before puberty and, for some individuals, as early as around age 7 (Crain, 2005). Responses from the B-2 group suggested an overall range from birth to age 8, with considerable variation in individual estimates. The following quotations illustrate participants' views:

> *"A critical period for acquiring language is from 2-8 years old." "Between the ages of 3 and 6."*
> *"Birth - 24 months."*
> *"From birth to 6yrs children have absorbent minds and this age is critical to learn language." "I believe a child has the ability to learn language the best at any age before 5."*
> *"I have heard Time and time before that it is easier to acquire second language if younger than 4."*
> *"The brain at the younger age is more sponge-like and can absorb much more information."*
> *"Birth-kindergarten."*

For Grades 1-6, participants generally viewed early childhood as an important period for language learning, often identifying ages from birth to approximately 7 years, although some extended this period into adolescence. Many participants attributed younger learners' advantages in language learning to brain plasticity and developmental readiness. Although research supports the concept of a critical period, the specific age range associated with this period varies across individuals.

> *"Before the age of 7 years old, an ELL student can learn the language faster." "Up to age 7."*
> *"People learn languages most easily when they are young (below 16 or 17 years old)." "Research shows that language development and acquisition of language is easier for toddlers." "Early childhood when the brain's receptors are most open to language acquisition."*

For Grades 7-12, participants generally emphasized the challenges adults face in acquiring a new language, including greater reliance on memorization, first-language support, and difficulties adapting to new language structures. Many participants viewed early childhood, particularly the toddler years and ages 4-6, as an advantageous period for language learning and described younger learners as more capable of absorbing and processing linguistic information. Participants generally recognized the importance of early language-learning experiences and developmental factors, although some expressed skepticism about whether language-learning processes differ substantially across individuals. Unlike the B-2 and Grades 1-6 groups, most participants did not specify a clear age range for the critical period. Here are some quotes:

> *"Ages 4-6 is the best time to teach a child a new language."*

> *"Children's minds may take in information faster and process faster than adults." "Children ELLs will be able to grasp a language faster than an adult can." "Children catch onto English faster than adults."*
> *"Younger students have more time to learn a second language."*
> *"Every individual has different strengths & weaknesses, so they learn on different pace."*
> *"The amount of schooling matters for adults. The more they are likely to read and write in their native language, the better they can acquire a 2nd language. Younger ELLs will have more time to learn a language; however, they do not have a lot of academic experience."*
> *"I don't have experience working with ELL's."*
> *"I do not have enough information to judge how children learn compared to adults."*

For TESOL-Literacy, participants strongly emphasized the importance of age and developmental factors in language acquisition. Many responses identified early childhood as a particularly advantageous period for language learning and frequently referred to brain development, neural plasticity, and younger learners' greater receptivity to language input. Although participants consistently supported the concept of a critical period, most did not specify a precise age range. Here are some quotes:

> *"From birth to 5 is when language acquisition is most able to be developed." "I believe that the critical period occurs prior to age 7."*
> *"From infancy to 5th/6th grade, students usually are able to absorb more information."*
> *"The younger the person, the faster they learn a new language."*
> *"Children learn best when they are younger and their brains are more adaptable, especially for the acquisition of languages."*
> *"Children learn a second language better at a young age."*
> *"There are strategies that overlap. Adults can have a deeper understanding of language functions in general, which children may find it easier to imitate accents and acquire language with peers."*

4.2.2. Children vs. Adults

Although Q5 (importance of understanding the critical period) and Q6R (children and adults not learning in the same way) showed a positive Spearman correlation, the relationship was not statistically significant for either the combined sample or any individual subgroup (see Table 7). Nevertheless, participants across all four groups consistently expressed the belief that children and adults differ in the way they acquire and learn additional languages. These differences were commonly attributed to developmental factors, prior linguistic knowledge, cognitive flexibility, and the extent to which learners rely on their first language.

For the B–2 group, participants frequently described children as acquiring language naturally through immersion, interaction, and exposure, whereas adults were viewed as relying more on conscious learning, literacy skills, prior linguistic knowledge, and translation. Many respondents associated children's language learning advantage with greater cognitive flexibility and developmental readiness:

> *"I'm not sure but I think the critical period is when a child is under five. They acquire a language by being immersed in that particular language environment. However, after the age of five they have to actively learn it."*
> *"Adult ELLs have much stronger foundations in their native languages and use translations a lot. They typically are literate and rely on printed words for language learning. Young children learn a lot of new languages by exposure and daily interactions, not so much from print and translations."*
> *"Language Learners have already fully developed language in their primary language, making it more challenging for them to pick up and learn another language. A child ELL is still developing language, and therefore, is still in the process of learning the language and rules, making their minds more flexible for learning a second language."*

At the same time, some respondents recognized strengths associated with adult learners:

> *"Adults have better motivation and organization skills. They are more goal oriented. Children lack persistence and might feel discouraged."*

For the Grades 1–6 group, participants generally agreed that children learn languages more easily than adults because their brains are more adaptable and receptive to new information. However, this group also expressed a broader range of opinions regarding the similarities and differences between child and adult language learners. Some participants emphasized age-related advantages for children, while others highlighted the role of prior knowledge and metalinguistic awareness in adult learning:

> *"Adults learn conversation languages, and children learn vocabulary. Adults take longer to acquire the language although the strategies used would be similar and if not the same."*
> *"The children can learn in fun and silly ways, whereas adults learn in more structured and boring ways, perhaps*

> *watching TV or just having a conversation."*
> *"If ELL children are too old to learn English with ease, then they need to learn the rules of English and have a lot of practice reading, writing, and speaking English in order to become fluent in English."*

Some respondents questioned whether substantial differences exist:

> *"The strategies are the same to teach both groups."*
> *"I think this because knowledge can be taught to any ages."*
> *"I'm not really sure what the difference between the two is."*

These responses suggest that while many participants recognized developmental differences, some uncertainty remained regarding how age influences language acquisition and instructional decision-making.

Among Grades 7–12 participants, responses reflected a similar pattern. Many believed that children acquire languages more quickly and intuitively, while adults benefit from greater cognitive maturity but often face challenges due to established language patterns and increased reliance on their first language:

> *"Adults will learn slower, for it is not easy to learn new language structure and code switching."*
> *"Children ELLs will be able to grasp a language faster than an adult can."*
> *"There are strategies that overlap. Adults can have a deeper understanding of language functions in general, which children may find it easier to imitate accents and acquire language with peers."*

Several respondents also emphasized individual differences:

> *"Every individual has different strengths & weaknesses, so they learn at a different pace."*
> *"The amount of schooling matters for adults. The more they are likely to read and write in their native language, the better they can acquire a second language. Younger ELLs will have more time to learn a language; however, they do not have a lot of academic experience."*

Others acknowledged limited familiarity with the topic:

> *"I do not have enough information to judge how children learn compared to adults."*

For the TESOL-Literacy group, participants demonstrated the strongest emphasis on age-related differences in language learning. Children were frequently described as learning more naturally, whereas adults were viewed as relying more heavily on prior linguistic knowledge, conscious analysis, and first-language transfer:

> *"I think younger children learn faster because they know less things in their native language as well. Once they are older, they try to relate everything to their L1 and it becomes harder."*
> *"Adults always try to translate from their L1 and this becomes difficult. Children learn faster because they do not usually translate like adults."*
> *"Adults have complete knowledge of their L1 that they can then transfer knowledge and information through to their L2. Children don't have a strong grasp of their L1 yet and haven't learned all the grammatical and syntactical aspects to their L1."*
> *"I think children learn a lot faster and they don't have as much language in their first language, so it is less translations from beginning."*

However, several participants also emphasized overlap between age groups:

> *"Adult and children ELLs can learn English the same way. Once they have visuals and communicate in the L2, they'll acquire the language."*
> *"Because we use same strategies to get the ELLs to learn and acquire a second language, without looking at the difference of age."*
> *"There are strategies that overlap. Adults can have a deeper understanding of language functions in general, which children may find it easier to imitate accents and acquire language with peers."*

Overall, participants across all four groups generally believed that children and adults do not learn additional languages in exactly the same way. Children were commonly associated with more natural, experience-based, and implicit learning processes, whereas adults were associated with greater reliance on conscious learning, prior linguistic knowledge, translation, and metalinguistic awareness. At the same time, a minority of participants emphasized similarities across age groups and argued that effective instructional strategies could support language learning regardless of age. These findings are broadly consistent with research suggesting that both children and adults are capable of successful language learning but often utilize

different cognitive and linguistic resources during the process.

4.2.3. Learning Strategies and Translation

The Spearman correlation showed a significant negative relationship (r_s = -.248, p < .001) between belief in the critical period and opposition to translation for younger English Language Learners (ELLs) in the combined sample. A similar pattern was observed in the B–2 group (r_s = -.313, p = .005) (see Table 9). Despite generally believing that children and adults learn languages differently, most participants across all four groups viewed translation and first-language (L1) support as beneficial instructional tools for ELLs. This finding contrasts with research suggesting that younger learners often benefit from naturalistic exposure, interaction, and unconscious language acquisition processes more than from translation-based approaches.

Across the four groups, participants frequently described translation, visual supports, prior linguistic knowledge, and L1 resources as useful scaffolds for facilitating comprehension and communication. Several participants specifically associated translation with adult learners, who were perceived to rely more heavily on their first language during language learning. For example, a participant in the B–2 group stated:

> *"Adult ELLs have much stronger foundations in their native languages and use translations a lot. They typically are literate and rely on printed words for language learning. Young children learn a lot of new languages by exposure and daily interactions, not so much from print and translations."*

Similarly, participants in the TESOL-Literacy group frequently described translation as a strategy used by adult learners:

> *"Adults always try to translate from their L1 and this becomes difficult. Children learn faster because they do not usually translate like adults."*

Another participant explained:

> *"Adults have complete knowledge of their L1 that they can then transfer knowledge and information through to their L2. Children don't have a strong grasp of their L1 yet and haven't learned all of the grammatical and syntactical aspects to their L1."*

Some TESOL-Literacy participants also emphasized that instructional strategies can be effective across age groups when sufficient support is provided:

> *"Adult and children ELLs can learn English the same way. Once they have visuals and communicate in the L2, they'll acquire the language."*

These responses suggest that participants generally viewed translation and L1 support as instructional scaffolds that facilitate immediate comprehension and participation in classroom learning. At the same time, many participants also recognized differences between child and adult language learners, particularly regarding the extent to which learners rely on their first language during the acquisition process. Overall, participants across all four groups expressed favorable views toward translation and L1 support despite their simultaneous belief in the critical period and age-related differences in language learning. These findings suggest that many educators may distinguish between short-term instructional supports and long-term language-development goals. Further research is needed to examine how teachers balance translation, L1 support, and naturalistic English-language exposure in ways that promote both immediate access to instruction and long-term English proficiency.

4.2.4. Learning Settings

Most participants (67.1%) believed that inclusive educational settings could best support ELLs' language learning: 69.6% for B-2, 65.2% for Grades 1-6, 70.5% for Grades 7-12, and 60% for TESOL-Literacy (see Table 14). Spearman correlation results showed no significant relationship between belief in the critical period and preference for inclusive educational settings (see Table 15). Although participants generally supported inclusive environments for language learning, their views were not strongly associated with their beliefs about the critical period.

Qualitative responses across all four groups suggested that participants viewed effective language learning settings as environments that provide meaningful opportunities for interaction, communication, exposure to English, and instructional support. Although the survey item focused specifically on general/inclusive educational settings, participants often explained effective language learning in terms of immersion, language-rich environments, peer interaction, and access to supportive teachers and instructional resources.

For the B–2 group, participants frequently emphasized the importance of natural exposure and everyday opportunities to use language in meaningful contexts. Effective language learning was often associated with environments that encourage authentic communication and interaction.

> *"Early childhood, home and early school environments."*
> *"Natural exposure, immersion, informal interaction."*

These responses suggest that participants viewed language learning as being facilitated by settings that provide continuous opportunities for meaningful engagement with language.

For the Grades 1–6 group, participants emphasized the importance of supportive and language-rich classroom environments. Many respondents highlighted the role of teachers in creating opportunities for communication and providing instructional supports that facilitate language development.

> *"Kindergarten and early elementary classrooms."*
> *"Teacher-guided, structured, language-rich learning environments."*
> *"If they are surrounded by the language they are learning and have teachers who really work hard to find new and useful strategies it makes all the difference."*

These responses suggest that participants viewed effective language learning as occurring in classrooms where students receive both linguistic exposure and intentional instructional support.

Among Grades 7–12 participants, responses emphasized interaction, communication, and sustained exposure to English. Participants frequently described effective language learning as occurring in environments that allow learners to actively participate in social and academic communication, providing opportunities to practice language with others in meaningful contexts.

> *"There are strategies that overlap. Adults can have a deeper understanding of language functions in general, which children may find it easier to imitate accents and acquire language with peers."*

For the TESOL-Literacy group, participants generally emphasized supportive and flexible learning environments that encourage communication and engagement in English. Several respondents suggested that language learning is most successful when learners are provided with opportunities to interact, communicate, and access instructional supports.

> *"Supportive and flexible."*
> *"Adult and children ELLs can learn English the same way. Once they have visuals and communicate in the L2, they'll acquire the language."*

These responses indicate that participants viewed communication, visual supports, and active use of English as important features of effective language-learning environments.

Overall, participants across all four groups generally believed that ELLs benefit from settings that promote immersion, communication, interaction, and instructional support. While the participants endorsed general/inclusive education settings as beneficial for language learning, their explanations focused less on physical placement and more on the opportunities for language exposure, peer interaction, and meaningful communication available within those environments. These findings suggest that participants valued inclusive settings because they provide access to both academic learning and authentic language experiences.

5. Conclusion and Significance

First, based on the results of the study, most participants (77.9%) had not taken second language (SLA) courses at the undergraduate or graduate level. More than half of the participants (51%) also did not have second language learning experience. These findings were also observed across three subgroups (B-2, Grades 1-6, and Grades 7-12). In contrast, most participants in the TESOL-Literacy group had taken SLA coursework and reported second-language learning experience. However, most participants (76.1%) self-reported that they understood SLA. For the TESOL-Literacy group, the self-report was even higher (96.7%).

Second, most participants (82%) believed that understanding the concept of critical period was important. This finding also applies to each of the three groups. TESOL-Literacy has a high percentage of 96.7%. Spearman correlation revealed a small but statistically significant positive association between participants' self-reported knowledge of second language acquisition and their belief in the importance of understanding the critical period ($r_s = .152$, $p < .05$). Although the effect size was small, the finding suggests that participants who reported

greater knowledge of SLA were somewhat more likely to view understanding the critical period as important. A positive association between the two variables was also observed within each subgroup despite no statistical significance being found for each subgroup except for the TESO-Literacy group which has reached the borderline (rs = .352, p > .056) suggesting TESOL-Literacy showing a stronger effect than the others.

Third, there was a positive Spearman correlation between the belief in the importance of understanding the critical period and children and adults not learning in the same way. Although no statistical significance was found for the combined sample and each subgroup, this finding was congruent with literature and research.

Fourth, most participants (70%) in this study found translation helpful for younger ELLs. Of the four subgroups, the Grades 7-12 group had the lowest percentage (54.5%), while TESOL-Literacy had the highest percentage (83.3%). Spearman correlation indicated a significant negative relationship (r_s = -.248, p < .001) between belief in the importance of understanding the critical period and not using translation as instruction for younger ELLs in the combined sample. This finding also held for the B-2 group (r_s = -.,313, p < .005). This suggested that both the combined groups and B-2 believed in the importance of understanding the critical period while also supporting the use of translation to facilitate ELLs' language learning. These findings appear inconsistent with theoretical perspectives on conscious and unconscious learning associated with the critical period. Qualitative findings indicated considerable variation in participants' beliefs about the age range associated with the critical period across groups, particularly within the B-2 group. This variation, together with differences in participants' knowledge and experience working with ELLs, may help explain the observed support for translation despite widespread endorsement of the critical-period concept.

Fifth, most participants recognized that learning or understanding an ELL's L1 (75.6%) and culture (90.5%) can facilitate ELLs' language learning. Although Spearman correlation indicates a positive but non-significant relationship between understanding the critical period and learning L1 for the combined sample and the three subgroups (Grades 1-6, Grades 7-12, and TESOL-Literacy). The B-2 group has reached a statistical significance (r_s = .284, p < .01). The results align with literature and research but may be due to chance, except for the finding in B-2. In addition, Spearman correlation reveals a strong positive association with statistical significance (r_s = .145, p < .05) between belief in the importance of understanding a critical period and learning an ELL's culture for the combined sample and for the B-2 group (r_s =.219, p < .05). The results are congruent with literature but may be due to chance for the three subgroups (Grades 1-6. Grades 7-12, and TESOL-Literacy).

Last, most participants (67.1%) believed that an inclusive education setting could best support ELLs in language learning. Of all the four subgroups, the Grades 7-12 group has the highest percentage (70.5%), whereas TESOL-Literacy has the lowest percentage (60%). The results are consistent with literature but the participants' views for the combined sample and each subgroup may be due to chance since Spearman correlation indicates a positive with no significance between belief in understanding critical period and inclusion.

6. Pedagogical Implementation

The study's findings strengthen our understanding and carry significant implications. First, most participants have not received any training in second language acquisition or a second language learning experience; however, they considered that they understood how second language acquisition or learning works, particularly the TESOL-Literacy group. In addition, most participants particularly the TESOL-Literacy believed that there is a critical period in the process of language acquisition because the younger one is, the easier it is to acquire a new language. It is congruent with research and literature.

Second, most participants believed that children and adults do not learn in the same way. Although it did not reach statistical significance for the combined group and each subgroup, the belief is congruent with research and literature.

Third, participants also believed that translation benefits ELLs' language learning, a belief that reached statistical significance for the combined group and the B-2 group. However, this finding contrasts with research on conscious and unconscious learning in relation to the critical period. A clear understanding of the critical period, conscious and unconscious learning, and the age ranges associated with language development can help teachers determine when, where, and how to use appropriate instructional strategies for individual learners while considering both short- and long-term learning outcomes, including ultimate language attainment. The qualitative findings showed wide variation in participants' views of the critical-period age range, especially within the B-2 group, along with unspecified age ranges and limited knowledge or experience working with ELLs. These patterns suggest uncertainty that may influence instructional practices, including the use of

translation.

Fourth, regarding whether learning an ELL's L1 and culture facilitates language learning, positive associations were found. For learning an ELL's L1, the combined group and all subgroups except B-2 did not reach statistical significance. For learning an ELL's culture, both the combined group and the B-2 group reached statistical significance. Overall, B-2 was the only subgroup in which both learning an ELL's L1 and understanding an ELL's culture were statistically significant factors in supporting ELLs' language learning.

Finally, most participants believed that inclusive educational settings best support ELLs' language learning. However, the results showed a positive but non-significant relationship between participants' belief in understanding the critical period and their support for inclusion. From the perspective of critical-period theory, language learning is most effective when it occurs within the critical-period window through spontaneous interaction in natural environments. Overall, the findings did not indicate that participants had a strong understanding of the critical-period concept or how to apply it effectively to support language development.

7. Limitations of the Study

This study has five principal limitations. First, because the purpose of this study was to examine teachers' beliefs about the critical period and their perceptions of effective instructional practices for ELLs, the findings are based on participants' self-reported survey responses. This design is appropriate for investigating teachers' beliefs, understandings, and reported instructional preferences; however, self-reported data may still be influenced by response bias, social desirability, or inaccurate self-assessment. Therefore, the findings should be interpreted as evidence of what participants believed, understood, and reported as appropriate practice rather than as direct evidence of actual classroom implementation.

Second, the sample was drawn from one Graduate School of Education in New York, and participation was voluntary. Although this institutional context limits the extent to which the findings can be generalized, the sample included both current students and alumni, many of whom may have been practicing in school settings beyond the university at the time of data collection. Thus, the study reflects perspectives associated with one teacher education institution while also capturing views from graduates who may have been working across varied educational contexts. Nevertheless, because more than 6,000 current students and alumni were invited and only 222 complete responses were retained for the final analyses, the participants who completed the survey may differ from those who did not respond or who were excluded because of incomplete data. These factors limit the generalizability of the findings to teacher candidates, in-service teachers, and teacher education programs in other institutional, geographic, or policy contexts.

Third, subgroup sizes were uneven across the four certification groups. The TESOL-Literacy group was smaller than the B–2, Grades 1–6, and Grades 7–12 groups, which may have reduced statistical power and limited the stability of subgroup comparisons. In addition, several subgroup correlations did not reach statistical significance. These findings should therefore be interpreted cautiously, especially when comparing differences among groups or drawing conclusions about the strength of relationships within a single subgroup.

Fourth, the study used a cross-sectional and correlational design. The results identify associations among teachers' reported knowledge, beliefs about the critical period, and instructional preferences, but they cannot establish causal relationships. For example, the study cannot determine whether belief in the critical period leads teachers to choose particular instructional strategies, whether prior coursework shapes those beliefs, or whether other factors, such as teaching experience or prior contact with ELLs, influence both beliefs and instructional preferences.

Fifth, the survey instrument relied primarily on a limited number of items, including several single-item measures. Although single-item measures can be appropriate for concrete and clearly defined constructs, they may not fully capture the complexity of teachers' understanding of second language acquisition, the critical period, translation, translanguaging, L1 use, culture, and inclusive education. In addition, the qualitative data were collected through open-ended survey responses rather than interviews. Because IRB restrictions precluded follow-up interviews, the study could not probe participants' reasoning, clarify ambiguous responses, or examine contradictions between their stated beliefs and instructional choices in greater depth.

8. Further Studies

Future research should extend the present study by examining translanguaging as a related but distinct

area of inquiry. Although translanguaging was discussed in the literature review, it was not directly measured as a survey variable in this study. Instead, the survey focused on teachers' beliefs about the critical period, translation, learning an ELL's first language (L1), learning an ELL's culture, and inclusive educational settings. Because translation and translanguaging are conceptually related in that both involve the use of learners' linguistic resources to support meaning-making and language learning, future studies should investigate teachers' beliefs about translanguaging more directly.

Future studies could examine whether teachers distinguish among translation, L1 support, and translanguaging, and whether they understand translanguaging as a temporary scaffold, a communicative practice, or a long-term pedagogical approach. Such research would be useful because the present study found strong support for translation and for learning an ELL's L1, but it cannot determine whether teachers would hold similar beliefs about translanguaging or how they would apply translanguaging in classroom instruction.

Future research should also investigate how teachers' views of translanguaging relate to their beliefs about age, the critical period, and differences between child and adult language learning. In particular, researchers might examine whether teachers believe translanguaging has different effects for younger and older ELLs and whether they consider both short-term benefits, such as comprehension, participation, and affective support, and long-term outcomes, such as grammatical accuracy, syntactic development, academic English proficiency, and ultimate language attainment.

Longitudinal, classroom-based, and qualitative studies would be especially valuable. Longitudinal studies could examine how different uses of translation, L1 support, and translanguaging influence learners' English development over time. Classroom observations and semi-structured interviews could also provide deeper insight into how teachers understand and implement these practices, how learners respond to them, and how teachers balance immediate meaning-making with the development of accurate and formal English.

This line of inquiry may help teacher education programs better prepare educators to make informed decisions about when, how, and for whom translation, L1 support, and translanguaging are most beneficial. It may also clarify how teachers can use learners' linguistic resources in ways that support comprehension, identity affirmation, and participation while still promoting long-term English language development, syntactic accuracy, and academic proficiency.

Dr. Shu Jen Chen-Worley earned her Ph.D. in Applied Behavior Studies in Special Education from Oklahoma State University (OSU) and her Master's degree in Teaching English as a Second Language from Arizona State University (ASU). Her research interests have been focused on intersectionality and literacy particularly on investigating teachers' perceptions and education practices by conducting survey research with Mixed Methods. She is an author for multiple publications and is currently teaching at Graduate School of Education in Touro University in New York. Email: s20research17@gmail.com

References

Acton, W. (1984). Changing fossilized pronunciation. *TESOL Quarterly, 18*(1), 71–85. https://doi.org/10.2307/3586336

Akan, E., Özdemir Cihan, M., Kurşun, E., Yıldız, M., & Aydemir Arslan, M. (2024). The whole language method or phonics instruction as a method of teaching literacy: A systematic review. *Journal of Qualitative Research in Education,* (37), 247–280. https://doi.org/10.14689/enad.37.1720

Amiryousefi, M. (2015). Iranian EFL teachers and learners' beliefs about vocabulary learning and teaching. *International Journal of Research Studies in Language Learning, 4*(4), 29–40. https://doi.org/10.5861/ijrsll.2015.1016

Baker, C. (2001). *Foundations of bilingual education and bilingualism* (3rd ed.). Multilingual Matters.

Bear, M. F., Connors, B. W., & Paradiso, M. A. (2007). *Neuroscience: Exploring the brain* (3rd ed.). Lippincott Williams & Wilkins.

Berger, S., & Batterink, L. J. (2024). Children extract a new linguistic rule more quickly than adults. *Developmental Science, 27*(4), Article e13498. https://doi.org/10.1111/desc.13498

Bergkvist, L. (2015). Appropriate use of single-item measures is here to stay. *Marketing Letters, 26*(3), 245–255. https://doi.org/10.1007/s11002-014-9325-y

Birdsong, D. (2018). Plasticity, variability and age in second language acquisition and bilingualism. *Frontiers in Psychology, 9*, Article 81. https://doi.org/10.3389/fpsyg.2018.00081

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. Sage.

Brooks, N. (1964). *Language and language learning: Theory and practice* (2nd ed.). Harcourt, Brace & World.

Brown, H. D. (1980). The optimal distance model of second language acquisition. *TESOL Quarterly, 14*(2), 157–164. https://doi.org/10.2307/3586310
Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics, 1*(1), 1–47. https://doi.org/10.1093/applin/I.1.1
Castles, A., Rastle, K., & Nation, K. (2018). Ending the reading wars: Reading acquisition from novice to expert. *Psychological Science in the Public Interest, 19*(1), 5–51. https://doi.org/10.1177/1529100618772271
Chen, S. J. (2015). *Educating inclusively: Assessments and instructional strategies*. Kendall/Hunt.
Chen, T., & Hartshorne, J. K. (2021). More evidence from over 1.1 million subjects that the critical period for syntax closes in late adolescence. *Cognition, 214*, Article 104706. https://doi.org/10.1016/j.cognition.2021.104706
Chen-Worley, S. J. (2024a). Teachers' beliefs in critical period and language instructional practices. *Journal of Language Teaching, 4*(4), 1–12. https://doi.org/10.54475/jlt.2024.021
Chen-Worley, S. J. (2024b). Using game-based learning activities to promote foundational literacy skills, inclusion, and equity. *US-China Education Review A, 14*(6), 384–389. https://doi.org/10.17265/2161-623X/2024.06.006
Crain, W. (2005). *Theories of development: Concepts and applications* (5th ed.). Pearson.
Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: A predictive validity perspective. *Journal of the Academy of Marketing Science, 40*(3), 434–449. https://doi.org/10.1007/s11747-011-0300-3
Freeman, D. E., & Freeman, Y. S. (2014). *Essential linguistics* (2nd ed.). Heinemann.
Ginns, P., & Barrie, S. (2004). Reliability of single-item ratings of quality in higher education: A replication. *Psychological Reports, 95*, 1023–1030.
Goodman, K. S. (2006). *What's whole in whole language?* RDR Books.
Gurunandan, K., Arnaez-Telleria, J., Carreiras, M., & Paz-Alonso, P. M. (2020). Converging evidence for differential specialization and plasticity of language systems. *Journal of Neuroscience, 40*(50), 9715–9724. https://doi.org/10.1523/JNEUROSCI.0851-20.2020
Hakuta, K., Butler, Y. G., & Witt, D. (2000). *How long does it take English learners to attain proficiency?* (ED443275). ERIC. https://files.eric.ed.gov/fulltext/ED443275.pdf
Hall, C., Dahl-Leonard, K., Cho, E., Solari, E. J., Capin, P., Conner, C. L., Henry, A. R., Cook, L., Hayes, L., Vargas, I., Richmond, C. L., & Kehoe, K. F. (2023). Forty years of reading intervention research for elementary students with or at risk for dyslexia: A systematic review and meta-analysis. *Reading Research Quarterly, 58*(2), 285–312. https://doi.org/10.1002/rrq.477
Hartshorne, J. K. (2022). When do children lose the language instinct? A critical review of the critical periods literature. *Annual Review of Linguistics, 8*, 143–151. https://doi.org/10.1146/annurev-linguistics-032521-053234
Hartshorne, J. K. (2024). No evidence that age affects different bilingual learner groups differently: Rebuttal to van der Slik, Schepens, Bongaerts, and van Hout (2021). *Language Development Research, 4*(1), 431–454. https://doi.org/10.34842/y8sz-4q83
Hartshorne, J. K., Tenenbaum, J. B., & Pinker, S. (2018). A critical period for second-language acquisition: Evidence from 2/3 million English speakers. *Cognition, 177*, 263–277. https://doi.org/10.1016/j.cognition.2018.04.007
Khader, F. R. (2012). Teachers' pedagogical beliefs and actual classroom practices in social studies instruction. *American International Journal of Contemporary Research, 2*(1), 73–92.
Krashen, S. (1982). *Principles and practice in second language acquisition*. Pergamon.
Krashen, S. (1988). *Second language acquisition and second language learning*. Prentice-Hall.
Kuldas, S., Ismail, H. N., Hashim, S., & Bakar, Z. A. (2013). Unconscious learning processes: Mental integration of verbal and pictorial instructional materials. *SpringerPlus, 2*, Article 105. https://doi.org/10.1186/2193-1801-2-105
Larsen-Freeman, D. (1997). Chaos/complexity theory and second language acquisition. *Applied Linguistics, 18*, 141–165.
Leahy, M. A., & Fitzpatrick, N. M. (2017). Early reads and academic success. *Journal of Educational and Developmental Psychology, 7*(2), 87–95. https://doi.org/10.5539/jedp.v7n2p87
Lee, J., Grigg, W., & Donahue, P. (2007). *The nation's report card: Reading 2007* (NCES 2007–496). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. https://nces.ed.gov/nationsreportcard/pdf/main2007/2007496.pdf
Lenneberg, E. H. (1967). *Biological foundations of language*. Wiley.
Li, W. (2018). Translanguaging as a practical theory of language. *Applied Linguistics, 39*(1), 9–30.
Lichtman, K. (2016). Age and learning environment: Are children implicit second language learners? *Journal*

of Child Language, 43(3), 707–730. https://doi.org/10.1017/S0305000915000598
Long, M. (1990). Maturational constraints on language development. *Studies in Second Language Acquisition, 12*, 251–285. https://doi.org/10.1017/S0272263100009165
Nation, I. S. P., & Macalister, J. (2010). *Language curriculum design*. Routledge.
Otheguy, R., García, O., & Reid, W. (2015). Clarifying translanguaging and deconstructing named languages: A perspective from linguistics. *Applied Linguistics Review, 6*(3), 281–307.
Paradis, M. (2004). *A neurolinguistic theory of bilingualism*. John Benjamins. https://doi.org/10.1075/sibil.18
Pullen, P. C., & Cash, D. B. (2011). Reading. In J. M. Kauffman & D. P. Hallahan (Eds.), *Handbook of special education* (pp. 409–421). Routledge.
Rehfeld, D. M., Kirkpatrick, M., O'Guinn, N., & Renbarger, R. (2022). A meta-analysis of phonemic awareness instruction provided to children suspected of having a reading disability. *Language, Speech, and Hearing Services in Schools, 53*(4), 1177–1201. https://doi.org/10.1044/2022_LSHSS-21-00160
Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching* (2nd ed.). Cambridge University Press.
Richards, J. C., & Rodgers, T. S. (2014). *Approaches and methods in language teaching* (3rd ed.). Cambridge University Press.
Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia, 126*(5), 1763–1768. https://doi.org/10.1213/ANE.0000000000002864
Thor, S. (2008). Neuroscience: Light moulds plastic brains. *Nature, 456*(7219), 177–178. https://doi.org/10.1038/456177a
Ullman, M. T. (2001). The neural basis of lexicon and grammar in first and second language: The declarative/procedural model. *Bilingualism: Language and Cognition, 4*(2), 105–122. https://doi.org/10.1017/S1366728901000220

Conflict of Interest

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

Copyright © 2026 Chen-Worley. This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY). The use, distribution, or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution, or reproduction is permitted that does not comply with these terms.

JLT Journal of Language Teaching

Peer-reviewed | Open Access | Google Scholar | MLA | Crossref | DOI

Call for Papers

Submit via https://jlt.ac/

Areas of Interest:

Language teaching intervention and experiments; Curriculum development; Language teacher education; Bilingual education; New technologies in language teaching; Testing, assessment, and evaluation; Educational psychology, and more.

We accept the following types of submission:

1. Research article: (6,000 to 8,000 words)
2. Review: (3,000 to 8,000 words)
3. Book review: (up to 3,000 words)
4. Features: (3,000 to 8,000 words)

Scan to submit your articles* & read more articles for free.

*Article Processing Charges Apply.

Contact: editor@jlt.ac

Pioneer Publications

ISSN (Online) 2770-4602

Appendix

Table 1
Second Language Course Learning Experience

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Literacy	Total
Q1L2Cex	No	Count	69	62	34	8	173
		% within Groups	87.3%	89.9%	77.3%	26.7%	77.9%
	Yes	Count	10	7	10	22	49
		% within Groups	12.7%	10.1%	22.7%	73.3%	22.1%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100.0%

Table 2
Second Language Learning Experience

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Literacy	Total
Q2SLAlearning	No	Count	42	41	24	7	114
		% within Groups	53.2%	59.4%	54.5%	23.3%	51.4%
	Yes	Count	37	28	20	23	108
		% within Groups	46.8%	40.6%	45.5%	76.7%	48.6%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3
Knowledge of SLA

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Literacy	Total
Q4_L2_Kn	1	Count	3	1	1	0	5
		% within Groups	3.8%	1.4%	2.3%	0.0%	2.3%
	2	Count	4	5	3	0	12
		% within Groups	5.1%	7.2%	6.8%	0.0%	5.4%
	3	Count	10	15	9	2	36

		% within Groups	12.7%	21.7%	20.5%	6.7%	16.2%
	4	Count	37	39	26	20	122
		% within Groups	46.8%	56.5%	59.1%	66.7%	55.0%
	5	Count	25	9	5	8	47
		% within Groups	31.6%	13.0%	11.4%	26.7%	21.2%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4
Understanding Critical Period

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Literacy	Total
Q5_L2_Kn_Cr_im	1	Count	2	3	3	0	8
		% within Groups	2.5%	4.3%	6.8%	0.0%	3.6%
	2	Count	4	0	1	0	5
		% within Groups	5.1%	0.0%	2.3%	0.0%	2.3%
	3	Count	11	7	8	1	27
		% within Groups	13.9%	10.1%	18.2%	3.3%	12.2%
	4	Count	25	33	15	12	85
		% within Groups	31.6%	47.8%	34.1%	40.0%	38.3%
	5	Count	37	26	17	17	97
		% within Groups	46.8%	37.7%	38.6%	56.7%	43.7%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5
Knowledge of SLA and Understanding Critical Period

Groups			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
B-2	Interval by Interval	Pearson's R	.219	.157	1.968	.053[c]
	Ordinal by Ordinal	Spearman Correlation	.148	.126	1.316	.192[c]
	N of Valid Cases		79			
Grades 1-6	Interval by Interval	Pearson's R	.090	.148	.739	.463[c]
	Ordinal by Ordinal	Spearman Correlation	.009	.140	.072	.943[c]
	N of Valid Cases		69			
Grades 7-12	Interval by Interval	Pearson's R	.082	.185	.531	598[c]
	Ordinal by Ordinal	Spearman Correlation	.111	.159	.723	.474[c]
	N of Valid Cases		44			
TESOL-Literacy	Interval by Interval	Pearson's R	.416	.171	2.423	.022[c]
	Ordinal by Ordinal	Spearman Correlation	.352	.169	1.992	.056[c]
	N of Valid Cases		30			
Total	Interval by Interval	Pearson's R	.181	.090	2.736	.007[c]
	Ordinal by Ordinal	Spearman Correlation	.152	.074	2.284	.023[c]
	N of Valid Cases		222			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Table 6

Adult and Children Language Learning Differences

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Lit	Total
Q6_Kn_AC_6R	Strongly Agree	Count	1	2	1	3	7
		% within Groups	1.3%	2.9%	2.3%	10.0%	3.2%
	Agree	Count	12	9	4	2	27
		% within Groups	15.2%	13.0%	9.1%	6.7%	12.2%
	Not sure	Count	10	11	9	4	34
		% within Groups	12.7%	15.9%	20.5%	13.3%	15.3%
	Disagree	Count	28	25	20	10	83
		% within Groups	35.4%	36.2%	45.5%	33.3%	37.4%
	Strongly Disagree	Count	28	22	10	11	71
		% within Groups	35.4%	31.9%	22.7%	36.7%	32.0%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100%

Table 7

Understanding Critical Period and Adults & Children Language Learning Differences

Groups			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
B-2	Interval by Interval	Pearson's R	-.042	.086	-.368	.714[c]
	Ordinal by Ordinal	Spearman Correlation	.002	.104	.013	.990[c]
	N of Valid Cases		79			
Grades 1-6	Interval by Interval	Pearson's R	.041	.107	.336	.738[c]
	Ordinal by Ordinal	Spearman Correlation	.114	.124	.943	.349[c]
	N of Valid Cases		69			
Grades 7-12	Interval by Interval	Pearson's R	.073	.198	.477	.636[c]
	Ordinal by Ordinal	Spearman Correlation	.097	.176	.630	.532[c]
	N of Valid Cases		44			
TESOL-Lit	Interval by Interval	Pearson's R	.009	.162	.049	.961[c]
	Ordinal by Ordinal	Spearman Correlation	.031	.176	.163	.872[c]
	N of Valid Cases		30			
Total	Interval by Interval	Pearson's R	.013	.064	.197	.844[c]
	Ordinal by Ordinal	Spearman Correlation	.062	.067	.915	.361[c]
	N of Valid Cases		222			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Table 8
The Use of Translation

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Literacy	Total
Q7_Kn_Trans_10R	Strongly Agree	Count	26	23	14	9	72
		% within Groups	32.9%	33.3%	31.8%	30.0%	32.4%
	Agree	Count	32	27	10	16	85
		% within Groups	40.5%	39.1%	22.7%	53.3%	38.3%
	Not sure	Count	17	10	16	4	47
		% within Groups	21.5%	14.5%	36.4%	13.3%	21.2%
	Disagree	Count	4	8	3	1	16
		% within Groups	5.1%	11.6%	6.8%	3.3%	7.2%
	Strongly Disagree	Count	0	1	1	0	2
		% within Groups	0.0%	1.4%	2.3%	0.0%	0.9%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100%

Table 9
Understanding Critical Period and the Use of Translation

Groups			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
B-2	Interval by Interval	Pearson's R	-.260	.125	-2.358	.021[c]
	Ordinal by Ordinal	Spearman Correlation	-.313	.110	-2.893	.005[c]
	N of Valid Cases		79			
Grades 1-6	Interval by Interval	Pearson's R	-.196	.107	-1.638	.106[c]
	Ordinal by Ordinal	Spearman Correlation	-.197	.113	-1.642	.105[c]
	N of Valid Cases		69			
Grades 7-12	Interval by Interval	Pearson's R	-.221	.187	-1.471	.149[c]
	Ordinal by Ordinal	Spearman Correlation	-.199	.157	-1.316	195[c]
	N of Valid Cases		44			
TESOL-Literacy	Interval by Interval	Pearson's R	-.191	.194	-1.029	.312[c]
	Ordinal by Ordinal	Spearman Correlation	-.216	.183	-1.173	.251[c]
	N of Valid Cases		30			
Total	Interval by Interval	Pearson's R	-.235	.075	-3.578	<.001[c]
	Ordinal by Ordinal	Spearman Correlation	-.248	.066	-3.795	<.001[c]
	N of Valid Cases		222			

Table 10
The Use of L1

			Groups				
			1.00	2.00	3.00	4.00	Total
Q8_L2_Kn_In_ELL_L1	Missing	Count	2	1	0	1	4
		% within Groups	2.5%	1.4%	0.0%	3.3%	1.8%
	1 Strongly Disagree	Count	0	2	2	1	5
		% within Groups	0.0%	2.9%	4.5%	3.3%	2.3%
	2 Disagree	Count	6	4	3	4	17
		% within Groups	7.6%	5.8%	6.8%	13.3%	7.7%
	3 Not sure	Count	13	6	9	0	28
		% within Groups	16.5%	8.7%	20.5%	0.0%	12.6%
	4 Agree	Count	25	31	17	13	86
		% within Groups	31.6%	44.9%	38.6%	43.3%	38.7%
	5 Strongly Agree	Count	33	25	13	11	82
		% within Groups	41.8%	36.2%	29.5%	36.7%	36.9%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100%

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Table 11
Understanding Critical Period and the Use of L1

Groups			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
1.00	Interval by Interval	Pearson's R	.232	.103	2.095	.039[c]
	Ordinal by Ordinal	Spearman Correlation	.284	.111	2.601	.011[c]
	N of Valid Cases		79			
2.00	Interval by Interval	Pearson's R	-.118	.098	-.975	.333[c]
	Ordinal by Ordinal	Spearman Correlation	-.066	.125	-.539	.592[c]
	N of Valid Cases		69			
3.00	Interval by Interval	Pearson's R	-.101	.144	-.657	.515[c]
	Ordinal by Ordinal	Spearman Correlation	-.018	.167	-.117	.907[c]
	N of Valid Cases		44			
4.00	Interval by Interval	Pearson's R	.142	.198	.759	.454[c]
	Ordinal by Ordinal	Spearman Correlation	.215	.182	1.163	.255[c]
	N of Valid Cases		30			
Total	Interval by Interval	Pearson's R	.044	.066	.653	.515[c]
	Ordinal by Ordinal	Spearman Correlation	.124	.071	1.853	.065[c]
	N of Valid Cases		222			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Table 12
The Use of ELL's Culture

			Groups 1.00	2.00	3.00	4.00	Total
Q9_L2_Kn_In_ELL_Cul	Strongly Disagree	Count	2	1	1	0	4
		% within Groups	2.5%	1.4%	2.3%	0.0%	1.8%
	Disagree	Count	2	1	2	0	5
		% within Groups	2.5%	1.4%	4.5%	0.0%	2.3%
	Not Sure	Count	4	4	4	0	12
		% within Groups	5.1%	5.8%	9.1%	0.0%	5.4%
	Agree	Count	21	16	10	7	54
		% within Groups	26.6%	23.2%	22.7%	23.3%	24.3%
	Strongly Agree	Count	50	47	27	23	147
		% within Groups	63.3%	68.1%	61.4%	76.7%	66.2%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100%

Table 13
Understanding Critical and the Use of ELL's Culture

Groups			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
1.00	Interval by Interval	Pearson's R	.218	.106	1.955	.054[c]
	Ordinal by Ordinal	Spearman Correlation	.219	.109	1.971	.052[c]
	N of Valid Cases		79			
2.00	Interval by Interval	Pearson's R	-.070	.076	-.573	.569[c]
	Ordinal by Ordinal	Spearman Correlation	-.019	.110	-.157	.876[c]
	N of Valid Cases		69			
3.00	Interval by Interval	Pearson's R	.097	.144	.634	.530[c]
	Ordinal by Ordinal	Spearman Correlation	.117	.155	.766	.448[c]
	N of Valid Cases		44			
4.00	Interval by Interval	Pearson's R	.243	.170	1.327	.195[c]
	Ordinal by Ordinal	Spearman Correlation	.283	.172	1.561	.130[c]
	N of Valid Cases		30			
Total	Interval by Interval	Pearson's R	.125	.065	1.863	.064[c]
	Ordinal by Ordinal	Spearman Correlation	.145	.066	2.175	.031[c]
	N of Valid Cases		222			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Table 14
Inclusion for Language Learning

			Groups				
			B-2	Grades 1-6	Grades 7-12	TESOL-Literacy	Total
Q10_L2_Kn_Pl_Inclusion	1	Count	4	1	1	1	7
		% within Groups	5.1%	1.4%	2.3%	3.3%	3.2%
	2	Count	6	12	4	5	27
		% within Groups	7.6%	17.4%	9.1%	16.7%	12.2%
	3	Count	14	11	8	6	39
		% within Groups	17.7%	15.9%	18.2%	20.0%	17.6%
	4	Count	20	28	15	11	74
		% within Groups	25.3%	40.6%	34.1%	36.7%	33.3%
	5	Count	35	17	16	7	75
		% within Groups	44.3%	24.6%	36.4%	23.3%	33.8%
Total		Count	79	69	44	30	222
		% within Groups	100.0%	100.0%	100.0%	100.0%	100%

Table 15
Understanding Critical and Inclusion for Language Learning

Groups			Value	Asymptotic Standard Error[a]	Approximate T[b]	Approximate Significance
B-2	Interval by Interval	Pearson's R	.058	.120	.513	.609[c]
	Ordinal by Ordinal	Spearman Correlation	.149	.117	1.318	.191[c]
	N of Valid Cases		79			
Grades 1-6	Interval by Interval	Pearson's R	-.147	.110	-1.214	.229[c]
	Ordinal by Ordinal	Spearman Correlation	-.105	.125	-.864	.391[c]
	N of Valid Cases		69			
Grades 7-12	Interval by Interval	Pearson's R	-.022	.133	-.141	.889[c]
	Ordinal by Ordinal	Spearman Correlation	.081	.151	.529	.599[c]
	N of Valid Cases		44			
TESOL-	Interval by Interval	Pearson's R	.021	.165	.113	.911[c]

Literacy	Ordinal by Ordinal	Spearman Correlation	.053	.176	.281	.781[c]
	N of Valid Cases		30			
Total	Interval by Interval	Pearson's R	-.036	.066	-.533	.595[c]
	Ordinal by Ordinal	Spearman Correlation	.039	.069	.576	.565[c]
	N of Valid Cases		222			