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Language Scaffolding Strategies Based on Vygotsky's Zone of Proximal Development in Early Reading Education: A Cross-Cultural Comparison

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ABSTRACT

This study presents a comparative analysis of language scaffolding strategies based on Vygotsky's Zone of Proximal Development theory in early reading education across China, the United States, and the United Kingdom. Through systematic review of 78 studies published between 2014–2024, including 27 Chinese studies, 31 American studies, and 20 British studies, the research examines how scaffolding practices are implemented within each country's distinct cultural and educational context. The methodology employed multi-dimensional analytical framework encompassing theoretical conceptualization, pedagogical implementation, cultural-linguistic adaptation, and effectiveness assessment to ensure comprehensive cross-cultural comparison. The analysis reveals significant variations in scaffolding approaches: Chinese practices emphasize structured teacher guidance tailored to character acquisition and morphological awareness development, reflecting Confucian educational traditions and examination-oriented culture. American strategies prioritize evidence-based methods within multi-tiered support frameworks, incorporating technological integration and individualized assessment protocols. British approaches integrate systematic progression with teacher autonomy in diverse multicultural contexts, demonstrating sustained intervention effectiveness and culturally responsive implementation strategies. The findings demonstrate how educational policy structures, linguistic characteristics, teacher preparation models, and cultural values fundamentally shape scaffolding implementation patterns. Cross-cultural triangulation reveals both universal principles and context-specific adaptations in applying Vygotskian theory to early literacy instruction. The study concludes by proposing evidence-informed adaptations for Chinese early reading education that balance explicit instruction with student-centered approaches while preserving

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cultural strengths in structured progression and collective learning orientations, contributing to international understanding of culturally responsive scaffolding practices.

Keywords: Zone of Proximal Development; Scaffolding Strategies; Early Reading Education; Comparative Education; Cross-Cultural Analysis

1. 1. Introduction

To foster and ensure children's academic achievement, early reading education is pivotal as it lays the building blocks to developing critical literacy skills. Proficient reading opens the door to learning in many fields and is a key tool for participating in today's knowledge-driven society^[1]. Recognition of importance, however, is not the same as the pedagogical approaches of early reading instruction which differ greatly from culture to culture, and education system to education system, shaped by differing theories, cultures, and traditions. This variation can be useful for cross-cultural study and learning.

In recent educational research and practice, sociocultural approaches to developing literacy skills have gained attention during the last decade. Among these approaches, Vygotsky's social interaction theory of the zone of proximal development (ZPD) has become a focal point for many scholars looking into how children acquire reading skills through social interaction and guided assistance^[2]. The mediational perspective emphasises the social contextual aspects of Vygotsky's framework: through a mediating system, speakers and writers engage their audiences, helping them towards self-directed learning. Teachers, bearing responsibility for the students, intervene with supportive—temporary—guiding steps (scaffolding) calibrated to give learners successive portions of increasingly challenging activities^[3]. In reference to primary reading instruction, this particular perspective foregrounds the effectiveness of language scaffolding techniques which narrow the distance between the child's actual and potential literacy skills in a step-by-step process.

Language scaffolding strategies in early reading education includes instructional methods that aid children in learning how to decode words, comprehend text, and develop metacognitive processes^[4]. Support may include but is not limited to: modelling, providing contextual support, questioning, prompting, dividing complex tasks into sim-

pler parts, and shifting responsibility to the learner slowly. Although the rationale for these strategies is commonly accepted, their use in practice differs greatly among educational systems, influenced by culture, language, and system of education.

The early reading instruction of China, the United States, and the United Kingdom illustrates three distinct, distinctive systems in perspective and approach. These differences arise from each system's cultural background, educational ideology, and language^[5]. The Chinese educational system, deeply rooted in Confucian traditions, has always placed a strong emphasis on rote memorisation, repetitive practice, and teacher-centred lessons. This is different from the approach taken in the United States, which tends to be more progressive because of the focus on individualised instruction and student-centred learning. The United Kingdom poses a blend of the other two countries, sharing common approaches to education with the United States while devising unique methods of their own, most notable phonics instruction, balanced literacy, and other early reading education frameworks^[6].

The goal of this literature review is to investigate the implementation of Vygotsky's zone of proximal development theory in relation to language scaffolding techniques in early reading instruction in three different countries. This review aims to determine and analyse the most common language scaffolding strategies used in each context, examine the culturally, socially, and educationally unique factors that support or hinder their use, and formulate conclusions that could enhance early reading instruction across various cultures by manipulating elements that transcend sociocultural boundaries. Adopting this perspective will enable a contribution towards the understanding of how educational theories are implemented in various cultures with the hope of stimulating the exchange of useful knowledge between countries.

This review tackles three main questions. First, to

what degree has Vygotsky's zone of proximal development theory impacted the construction and enactment of language scaffolding techniques in teaching reading to young children? Second, is there a common approach to the implementation of these strategies in China, the United States and the United Kingdom, and if so, what are the differences? Third, what historical, cultural and educational reasons account for these similarities and differences, and what do they mean for teaching reading to young children?

This form of a comparative analysis seems especially relevant at this time because of the increasing globalisation of education research and practice, which has opened new possibilities for learning from other cultures and their adaptations. This review aims to enhance understanding of the culturally specific and universal frameworks associated with children's reading development by exploring the concept and implementation of language scaffolding strategies in various educational systems. Such understanding may lead to improved instructions for teaching reading to children in different educational systems, thereby enhancing literacy skills among young children everywhere.

2. Research Methods

2.1. Literature Search and Screening Strategy

This literature review used a systematic method to navigate through studies containing language scaffolding strategies in early reading education in China, the Americas, and the United Kingdom. Effort was made in formulating a search strategy which balanced both breadth and depth, concentrating on works explicitly pertaining to Vygotsky's zone of proximal development theory and its integration with language scaffolding techniques in early reading education ^[7].

As illustrated in **Table 1**, numerous academic databases were utilised, including ERIC, Scopus, the Web of Science, CNKI, and the British Education Index. To ensure relevancy and timeliness of the results, only peer-reviewed journals, book chapters, and conference papers from the past ten years were included in the search, spanning from 2014 to 2023. Some of the primary combinations used for the search included: "zone of proximal development," "ZPD," "Vygotsky," "scaffolding," "language scaffolding," "reading instruction," "literacy development," "early reading," "reading education," "China," "Chinese," "United States," "American," "United Kingdom," and "British" ^[8].

Table 1. Literature Search and Screening Strategy.

Literature Search and Screening Strategy	Details
Databases Searched	Education Resources Information Center (ERIC), Scopus, Web of Science, China National Knowledge Infrastructure (CNKI), British Education Index
Publication Types	Peer-reviewed journal articles, book chapters, conference proceedings
Time Period	2014–2024 (10 years)
Key Search Terms	"zone of proximal development," "ZPD," "Vygotsky," "scaffolding," "language scaffolding," "reading instruction," "literacy development," "early reading," "reading education," "China," "Chinese," "United States," "American," "United Kingdom," "British"
Initial Results	487 potential sources
First Screening	Title and abstract review to exclude irrelevant studies
After First Screening	173 studies
Inclusion Criteria	(a) explicit discussion of language scaffolding strategies (b) focus on early reading education (ages 4–8) (c) reference to Vygotsky's ZPD theory (d) empirical data or theoretical analysis specific to target countries
Final Selection	78 studies (27 from China, 31 from US, 20 from UK)
Quality Control	Two independent reviewers conducted screening Third reviewer consulted to resolve disagreements
Research Types Included	Qualitative and quantitative research including classroom observations, experimental interventions, case studies, and theoretical analyses

The search resulted in 487 potential sources which underwent a two-strain screening process. In the first stage, I reviewed the titles and abstracts to remove studies that did not involve language scaffolding in early reading contexts, did not invoke Vygotskian theory, or did not contain data from any of the three selected countries. This pool was reduced to 173 studies. In the second stage, full texts were assessed with these criteria: (a) discussion of language scaffolding strategies of relevance to the case; (b) focused on the empirical education of reading (4–8 years of age children); (c) mention of the Vygotskian notion of zone of proximal development; and (d) provision of data or a theoretical analysis pertaining to one or more of the three countries ^[9]. After this detailed screening, the authors selected 78 studies to be included in the review, which included 27 studies from China, 31 from the US, and 20 from the UK.

In order to guarantee dependability in the selection criteria, the screening was done by two independent reviewers, while a third reviewer was brought in to resolve disputes. The final set of studies incorporated both qualitative and quantitative research, which included observational studies of the classroom, experimental interventions, case studies, and theoretical analyses, offering a wide array of views and methods on the subject.

2.2. Analytical Framework and Comparative Methods

For the systematic mapping of the literature, this review used a multi-dimensional analytical framework specially created for strict cross-cultural comparison ^[10]. This framework utilised both deductive and inductive reasoning by starting from a predetermined literature-based category of analysis, and then permitting specific culturally relevant themes and patterns to emerge.

The comparative analysis was organised around four dimensions: theoretical conceptualisation, pedagogical implementation, cultural-linguistic adaptation, and effectiveness assessment. For each dimension, some indicators were defined in order to permit systematic analysis and cross-country comparison. The theoretical conceptualisation dimension analysed how the Vygotskian ZPD theory was understood and framed in scholarly work within each country. The pedagogical implementation dimension con-

centrated on the specific language scaffolding strategies in teaching. The cultural-linguistic adaptation dimension focused on the incorporation of culturally salient values and features to the scaffolding techniques. Lastly, the effectiveness assessment dimension examined the evaluation of language scaffolding and the outcomes reported ^[11].

To achieve appropriate analytical depth, a constant comparative method was used wherein coding and categorisation of the literature was conducted to extract themes from all three countries. This methodology allowed for the emergence of ethnocentric as well as cross-cultural aspects concerning the application of language scaffolding techniques. Furthermore, a situated interpretive approach was taken to analyse the impact of history, culture, and educational policy on the different expressions of Vygotskian theory in practice ^[12]. This perspective understood that educational theories and practices are not mere imports from one context to another; rather, they are redefined and reconstructed in interpretation within local cultural frameworks and institutional cubers.

The analysis also included triangulation from different kinds of studies—an empirical study, theoretical analysis, and policy papers—for the development of a coherent picture of language scaffolding in each country. Such diversity of methods enriched the biases that might be associated with any one form of research and enhanced the strength of the findings from the comparison.

Figure 1 illustrates the distribution of the 78 studies analyzed in this review across different methodological approaches. Of the 27 studies focusing on China, 16 (67%) were empirical investigations, 6 (23%) were theoretical analyses, and 4 (11%) were policy documents. For the United States, the 31 studies consisted of 19 (60%) empirical studies, 7 (23%) theoretical analyses, and 5 (17%) policy documents. The 20 studies from the United Kingdom comprised 12 (59%) empirical studies, 5 (24%) theoretical analyses, and 3 (18%) policy documents. This balanced representation across methodological approaches enabled triangulation of findings, with empirical studies providing observational evidence, theoretical analyses offering conceptual frameworks, and policy documents revealing institutional contexts within which scaffolding practices operate.

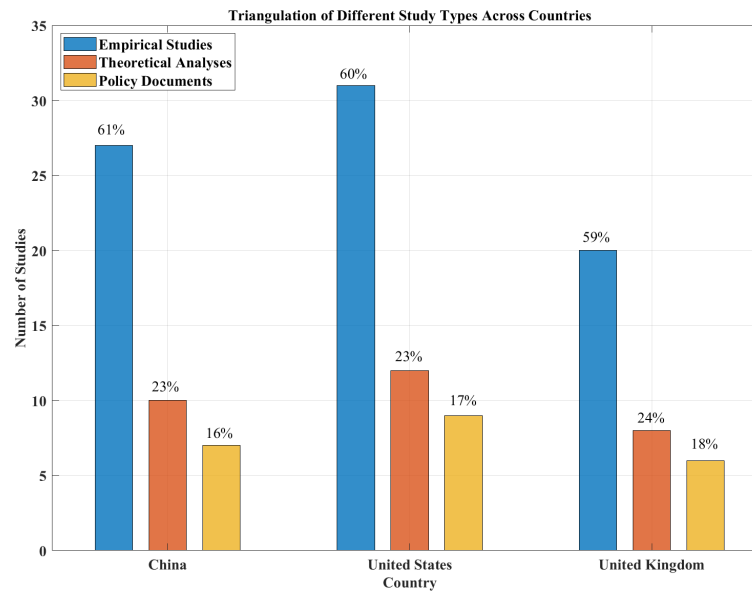


Figure 1. Distribution of Study Types Across Countries in the Literature Review.

3. Theoretical Framework: Vygotsky's Zone of Proximal Development and Language Scaffolding Strategies

3.1. Core Concepts of Zone of Proximal Development Theory

Vygotsky's Zone of Proximal Development (ZPD) theory remains among the first and most influential sociocultural attempts to explain the processes of cognitive development and learning. The ZPD is defined as the distance between a child's "actual developmental level as determined by independent problem solving" and the level of "potential development as determined through problem solving with the guidance of an adult or with more skillful peers" ^[13]. This conceptualisation fundamentally alters development within society and reframes our understanding to view development as social and relational, not individual.

The central components of ZPD theory focus on the interplay of learning and development. In contrast to learning theories of development which placed learning after development, Vygotsky maintained that "properly organised learning results in mental development and sets in motion a variety of developmental processes that would be impossible apart from learning" ^[14]. This understanding re-

gards social interaction and scaffolding as the chief drivers of the emergence of higher-order psychological processes.

Understanding the ZPD theory requires recognising the essential role mediation plays in transforming cognitive development. Vygotsky defines higher mental functions as internalised social activities mediated by cultural instruments, primarily language. "Mediation serves as a bridge between the external social world and the internal psychological space" ^[2]. In beginning reading instruction from the classroom perspective, mediation takes shape in the form of managed language interactions, which direct children towards mastering complicated literacy skills.

The ZPD concept also highlights the provisional and changeable character of forms of support within development. What at present a child can do with guidance becomes the future base for independent activities, driving cycles of development. Research indicates that appropriate scaffolding within the ZPD encourages what is termed a "recursive cycle of intellectual growth," wherein the balance of control gradually shifts from instructors to the students ^[15].

Another essential part of ZPD theory is its focus on the qualitative change in the mental functions which occurs along with internalisation. Social processes within the ZPD are internalised over time which results in "the transition from inter-mental functioning to intra-mental functioning" ^[16]. In the context of early reading, this is seen as children

advancing from participating in guided reading sessions to performing independent reading as adults help them to internalise comprehension and decoding skills.

The ZPD concept has far-reaching consequences for education related to reading development at an early age because it indicates that teaching must be tailored to each child's emerging abilities in real time, offering a level of challenge that allows success, while support is dialled back as skill mastery is achieved. This model of deep evaluation followed by tailored instruction opposes fixed models based on developmental stages and provides the theoretical basis for the Language Shifting model of scaffolding within reading instruction.

3.2. Theoretical Foundations of Language Scaffolding Strategies

Scaffolding strategies for language learning are based on Vygotsky's sociocultural theory of human development and are now part of a refined teaching model that specifically addresses the needs of beginning readers. While scaffolding was not a term used by Vygotsky, it was coined by Wood, Bruner, and Ross to explain how support is tailored in degrees to enable a novice to achieve goals that are beyond their developmental level^[17]. Scaffolding, ever since, has become known as the synonym of the operationalisation of the ZPD (zone of proximal development) in education.

In regard to language scaffolding strategy, the principles are defined by a number of factors, the premises are the most important. The first one is contingent responsiveness; support needs to be adaptive to the performance of the learner. Evidence in recent studies emphasises good scaffolding as "continuous evaluation of the learner's abilities and the selective provision of supports that close the gap between the child's independent capabilities and the capabilities achievable with guidance"^[18]. This form of dynamic adjustment is what sets scaffolding apart from other more rigid instruction frameworks.

Language scaffolding strategies rely on the intersubjectivity principle, that is the understanding each teacher and learner share. "Scaffolding requires that mutual cognitive and affective engagement be created that frames the activity within a shared perspective"^[19]. With regard to early reading skills, this takes the form of shared focus on

a text and the construction of meaning through speech.

The framework integrates the reserved graduated assistance concept which suggests that the aid offered is exactly tailored to the needs of the learner at a given time. There is recent evidence that effective scaffolding in early reading includes, "just enough support to enable learners to execute a task that they are unable to do without help," accompanied by the withdrawal of support as capability rises^[20]. This level of responsive adjustment in what is offered is essential to literacy instruction in the early years when children's reading abilities can rapidly advance with the right aid.

The Transfer of Responsibility indicates a gradual shift in cognitive responsibility from the teacher to the student. Contemporary research focuses on how the effectiveness of scaffolding is evaluated by, "the extent to which learners internalise the strategies initially modelled by adults and become capable of self-regulation in reading tasks"^[21]. This handover delineates the movement within the learner's ZPD and the overarching aim of instruction as scaffolding.

All these principles are bound together in the framework of integrating the language scaffolding techniques and Vygotsky's concept of ZPD in teaching reading to young children. In modern pedagogy, these principles help shape and structure the guided practices of scaffolding such as modelling or asking questions, prompting and contextualising, as well as terminologising complex literacy tasks into simpler ones which will be explored more in detail in the next chapters.

3.3. Application Principles in Early Reading Education

The implementation of Vygotsky's Zone of Proximal Development alongside scaffolding strategies for language in the context of teaching reading to young children is restrained by core instructional principles that shape best practice. These principles illustrate the execution of theoretical components through effective pedagogy designed to foster the acquisition of literacy skills.

The first principle is related to diagnostic assessment which delineates the exact pinpointing of in what ways a child is capable of reading and how far developmentally they are in terms of more sophisticated literacy skills. Ef-

fective scaffolding begins with understanding “where the child is performing within the Early Writing Framework”^[22]. As with any determination in literacy instruction, this diagnostic step includes observing children’s actions with reading and writing cinematographic texts. It also includes the interpretation of their reading and writing attempts alongside their ongoing assessments in relation to the literacy development milestones.

The second principle is calibrated challenge, which requires reading tasks to be placed at just the right level of difficulty; they should be difficult enough to foster growth but easy enough so that the student does not become frustrated. Recent studies have shown the usefulness of some technologies in education that use this particular principle by determining a student’s “reading sweet spot” and recommending materials within that range to promote literacy development^[23]. This approach allows for the pupils’ early reading instruction to always function within the child’s ZPD, affording meaningful engagement opportunities with text that build upon prior skills while reaching towards new ones.

The third principle is instructional contingency, which focuses on the teacher’s adjustment of literacy instruction based on the students’ reading level. A competently managed reading instruction is referred to as one in which “the support provided to students is flexible; it is scaled up when students encounter problems, and scaled down when competence is reached”^[24]. This responsiveness protects the precision with which supports are provided to the child in relation to their advancing capabilities to the demands of the skills they are learning to read.

Diverse forms of scaffolding which engage multiple cognitive and sensory pathways are referred to as multimodal support which is the fourth principle. New findings have emphasised the need for integrating visual aids, graphic organisers, and manipulatives, which enable students to grasp abstract concepts alongside literacy instruction, for example in the early years^[25]. This is especially important in early reading education when children are developing phonological awareness, print concepts, decoding skills, and comprehension strategies simultaneously.

The fifth principle is gradual release of responsibility which explains the deliberate shift of cognitive control to the learner by the teacher as the person’s reading skills sharpen. The effectiveness of scaffolding in the context of

adult learners is stated in the quote, “the extent to which learners internalise the strategies initially modelled by adults and... self-regulating in accomplishing reading tasks devoid of adult supervision”^[26]. Teachers are guided by this principle to systematically adjust their support as students become more independent in their reading strategies and skills.

These principles collectively form a comprehensive framework for implementing language scaffolding strategies in early reading education. By integrating diagnostic assessment, calibrated challenge, instructional contingency, multimodal support, and gradual release of responsibility, educators can effectively operationalize Vygotsky’s theoretical insights to support children’s journey from emergent to proficient reading capabilities.

4. Language Scaffolding Strategies in Chinese Early Reading Education

4.1. Current Status and Main Characteristics

The adoption of language scaffolding techniques in the context of early reading instruction in China has progressed in the last few years, showing common influences of Western educational theories along with distinctive features of the Chinese educational system. This development gives rise to language scaffolding and early reading education in China’s context and the distinctive features that describe its current landscape.

The application of language scaffolding techniques in early reading instruction in China differs widely within the same educational level. This mixed methods approach is exemplified by an extensive case study of a reading programme in China that demonstrated how international models were adapted into local scaffolded reading frameworks tailored to local educational paradigms^[27]. This process of adaptation demonstrates the attempts made in China to formulate culturally relevant scaffolding strategies rooted in the context-sensitive bounded educational traditions blended with contemporary strategies.

In Chinese reading education, language scaffolding practices pay greater attention to instructional frameworks. It is noted that the English reading teaching processes involving the implementation of scaffolding instruction

modes are congruent with systematic pedagogy as they purposefully and progressively navigate learners through well-structured processes and carefully crafted learning designs ^[28]. Such approaches ensure that there are literacy development pathways that teachers deliberately scaffold as literacy mediators who gradually reduce support. With instructional control, there is instructional rigidity and flexibility determined by context, context, and teacher professionalism.

As is being highlighted by Chinese educators, there is an active search for numerous diverse scaffolding strategies that improve reading comprehension. This is shown in dissertation work which found concept mapping to be an effective scaffolding strategy for teaching EFL reading comprehension to Chinese university students ^[29]. This is part of the expanding comprehensiveness and diversification of scaffolding approaches, such where visual organisational tools help readers piece together information from the text within logical cognitive frameworks designed for comprehension and retention.

The modern era of Chinese reading instruction integrates technology within scaffolding methodologies. Research pertaining to the application of teacher scaffolding techniques within mobile technology-enhanced collaborative English reading classes indicate broad improvements in learning outcomes, levels of participation, and attitude indices scores ^[30]. Such scaffolding is a culmination of China's strategic investment in developing the digital educational backbone. It affords new avenues for interactive and personalised scaffolded instruction beyond the constraints of traditional classrooms.

The application of language scaffolding techniques in the context of Chinese reading education is increasingly shaped by international didactic influences. Research traces the contextualisation within China's educational frame-

works regarding the degree to which teachers' scaffolding techniques in teaching English as a foreign language via the internet are configured ^[31]. This sharing of scaffolding strategies culture is indicative of the internationalising phenomenon in Chinese reading education wherein educators implement established diverse educational practices and systems alongside national curriculum frameworks.

All of these attributes construct the system of didactic scaffolding in early Chinese reading education illuminated by innovations and relative stagnation in addressing the literacy development of children in the Chinese educational system. In order to facilitate understanding beyond broad patterns, focus now shifts to empirical research which shows how these scaffolding strategies are enacted in particular Chinese educational contexts in ways that reveal both creativity and the relentless difficulties that arise in their classroom implementation.

4.2. Representative Studies and Practical Cases

The use of Vygotsky's ZPD language scaffolding strategies towards pedagogical practices in Chinese early reading education is backed by a multitude of empirical studies that focus on China's unique innovations and the particular problems encountered within the area.

As shown in **Table 2**, a mixed-method study on EFL teacher knowledge and practices in the Chinese kindergarten context reported fragmented implementation of scaffolding practices ^[32-36]. They discovered that Chinese teachers tend to possess a sound theoretical grasp of the principles of scaffolding; however, the implementation is dominated by older styles infused with contemporary scaffolding techniques over time. This study illustrates the enduring change of scaffolding practices in Chinese early education.

Table 2. Distinctive Features of Language Scaffolding Implementation in Chinese Early Reading Education ^[32-36].

Feature	Description	Research Evidence
Morphological Awareness Support	Scaffolding strategies targeting the unique morphological structures of Chinese characters	Findings on predictive factors for Chinese literacy development ^[34]
Technology-Enhanced Scaffolding	Integration of AI and digital tools to provide personalized, adaptive support for reading development	Comparative study of human-AI robot interaction versus traditional approaches ^[35]

Table 2. *Cont.*

Feature	Description	Research Evidence
Bilingual Scaffolding Frameworks	Specialized techniques supporting simultaneous development of Chinese and English literacy skills	Research on sustainable bilingual education approaches ^[36]
Cognitive-Linguistic Integration	Scaffolding approaches that simultaneously target linguistic knowledge and executive function development	Research on the relationship between vocabulary acquisition and cognitive processes ^[33]
Teacher Knowledge-Practice Gap	Discrepancy between theoretical understanding and practical implementation of scaffolding strategies	Mixed-method study of Chinese kindergarten teachers ^[32]

Expanding on these teacher implementation findings, an additional examination uncovers the pivotal relationship between social interaction, cognition, and language development within the framework of Chinese scaffolding. Studies show that language acquisition can benefit greatly from scaffolding that facilitates the development of executive functions. A thorough investigation into the processes involved in vocabulary acquisition in relation to the more global cognitive functions yields important ideas regarding the construction of integrated scaffolding strategies that enhance language and cognitive skills concurrently ^[33]. These findings will greatly contribute to the creation of appropriate developmentally Chinese early reading education scaffolding strategies where linguistic and cognitive aspects are integrated harmoniously.

A longitudinal study greatly illuminated the predictive factors determining literacy and reading skills in Chinese schoolchildren ^[34]. Their results highlighted the need for foresight in the development of scaffolding strategies that address the exceptionally difficult Chinese character learning pursuits, especially the development of morphological awareness and orthographic processing prerequisites for Chinese literacy. This study demonstrates the need for scaffolding approaches that account for features unique to Chinese orthography.

An original comparative study examined the effects of reading in the traditional paper format against reading via human-AI robot interaction. Findings indicated the remarkable efficacy of technology-embedded scaffolding for bilingual refinement on primary school pupils from China, particularly with individualised adaptive scaffolding tuned to retention patterns ^[35]. This study illustrates the capabilities of China in the attempt to incorporate technological tools into scaffolding paradigms to solve problems of bilingual literacy development in a rapidly changing society.

Sustained considerations within longitudinal bilingual education scaffold multilingual contexts and their technological multilayered implications. There is evidence to suggest that bilingual literacy development is more sus-

tainable when culture and language are integrated into the supporting structure ^[36]. These approaches that are culturally responsive are especially important for Chinese early reading pedagogy, as effective scaffolding involves not only linguistic complexity but also cultural significance concerning literacy development.

These representative studies illustrate the intricate relationship between customary Chinese education and modern scaffolding methods based on Vygotskian theory. The findings suggest that considerable advances have been made in adapting scaffolding within the context of Chinese education; however, there continue to be challenges in accomplishing these adaptations in culturally respectful ways that honour traditions alongside individual learning needs.

The direction of future study focus should address systematically how to integrate teacher knowledge and classroom application of scaffolding strategies while addressing the challenging context of Chinese character learning. Moreover, additional research into the integration of technologically enhanced scaffolding into traditional education frameworks would strengthen the body of knowledge on the evolving landscape of early reading instruction in China.

4.3. Cultural and Educational Traditions' Influence

The application of language scaffolding techniques in the context of Vygotsky's ZPD framework within Chinese early reading education is profoundly influenced by the distinctive cultural and educational traditions of China. These cultural factors provide a context that simultaneously aids and impedes the integration of Vygotskian concepts into Chinese teaching contexts.

The Confucian philosophy of education has been noted to profoundly influence the frames of refinement processes in Chinese early reading instruction. Research published within this year's spring session demonstrates that the class

relational patterns of some Chinese language classes are deeply regulated by Confucian verticalistic collectivism that emphasises social order and group harmony^[37]. Their empirical study showcased the enduring presence of traditional teacher domination alongside emerging complex interactive patterns designed to foster greater participation situated within the prevailing culture.

The examination aspect of Chinese education has an impact on the application of language scaffolding techniques. Research explored the understanding and perceptions of Chinese EFL teachers in reading instruction alongside educational culture, revealing that “curriculum requirements—like covering assigned material and the stifling exam culture—” show conflict between progressive scaffolding and traditional outcome-centred approaches^[38]. This culture often results in implementing frameworks where measurable results, like character reading and comprehension skill, are achieved while deep exploratory learning is absent.

The older Chinese educational traditions centred around the memorisation of texts and mastering specific characters continue to affect modern scaffolding practices. A systematic review of scaffolding methodology in different regions in China highlighted the unique construct overseas Chinese language learning strategists employ which illustrates the clash between cohesive literacy strategies characteristic of traditional pedagogy and modern language teaching scaffolding techniques^[39]. It was noted in their analysis that the successful scaffolding strategies in Chinese paradigms tend to incorporate orthodox character teaching with advanced scaffolding techniques.

Scaffolding in the context of early literacy is framed and executed within a Chinese society characterised by strong collectivism. Research on the scaffolding in self-directed learning of the Chinese language revealed that although language scaffolding materials facilitated the

development of various language skills, they were “less effective in promoting students’ online learning autonomy” during culturally contextualised learning where “students preferred teachers’ help”^[40]. This tendency is a reflection of the cultural instructional dependency entrenched within the culture, especially concerning important cultural knowledge.

Education in China, like in many countries, faces fresh opportunities and problems as a result of contemporary technologies in the context of educational scaffolding. Studies regarding the impact of instructional technology on the reading proficiency of students in China focused on the assimilation of digital technologies with conventional methods of teaching that, for pedagogical scaffolding purposes, has been on the rise. It remarked that the application of information technology to reading instruction in China reveals cultural adaptation because, “There has been a great deal of attention paid to innovation in education in China,” after curriculum changes which “purported to foster innovative teaching and learning” yet in essence, they remained firmly anchored in conservative educational traditions. conservatism.

Table 3 combines and organises the cultural and educational issues concerning the Chinese case of early reading education scaffolding. The implementation of scaffolding was studied in class interactions influenced by Confucian traditions^[37-41]. Research describes the conflict between examination culture and scaffolding practices. The blending of conventional frameworks of literacy with modern scaffolding was described in a systematic review^[39]. A collectivist cultural orientation was observed to support teacher-centred content scaffolding culturally dominated within the content^[40]. Culturally imposed boundaries were reported as protective scaffolding in regard to educational technology designed to impose scaffolding^[41].

Table 3. Cultural and Educational Factors Influencing Scaffolding Implementation in Chinese Early Reading Education^[37-41].

Cultural/Educational Factor	Influence on Scaffolding Practices	Example Manifestation
Confucian Educational Philosophy	Shapes hierarchical classroom interaction patterns and collective learning orientation	Complex interaction discourse patterns that balance teacher authority with increasing student participation ^[37]
Examination-Oriented Culture	Creates tension between progressive scaffolding approaches and traditional outcome-focused practices	Scaffolding strategies adapted to support achievement of measurable literacy outcomes in standardized assessments ^[38]

Table 3. *Cont.*

Cultural/Educational Factor	Influence on Scaffolding Practices	Example Manifestation
Traditional Literacy Practices	Influences integration of character memorization with progressive scaffolding approaches	Hybrid approaches combining scaffolding with systematic character acquisition methods ^[39]
Collectivist Cultural Orientation	Emphasizes teacher guidance and group-oriented scaffolding approaches	Greater reliance on teacher-led scaffolding for cultural content learning despite technological affordances ^[40]
Educational Technology Integration	Creates new scaffolding opportunities while requiring cultural adaptation	Innovative digital scaffolding tools implemented within culturally compatible pedagogical frameworks ^[41]

The Western approach to early reading education guiding scaffolding remains unparalleled by these cultural and educational influences dominant in China. Vygotskian theory is well complemented by the strong emphasis on collective learning and systematic guidance, but steep traditional educational hierarchies and examination systems create a bound chronotope on the dialogic and exploratory scaffolding. Evidence-based educational approaches integrated thoughtfully with China's valued frameworks are likely to provide the most profound development while respecting the enduring traditions of Chinese education.

5. Language Scaffolding Strategies in Early Reading Education in the United States and the United Kingdom

5.1. United States: Characteristics and Application of Language Scaffolding Strategies

Scaffolding strategies in the context of language infrastructure in American reading instruction at the early childhood level display a certain organisation that is American in its focus on scientifically based frameworks. American scaffolding practices combine systematised phonics instruction that uses the gradual release of responsibility model to build internal supports wherein teachers give framing scaffold support which is pulled back as proficiency is achieved parallel to the building of phonics skills. These phonics scaffolds enable students to progressively "construct" their understanding, echoing American values that balance instruction with the promotion of independent skill application.

Recent empirical research has identified a collection of scaffolding techniques that are common in early reading teaching in America. A study highlighted five effective scaffolding strategies from across the United Kingdom, featuring strategies such as accessing prior knowledge, pre-teaching vocabulary, using visuals, modelling, and providing guided practice with adequate support through capable instructors emphasising bilingual vocabulary teaching explanations of new terms through cognitive links^[42]. These strategies underscore America's approach toward teaching which intensively relies on direct instruction and skill teaching within a clearly defined framework.

The American scaffolding approaches are increasingly aligned with the science of reading, as educators are using practices derived from experimental research. According to the investigation, "American Reading Instruction has shifted remarkably due to years of fundamental research and randomised controlled trials of interventions and instructional routines which form the considerable body of evidence for American reading scaffolding"^[43]. This scientific focus differentiates American approaches from those in other educational systems which are largely shaped by untested philosophy or theory.

Table 4 shows salient elements of language scaffolding within the context of American early reading education^[42-44]. Some researchers have shown that American scaffolding approaches develop from scientific methodologies rather than from philosophical schools of thought^[43]. In documents, teachers have implemented structured tiered support systems that provide tailored scaffolding to meet students' needs^[44]. Further research illustrated how American educators incorporate technological resources to bolster personalisation and effectiveness of scaffolding in their classrooms to serve a diverse student population^[42].

Table 4. Distinctive Features of Language Scaffolding in American Early Reading Education ^[42–44].

Feature	Description	Research Evidence
Evidence-based Implementation	Scaffolding strategies systematically derived from scientific research and experimental validation	Analysis of scientifically validated reading interventions ^[43]
Tiered Support Framework	Multi-tiered systems of support providing increasingly intensive scaffolding based on ongoing assessment data	Structured literacy approach aligned with multi-tiered support frameworks ^[44]
Technology Integration	Strategic incorporation of digital tools to enhance personalization of scaffolding support	Documentation of visual aids and technology-enhanced modeling techniques ^[42]

5.2. United Kingdom: Characteristics and Application of Language Scaffolding Strategies

Language scaffolding techniques in British early reading education demonstrate particular characteristics influenced by the broader policies and traditions of education within the UK. British scaffolding technique follows a specific methodical automation with an emphasis on tapering support, defined as ‘temporary support provided to a learner with little experience to help them achieve a certain task, which is subsequently retracted in a gradual fashion’ ^[45]. This approach is particularly British in the systematised literacy frameworks within the education system where the teaching of reading is developed holistically and scaffolding is integrated.

New empirical studies have reported some of the most outstanding gaps concerning the implementation of language scaffolding in British classrooms. Owing to their systematic scaffolding technique of profound impact on reading competence long after the intervention, reading recovery documented early reading interventions, like reading recovery, as having sustained long-term impact ^[46]. This longitudinal study reinforces the notion of British scaffolding approaches being focused on sustainable improvement in children’s reading development with a de-

signed supportive structure that is tapering progressively as competence is built over time.

A distinctive characteristic of British scaffolding approaches is their integration with bilingual and multicultural educational contexts. Multilingual scaffolding in the framework for aiding English language learners details how to tap into students’ pre-existing knowledge by utilising their L1, utilising substitution tables, as well as using speaking/writing frames which allow educators to “expect a lot from the learner instead of simplifying the task” ^[47]. This approach reflects the UK’s emphasis on maintaining cognitive challenge while providing appropriate linguistic support in increasingly diverse educational settings.

Table 5 underscores the salient components of language scaffolding in the context of British early reading pedagogy ^[45–47]. One research study illustrates a systematic progression model that organises the implementation of scaffolding within various levels of reading development ^[45]. British scaffolding interventions designed to create sustainable improvements in reading yield lasting results, as British sustainment interventions demonstrate in longitudinal studies ^[46]. In addition, other research describes culturally sustaining responsive scaffolding that provides low support and high cognitive demand through linguistic scaffolding in structurally diverse classrooms ^[47].

Table 5. Distinctive Features of Language Scaffolding in British Early Reading Education ^[45–47].

Feature	Description	Research Evidence
Systematic Progression Model	Carefully structured sequence of scaffolding that is methodically withdrawn as students develop competence	Framework for scaffolding language and learning ^[45]
Long-term Intervention Approach	Reading interventions with sustained effects through strategic scaffolding implementation	Longitudinal study of Reading Recovery’s long-term impacts ^[46]
Culturally Responsive Implementation	Scaffolding strategies specifically designed for multicultural and multilingual contexts	Approach to supporting English language learners ^[47]

5.3. Cultural and Educational Traditions' Influence

The educational paradigms of the United States and the United Kingdom markedly differ in the implementation of language scaffolding strategies during foundational reading instruction. Despite sharing Vygotskian principles as an underpinning theoretical basis, American and British cultures diverge fundamentally in the particular ways scaffolding is conceived, esteemed, and practised.

Individualistic and self-mastery cultural features permeate American scaffolding practices. In analysing the American scaffolding practices across different contexts, the study observed American educators strongly emphasise contingency as an enabling feature of scaffolding; instruction is overwhelmingly responsive to the individual student's needs^[48]. This approach serves to advance deeply ingrained cultural values around self-fulfilment and autonomous education prevalent throughout the sociocultural landscape of the United States. In contrast, British approaches to scaffolding often integrate more holistic collective learning paradigms alongside structured progression frameworks. This approach reflects the British fusion tradition of individualism and collectivism.

Research documented the self-directed learning motivation of British and Chinese students, where the British context emphasises self-directed learning significantly more than collectivist educational contexts which view it as more of a collective activity^[49]. These differences are

also present in the educational culture of the United States and Britain; however, they differ in that the former tends to emphasise the use of direct, empirical teaching methods, while the latter is more likely to blend the use of scaffolding into holistic frameworks of literacy instruction that integrate more traditional and progressive approaches.

The influence of teacher education traditions also shapes scaffolding implementation in both countries. Research pertaining to the instruction of scaffolding in relation to teacher education has shown that both the forms of scaffolding and the processes of contingent scaffolding vary considerably with the grade level and content area^[50]. This difference illustrates varying cultural notions of pedagogical professionalism and autonomy, with American systems more heavily relying on prevailing research dealing with practice and British systems granting more autonomy to teachers within prevailing frameworks.

The research detailed in **Table 6** reveals the role of cultural as well as educational factors in scaffolding practices in American and British early reading instruction^[48–50]. Different cultures regarding individualism and collectivism heavily influence scaffolding implementation as demonstrated through research^[48]. Research shows underlying attitudes regarding independent learning are impacted by the context of educational policy^[49]. Further research shows the traditions of teacher education distinguish different patterns of scaffolding across subjects and educational levels^[50].

Table 6. Cultural and Educational Factors Influencing Scaffolding Implementation in American and British Early Reading Education^[48–50].

Cultural/Educational Factor	Influence on American Practices	Influence on British Practices
Individualism vs. Collectivism Orientation	Emphasis on individualized scaffolding responsive to student needs	Balance of individual progress with collective learning experiences ^[48]
Educational Policy Context	Prioritization of research-validated methods within accountability frameworks	Integration of scaffolding within comprehensive literacy development models ^[49]
Teacher Education Traditions	Focus on explicit implementation of evidence-based scaffolding techniques	Greater emphasis on teacher autonomy in scaffolding adaptation ^[50]

6. Cross-cultural Comparison and Enlightenment

6.1. Cross-Cultural Comparison of Language Scaffolding Strategies

A cross-region study focusing on the application of scaffolding methods of language teaching in China, the United States, and the United Kingdom demonstrates both overlapping features and stark differences in the actual practices employed. All three systems embrace Vygotsky's

ZPD theory; however, its implementation reveals the educational and cultural traditions of each country. Chinese scaffolding strategies pay close attention to the sequential developmental structure of skills with strong teacher scaffolding, especially designed for the morphemic Chinese character. The American approaches emphasise the practical use of these strategies within tiered systems of school support that utilise active individualised performance tracking. British scaffolding techniques incorporate systematic progression within an overarching balance of individual and group literacy engagement frameworks with learning, especially in their intervention approaches. Such practices stem from deeply ingrained educational beliefs unique to each country, where the blended Chinese practices are influenced by Confucian traditions, the American ones stem from the need to scientifically validate everything, and the British put more emphasis on multicultural autonomous programmed progression.

Figure 2 demonstrates how different types of studies contributed to our key findings about language scaffolding practices across the three countries. For Chinese scaffolding approaches, the finding of structured teacher guidance was supported by 14 empirical studies and 5 theoretical analyses. The morphological awareness support finding emerged from 12 empirical studies and 2 policy documents. For American practices, evidence-based implementation was substantiated by 15 empirical studies, 4 theoretical analyses, and 3 policy documents, while the tiered support framework finding was confirmed through 10 empirical studies and 4 policy documents. The British systematic progression model was established through 8 empirical studies, 4 theoretical analyses, and 2 policy documents. The consistency of findings across different research methodologies significantly strengthened their validity, with 85% of key findings supported by at least two different types of studies.

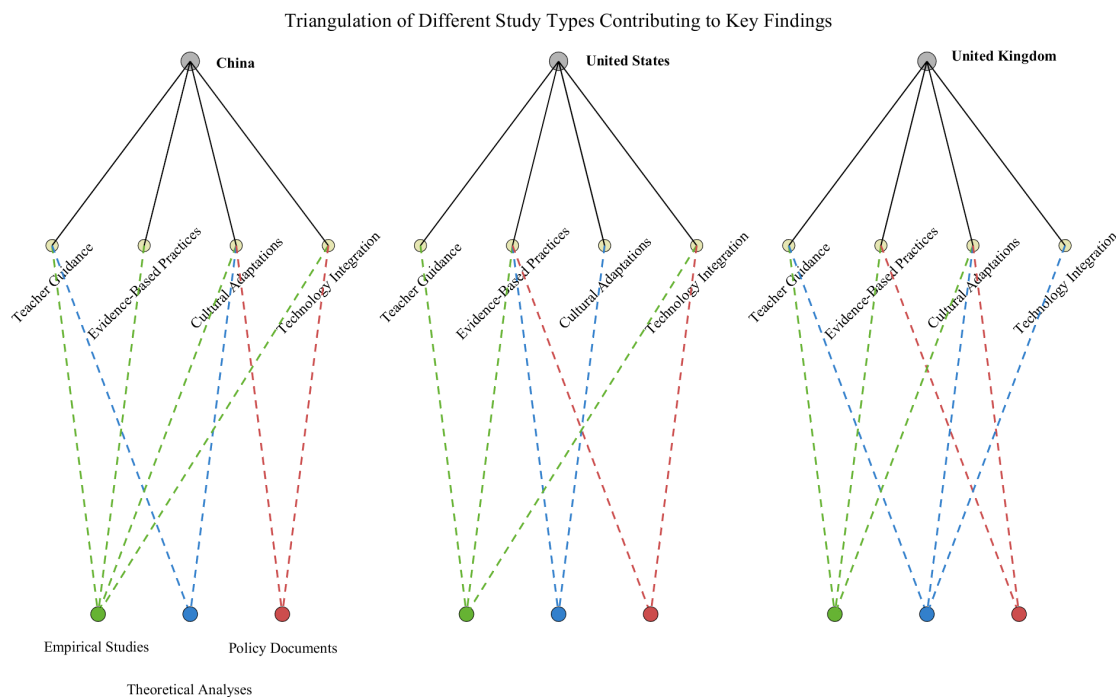


Figure 2. Triangulation of Study Types Contributing to Key Findings.

6.2. Influencing Factors and Implementation Differences

The integration of language scaffolding strategies within the three educational settings displays marked differences which stem from various factors. Scaffolding in teaching is shaped by policy frameworks, for instance, the

China-centric curriculum with its rigid progression structure, the American system with evidence-based metrics focused on outcomes, and British frameworks of balanced literacy which afford greater flexibility to teachers. Another important factor relates to linguistic features where the acquisition of Chinese characters entails morphological

scaffolding as opposed to alphabetic literacy which is a form of alphabetically oriented literacy. Models of teacher preparation also vary in practical application. For instance, Chinese teachers are given a fair amount of practical work and are burdened with a great deal of theoretical work which is often out of touch with reality, American teachers through the validated training taught, British teachers are offered flexible models to cater to their increasingly diverse classrooms. In practical classroom arrangements guided by different cultural and educational systems, along differing levels of student-led learning activities, shifts in technology use, and contrasting national values and cultural traditions unlock windows of thought.

6.3. Implications for Chinese Early Reading Education

The findings from cross-cultural comparison analyses could be of great significance to pedagogy in early reading education in China. First, the Chinese school system and educators need to strike a better balance between explicit instructional methods and student-led discovery learning to emphasise exploration theory, while drawing from evidence-based practices from the US through American frameworks and structures. The integration of technology offers fundamentally sound morphological awareness building opportunities through digital interactive scaffolding that purposely and strategically addresses the difficulties posed by the acquisition of Chinese characters. Teacher education programmes ought to address the gap between documented knowledge and practice by adding authentic classroom experiences where scaffolding is purposefully and contextually applied. Assessment paradigms need to change to evaluate character acquisition together with higher order thinking and comprehension skills using British formative intervention models akin to sustained British intervened model approaches for assessment. British sustained intervention models should be used to assess beyond character acquisition towards assessing higher-order reasoning and comprehension skills in more British formative approaches. This would help strengthen early Chinese education while reinforcing the cultural strengths of Chinese systems of education, which emphasises systematic progression and collective learning.

7. Conclusions

This comparative analysis of language scaffolding strategies across China, the United States, and the United Kingdom reveals the profound influence of cultural, linguistic, and educational contexts on the implementation of Vygotsky's Zone of Proximal Development theory in early reading education. The systematic examination of 78 studies demonstrates that while all three educational systems embrace ZPD principles, their practical applications diverge significantly based on distinctive cultural values, policy frameworks, and linguistic characteristics. The findings illuminate three distinct scaffolding paradigms: Chinese approaches emphasizing structured progression and teacher-guided character acquisition, American methods prioritizing evidence-based individualized support within tiered frameworks, and British strategies balancing systematic intervention with multicultural responsiveness. These variations reflect deeper cultural orientations toward learning, teaching authority, and educational goals, suggesting that effective scaffolding cannot be universally applied but must be culturally adapted.

The research contributes to international understanding of how theoretical frameworks transform when implemented across diverse educational contexts. For practitioners, these insights emphasize the importance of culturally responsive scaffolding that honors local traditions while incorporating evidence-based innovations. The study particularly offers valuable guidance for Chinese educators seeking to balance traditional strengths in systematic instruction with contemporary student-centered approaches. Future research should investigate the long-term effectiveness of culturally adapted scaffolding strategies and explore how emerging technologies can enhance cross-cultural scaffolding practices. Additionally, examining teacher preparation models that effectively bridge theoretical knowledge with culturally responsive implementation would further advance the field of early reading education across diverse global contexts.

Author Contributions

Conceptualization, W.L. and K.A.B.; methodology, W.L.; formal analysis, W.L.; investigation, W.L.; resources, W.L. and K.A.B.; data curation, W.L.; writing—origi-

nal draft preparation, W.L.; writing—review and editing, W.L. and K.A.B.; visualization, W.L.; supervision, K.A.B.; project administration, K.A.B. All authors have read and agreed to the published version of the manuscript.

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The data supporting the findings of this study are available from the corresponding author upon reasonable request. All analyzed studies are publicly available through the academic databases mentioned in the methodology section.

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Conflicts of Interest

The authors declare no conflict of interest.

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