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Integrating AI and Layered Contextualization in an Experiential Teaching Model for Junior High School English Speaking

Wang Qiong[1,*]

[1]*Shuangfeng Fengmao School, Loudi, Hunan Province, 417000, China*
[*]*Corresponding author: 383169902@qq.com*

Abstract: *The rapid advancement of Artificial Intelligence (AI) offers transformative potential for language education. This paper investigates the integration of AI technologies with a layered contextualization approach within an experiential teaching model to enhance junior high school English speaking instruction. Addressing the limitations of traditional one-size-fits-all pedagogy, this study proposes a framework where AI tools (intelligent voice evaluation, adaptive learning platforms, natural language processing) are leveraged to create dynamic, authentic interactive learning environments, paired with stratified instructional design tailoring tasks to students' beginner, intermediate and advanced proficiency levels. Grounded in Constructivism, Situated Learning Theory and Blended Learning models, this paper analyzes the theoretical underpinnings and practical implementation of this integrated approach, while identifying a research gap in combined AI and layered experiential application in middle school EFL contexts. It details AI's roles in personalized learning, real-time feedback and immersive scenario simulation, plus implementation strategies for layered contextualized tasks. The proposed model shows significant potential to improve oral proficiency, learner autonomy, critical thinking and classroom dynamics. This paper concludes with pedagogical implications, implementation challenges and directions for future empirical research.*

Keywords: *Artificial Intelligence (AI) in Education; Layered Contextualization; Experiential Learning; Junior High School English Speaking; Adaptive Learning; Situated Cognition*

1. Introduction

1.1. Background and Significance of the Research

1.1.1. Research Background

In an era of increasing globalization, English proficiency, particularly oral communication skills, has become a critical competency. For junior high school students in China, this stage represents a foundational period for developing these skills, which are essential for their academic progression, future careers, and personal growth in an interconnected world. However, English speaking instruction in many junior high schools faces persistent challenges. Traditional pedagogical approaches often rely heavily on teacher-centered grammar-translation methods, resulting in limited opportunities for authentic communication, low student engagement, and a significant gap between students' receptive knowledge and their productive speaking abilities[1]. The classroom environment frequently lacks the dynamism and interactivity necessary for effective oral language acquisition.

Concurrently, the rapid proliferation of Artificial Intelligence (AI) is reshaping numerous sectors, including education. AI technologies, such as machine learning, natural language processing (NLP), and intelligent speech recognition, offer unprecedented opportunities to address the shortcomings of traditional language teaching. AI can facilitate personalized learning pathways, provide instantaneous and adaptive feedback, and simulate realistic communicative contexts that were previously difficult to achieve within the physical classroom[2]. This technological evolution invites a fundamental rethinking of instructional design.

This paper posits that a synergistic integration of AI with a layered contextualization approach within an experiential teaching framework can create a powerful solution. By combining the adaptive and interactive capabilities of AI with a pedagogical strategy that differentiates instruction based on student proficiency levels, educators can craft a more effective, engaging, and equitable learning

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environment. This model moves beyond rote memorization and drills, placing students at the center of their learning journey where they actively construct knowledge through meaningful, technology-mediated experiences tailored to their individual needs.

1.1.2. Significance of the Research

Theoretical Significance: While a substantial body of literature exists on English language teaching methodologies and, more recently, on the application of AI in education, research specifically examining the confluence of AI and layered contextualization within an experiential framework for junior high school speaking instruction remains nascent. This paper contributes to the field by systematically synthesizing these three critical components. It provides a theoretical rationale grounded in established learning theories—namely Constructivism, Situated Cognition, and Blended Learning—to justify this integrated model. By articulating how AI can enhance and scale the principles of experiential and layered learning, this study offers a novel theoretical framework that can inform future empirical research and pedagogical innovation in EFL contexts.

Practical Significance: This research directly addresses a pressing need in contemporary classrooms: how to effectively leverage technology to improve tangible student outcomes. By outlining concrete strategies for implementing AI tools within a layered, experiential curriculum, this paper provides a practical guide for educators, curriculum developers, and teacher trainers. The proposed model offers a pathway to transcend the limitations of traditional instruction, enabling teachers to foster greater student motivation, increase active participation, and ultimately, enhance students' communicative competence in English. The insights presented here can empower teachers to create more dynamic and responsive learning environments, thereby contributing to the broader goal of educational modernization and the cultivation of students' core competencies for the 21st century.

1.2. Theoretical Foundations and Literature Review

1.2.1. Theoretical Underpinnings

The proposed teaching model is built upon a synthesis of three complementary learning theories:

Constructivism: This theory posits that learning is an active, constructive process where learners build new knowledge upon the foundation of their prior experiences. Knowledge is not passively received but is actively assembled by the learner through interaction with the environment and others (Piaget; Vygotsky). In this model, students are not empty vessels to be filled with grammatical rules. Instead, they engage in meaningful speaking tasks, experiment with language, receive feedback, and refine their understanding. AI facilitates this by providing adaptive challenges and personalized resources, allowing each student to construct their linguistic competence at their own pace.

Situated Learning Theory (Lave & Wenger): This theory emphasizes that learning is inherently tied to the context and culture in which it occurs. Knowledge and skills are best acquired when learned and applied in authentic, real-world situations. Decontextualized drills often fail to transfer to actual communicative needs. The proposed model directly addresses this by using AI to create rich, immersive, and realistic communicative contexts (e.g., ordering food, making a presentation, casual conversation). These "situated" experiences enable students to grasp not only the linguistic forms but also the appropriate social and cultural conventions of their use.

Blended Learning Theory: This approach integrates face-to-face instruction with technology-mediated learning experiences, combining the strengths of both. In this model, AI tools handle aspects like adaptive grammar practice, initial pronunciation drills, and providing immediate feedback, freeing up valuable classroom time for interactive, human-centric activities like role-plays, debates, and collaborative projects. The "smart" learning environment, enhanced by AI, extends learning beyond the classroom, offering students continuous access to personalized practice and resources.

1.2.2. Literature Review

(1) Domestic Research Trends (China)

Chinese scholarship has increasingly focused on the convergence of experiential learning, AI technology, and English pedagogy.

Experiential Teaching in Junior High English: Researchers have extensively explored the application of experiential teaching to foster core competencies. Cai (2026) analyzed its necessity from a core literacy perspective, proposing strategies to enhance student development[3]. Qiu (2025)

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emphasized integrating life-like contexts, specific tasks, and diverse activities to enrich student experience and promote holistic growth[4]. Zhao (2025) highlighted the benefits of situational experiential teaching for stimulating interest and improving learning efficiency, exploring its application through reading/writing, life-like, cooperative, game-based, and visual scenarios[5]. Zhai (2023) reinforced its role in engaging students actively and facilitating deeper understanding of knowledge, all aligned with core literacy goals[6]. These studies provide a robust practical foundation for student-centered, context-rich instruction.

AI Integration in English Teaching: The application of AI for context creation and speaking skill development is a burgeoning area. Chen (2025) demonstrated, through a quasi-experimental study in a vocational school, that an AI-empowered approach—featuring pre-class smart preview, in-class immersive simulation, and post-class intelligent extension—significantly boosted student interest, participation, and performance[1]. Wang (2025) analyzed AI's potential to overcome challenges like limited practice opportunities and delayed feedback in middle school oral English classes, advocating for a shift towards more intelligent instruction[2]. Chen (2025) explored the potential and challenges of using AI to generate diverse contexts and enhance classroom interaction, proposing strategies for effective integration[7]. These works offer validated pathways for incorporating AI into language teaching.

Experiential Teaching's Role in Spoken English: Studies have specifically linked experiential methods to improved oral proficiency. While some earlier research focused on primary education (Wang, 2020), highlighting the use of vivid resources to stimulate speaking[8], other work (Wang, 2020) identified pitfalls like decontextualized design and monotonous interaction, suggesting optimizations. Wang (2017) affirmed that student-centered experiential learning naturally facilitates language acquisition for oral communication goals in junior high[8]. These studies collectively underscore the strong connection between experiential learning and speaking skill development.

(2) International Research Trends

International research has largely focused on the efficacy of specific AI-powered tools and the design of flexible, adaptive learning environments. Studies have investigated the impact of intelligent tutoring systems (ITS) on language learning, the use of chatbots for conversational practice, and the role of automated writing evaluation (AWE) tools, with analogous applications for speaking emerging through speech recognition technology. The emphasis is often on empirical validation of tool effectiveness, learner autonomy, and the potential for personalized learning at scale. The concept of layering instruction based on real-time data from these tools is a key theme, aligning with the broader educational technology goal of creating adaptive and personalized learning pathways.

(3) Summary and Research Gap

In summary, domestic research provides rich contextual and pedagogical insights into experiential teaching and the practical application of AI within the specific constraints and goals of the Chinese EFL classroom. International research contributes robust methodologies for evaluating AI tools and a strong focus on personalization and learner agency. Both streams of literature affirm the value of the individual components of our proposed model. However, a clear research gap exists: there is a notable lack of studies that systematically integrate AI technology with a structured, layered contextualization approach within an experiential teaching framework, specifically targeting junior high school English speaking. This paper aims to address this gap by proposing a cohesive theoretical model that synthesizes these elements, paving the way for future empirical investigation.

2. The Application of AI in Experiential Junior High English Speaking Instruction

2.1. The Impact of AI Technology on Education

AI's impact on education is transformative, shifting paradigms from one-size-fits-all instruction to personalized, data-driven learning. Key contributions include:

Personalization and Adaptive Learning: AI algorithms can analyze a student's performance, learning pace, and even affective states to create a customized learning path. In language learning, this means adapting the difficulty of speaking prompts, suggesting relevant vocabulary, and focusing practice on specific areas of weakness (e.g., pronunciation of certain phonemes, grammatical errors).

Intelligent Feedback and Assessment: NLP and speech recognition enable immediate, corrective

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feedback on spoken language. Unlike a teacher who can only hear one student at a time, AI tools can provide real-time pronunciation scoring, grammar checks, and fluency analysis to every student simultaneously, significantly increasing practice efficiency and quality.

Enhanced Engagement through Interactivity: AI powers gamified learning, intelligent tutoring systems, and conversational agents (chatbots) that make practice more engaging. Students can interact with a non-judgmental AI partner, building confidence before speaking in front of peers.

Data-Driven Insights: AI systems generate vast amounts of data on student learning behaviors, common errors, and progress. This data empowers teachers to make informed instructional decisions, identify students needing additional support, and refine their teaching strategies for the entire class.

2.2. Practical Applications of AI in English Teaching: Case Examples

The theoretical benefits of AI are realized through concrete classroom applications:

Case 1: Intelligent Pronunciation Practice. A junior high school integrates an AI-powered English learning app (e.g., Liulishuo, ELSA Speak) into its curriculum. During a unit on "Travel," students use the app to practice dialogues about booking a hotel or asking for directions. The app's speech recognition instantly evaluates their pronunciation, intonation, and stress, highlighting errors in red and offering a model pronunciation. This immediate, private feedback loop allows students to self-correct repeatedly, building fluency and confidence before they perform similar dialogues in class.

Case 2: Personalized Learning Paths. An AI-driven learning management system (LMS) is used for homework and review. The system assesses each student's performance on initial speaking tasks and grammar quizzes. It then automatically generates a personalized "to-do list." For a student struggling with past tense irregular verbs, the system recommends targeted video lessons and interactive drills. For a more advanced student, it might suggest more complex speaking prompts or curated authentic materials like short podcasts or news clips.

Case 3: Creating Immersive Contexts with AI. A teacher uses an AI tool like a virtual reality (VR) headset or a sophisticated simulation program to transport students to a "London café." Students, represented by avatars, must order food and interact with an AI-powered "barista." This immersive, low-stakes environment forces spontaneous language use and contextual understanding in a way that a textbook dialogue cannot replicate[1]. Following the VR experience, students engage in a reflective debriefing session, analyzing the language they used and heard.

2.3. Synergizing AI with Experiential Teaching

The true power of the proposed model lies not in using AI as a mere add-on, but in its deep integration with experiential principles. This synergy can be conceptualized as follows:

AI as the Experience Architect: Experiential learning requires realistic contexts. AI becomes the architect, building dynamic, branching scenarios that respond to student input. Instead of a static role-play card, a student interacts with an AI-driven character whose responses change based on what the student says, creating a unique and unpredictable communication experience[1].

AI as the Personalized Guide: In a pure experiential model, all students might have the same "experience." AI enables layering by acting as a personalized guide within the shared experience. For a beginner student in the "London café" simulation, the AI barista might speak more slowly, use simpler vocabulary, and offer more prompts. For an advanced student, the same AI barista could speak at a natural pace, use idioms, and introduce an unexpected problem (e.g., "I'm sorry, our terminal is down, do you have cash?"). The core experience is the same, but the challenge is perfectly layered.

AI as the Reflective Partner: Reflection is a cornerstone of experiential learning (Kolb's Experiential Learning Cycle). AI tools can facilitate this by providing students with a recording of their interaction, a transcript with annotated feedback, and guiding questions for self-analysis (e.g., "In this part of the conversation, you hesitated. What were you trying to say? How could you phrase it next time?"). This transforms AI from a simple evaluator into a partner in the reflective process, deepening learning.

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3. Design and Implementation of Layered Contextualized Teaching

3.1. Theoretical Basis for Layered Instruction

Layered instruction, also known as differentiated instruction, is a pedagogical framework rooted in the recognition that students in any classroom possess diverse readiness levels, interests, and learning profiles (Tomlinson). Its core premise is that "one-size-fits-all" teaching inevitably leaves some students behind while failing to challenge others. Grounded in Vygotsky's Zone of Proximal Development (ZPD), it posits that optimal learning occurs when tasks are neither too easy (leading to boredom) nor too difficult (leading to frustration), but are pitched within each student's ZPD—the sweet spot where they can succeed with appropriate support.

In the context of this model, layering is not about permanently tracking students into fixed groups. Instead, it is a dynamic process of adjusting the context, task complexity, and level of support to meet students where they are. This is directly aligned with both Constructivism (building on prior knowledge) and Situated Cognition (providing appropriately challenging contexts)[2]. The integration of AI provides the data and adaptability to make dynamic layering practical and scalable in a way that purely teacher-managed differentiation often cannot.

3.2. Implementation Strategies for Layered Contextualization

Implementing this model involves a systematic process of assessment, design, instruction, and feedback:

Initial and Ongoing Diagnostic Assessment: The process begins with a multi-faceted assessment using both traditional methods (teacher observation, short interviews) and AI tools (initial performance on a speaking app). This helps place students into broad, fluid categories:

Beginner/Foundation Level: Students with limited vocabulary, significant pronunciation issues, and low fluency. They struggle to form basic sentences.

Intermediate/Development Level: Students who can communicate basic ideas but lack accuracy, fluency, and complexity. They can handle simple dialogues but struggle with extended discourse or unfamiliar topics.

Advanced/Extension Level: Students with good fluency and accuracy who are ready for more sophisticated language, nuance, and abstract topics.

Designing Layered Contexts and Tasks: For a given unit theme (e.g., "Environmental Protection"), the teacher designs a core experiential activity but with layered variations.

Context: The core context might be "A community meeting to discuss building a new factory." For beginners, the context is simplified: "A family discussion about recycling."

Task Complexity: For the community meeting context, a beginner's task might be to state a simple opinion ("I am against the factory because of pollution.") using provided sentence starters. An intermediate task could be to prepare and deliver a short, two-part argument. An advanced task might involve playing a specific role (e.g., the factory owner, a concerned parent, a scientist) and engaging in a spontaneous debate with peers, using more complex persuasive language[4].

Support and Resources: AI tools provide layered support. Beginners might have access to a pop-up dictionary and sentence templates within the AI platform. Intermediate students could use an AI-powered thesaurus to enrich their vocabulary. Advanced students might be tasked with researching real-world data online to support their arguments.

Flexible Grouping and Dynamic Movement: Students are not confined to their level. The teacher uses flexible grouping strategies. Sometimes, students work in like-level groups on tailored tasks. Other times, the class is mixed, allowing for peer tutoring and diverse perspectives. Crucially, the AI system continuously monitors performance. If a student in the beginner group consistently excels, the system can recommend and the teacher can approve their movement to more intermediate-level tasks, ensuring the layering remains dynamic and responsive.

3.3. Construction and Function of Layered Contexts

The layered contexts are the engine of this model, serving several key pedagogical functions:

ISSN 2522-6398 Vol. 9, Issue 3: 61-67, DOI: 10.25236/FER.2026.090309

Scaffolding for Success: For beginners, a highly structured and supportive context (e.g., a dialogue with a clear script and visual aids) builds confidence and provides a foundation. The context itself acts as a scaffold, reducing cognitive load and allowing them to focus on basic production.

Promoting Autonomy and Challenge: For advanced learners, an open-ended, complex context (e.g., an improvised role-play with conflicting goals) removes scaffolds, forcing them to draw on all their linguistic and strategic resources. This fosters learner autonomy and provides the cognitive stretch necessary for continued growth.

Fostering Engagement and Relevance: By connecting tasks to realistic scenarios (a debate, a job interview, a phone call), the layered contexts make learning intrinsically more engaging[3]. Students see the immediate relevance of the language they are learning.

Enabling Formative Assessment: The students' performance within their specific layered context provides rich formative data for the teacher. Observing a beginner successfully navigate a simple dialogue, or an advanced student struggle to maintain an argument, provides far more valuable diagnostic information than a uniform test.

4. Discussion and Future Directions

4.1. Synthesis and Pedagogical Implications

This paper has proposed a conceptual framework for integrating AI and layered contextualization within an experiential teaching model for junior high school English speaking. The synthesis of these elements creates a pedagogical synergy that directly addresses the shortcomings of traditional instruction. The key implications for practice are:

A Shift in the Teacher's Role: The teacher evolves from the primary "sage on the stage" and sole source of feedback to a "guide on the side," a designer of experiences, and a facilitator of learning. Their role becomes more strategic: analyzing AI-generated data to inform instruction, curating and designing layered activities, and providing the crucial human element of motivation, encouragement, and nuanced feedback that AI cannot replicate.

A Need for Technological and Pedagogical Training: Effective implementation requires that teachers possess not only basic digital literacy but also a deep understanding of how to pedagogically leverage AI tools. Professional development programs must evolve to equip teachers with the skills to integrate AI meaningfully, interpret learning analytics, and design effective layered curricula.

Equity and Access Considerations: The model's reliance on technology necessitates addressing the digital divide. Schools must ensure equitable access to necessary devices, reliable internet, and high-quality software for all students. Furthermore, careful consideration must be given to data privacy and the ethical use of student data collected by AI systems.

4.2. Future Research Directions

This conceptual paper lays the groundwork for several crucial avenues of future empirical research:

Quasi-Experimental Studies: Rigorous, longitudinal studies are needed to compare the effectiveness of this integrated model against traditional instruction and models using only one of its components (e.g., AI-only, experiential-only). Dependent variables should include not only standardized measures of oral proficiency (fluency, accuracy, complexity) but also affective factors like motivation, anxiety, and learner self-efficacy.

Qualitative Case Studies: In-depth case studies of individual classrooms implementing this model can illuminate the nuanced processes of teaching and learning. Research questions could explore how teachers adapt the framework, how students experience the layered AI-driven contexts, and what challenges and successes emerge in authentic classroom settings.

Design-Based Research (DBR): Collaborations between researchers and practitioners could use DBR to iteratively design, test, and refine the model in real-world classrooms. This approach would generate both practical innovations and theoretical insights, leading to a more robust and classroom-ready framework.

Investigating Long-Term Impact: Future research should investigate the long-term impact of this

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model on students' subsequent language learning trajectories, their attitudes towards English, and their ability to use English in real-world communication beyond the classroom.

Exploring Applications in Other Disciplines and Age Groups: The core principles of this model—integrating technology with layered, experiential learning—are not confined to junior high English. Future research could explore its adaptation and effectiveness in other subjects (e.g., science, social studies) and for different age groups (e.g., elementary, high school, university).

5. Conclusion

The integration of AI and layered contextualization within an experiential teaching framework represents a promising frontier for junior high school English speaking instruction. By harnessing the power of AI to personalize, simulate, and provide feedback, and by grounding this technology in sound pedagogical principles of differentiation and experience-based learning, educators can create a dynamic and effective learning ecosystem. This model moves beyond simply teaching about the language to creating the conditions for students to authentically live and use the language. While challenges in implementation exist, the potential benefits for student engagement, motivation, and communicative competence are substantial. As AI technology continues to evolve, so too must our pedagogical imagination, ensuring that these powerful tools are wielded thoughtfully and effectively to empower every learner on their journey to becoming a confident and capable English speaker.

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