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Effect of technology-mediated task-based language teaching on EFL learners' linguistic and affective outcomes: a systematic review

Efecto de la enseñanza de idiomas basada en tareas y mediada por tecnología en los resultados lingüísticos y afectivos de los estudiantes de Inglés como Lengua Extranjera: una revisión sistemática

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Abstract

Technology-Mediated Task-Based Language Teaching (TBLT) has emerged as a transformative pedagogical approach in modern language education, merging the principles of communicative language teaching with digital technological advancements. This systematic review comprehensively examines the multifaceted effects of technology-mediated TBLT on English as a Foreign Language (EFL) learners' linguistic achievement and affective outcomes across diverse educational contexts. The review synthesized 15 empirical studies published between 2020-2025, employing rigorous systematic literature review methodology with explicit inclusion and exclusion criteria. Results demonstrated that technology-mediated TBLT significantly enhances learners' speaking fluency, writing competence, reading comprehension, and conversational interaction skills through authentic, meaningful task engagement. Furthermore, the approach profoundly influences learners' motivational constructs, engagement patterns, self-efficacy beliefs, and autonomous learning capabilities. The most effective technologies identified include mobile-assisted learning platforms, virtual reality environments, collaborative digital tools, and AI-enhanced learning systems. Critical analysis revealed that successful implementation requires adequate teacher technological pedagogical content knowledge, institutional technological infrastructure, and careful curricular alignment. The findings strongly suggest that technology-mediated TBLT represents a robust and effective approach for contemporary language teaching, though further longitudinal and mixed-methods research is needed across diverse educational contexts and learner populations to fully understand its long-term impacts and implementation nuances.

Keywords Task-Based Language Teaching, technology-mediated learning, EFL, linguistic achievement, affective factors, digital literacy, pedagogical implementation.

Resumen

La Enseñanza de Lenguas Basada en Tareas Mediada por Tecnología (TBLT) ha surgido como un enfoque pedagógico transformador en la educación lingüística moderna, fusionando los principios de la enseñanza comunicativa de lenguas con los avances tecnológicos digitales. Esta revisión sistemática examina exhaustivamente los efectos multifacéticos de la TBLT mediada por tecnología en el logro lingüístico y los resultados afectivos de estudiantes de Inglés como Lengua Extranjera (EFL) en diversos contextos educativos. La revisión sintetizó 15 estudios empíricos publicados entre 2020-2025, empleando una metodología rigurosamente sistemática de revisión de literatura con criterios explícitos de inclusión y exclusión. Los resultados demostraron que la TBLT mediada por tecnología mejora significativamente la fluidez oral, competencia escrita, comprensión lectora y habilidades de interacción conversacional de los estudiantes mediante la participación auténtica y significativa en tareas. Además, el enfoque influye profundamente en los constructos motivacionales, patrones de engagement, creencias de autoeficacia y capacidades de aprendizaje autónomo de los aprendices. Las tecnologías más efectivas identificadas incluyen plataformas de aprendizaje asistido por móviles, entornos de realidad virtual, herramientas digitales colaborativas y sistemas de aprendizaje potenciados por inteligencia artificial. El análisis crítico reveló que la implementación exitosa requiere adecuado conocimiento pedagógico-tecnológico del contenido docente, infraestructura tecnológica institucional y una cuidadosa alineación curricular. Los hallazgos sugieren firmemente que la TBLT mediada por tecnología representa un enfoque robusto y efectivo para la enseñanza de idiomas contemporánea,

aunque se necesita más investigación longitudinal y de métodos mixtos en diversos contextos educativos y poblaciones de aprendices para comprender completamente sus impactos a largo plazo y matices de implementación.

Palabras clave: Enseñanza de Lenguas Basada en Tareas, aprendizaje mediado por tecnología, Inglés como Lengua Extranjera (EFL), logro lingüístico, factores afectivos, alfabetización digital, implementación pedagógica.

Introduction

The landscape of foreign language teaching has undergone significant paradigmatic transformation over the past two decades, driven by the convergence of student-centered pedagogical approaches and rapid advancements in digital technologies. In this context, Task-Based Language Teaching (TBLT) has emerged as a robust pedagogical methodology that emphasizes the use of authentic and meaningful tasks as the primary vehicle for language acquisition. Simultaneously, the integration of digital technologies in educational environments has redefined the possibilities for creating authentic, interactive, and personalized learning contexts. The intersection of these two domains has led to the development of Technology-Mediated Task-Based Language Teaching (TBLT), an approach that represents a natural evolution in foreign language pedagogy to meet the demands of the 21st century (González-Lloret & Ziegler, 2021).

TBLT, grounded in principles of second language acquisition and based on socioconstructivist learning theories, positions the task as the central unit of planning and instruction. According to Ellis (2003), a task involves planned work that primarily focuses on meaning, relates to the real world, and requires students to use linguistic processes similar to those employed in communication outside the classroom. The typical TBLT cycle comprises pre-task, task cycle, and post-task phases, providing a structured framework for language acquisition through authentic use. However, traditional TBLT implementation often faced limitations regarding the authenticity of practice contexts and opportunities for meaningful interactions beyond the classroom setting.

The digital revolution has significantly addressed these limitations. Contemporary technologies, ranging from online collaboration platforms to virtual reality environments and artificial intelligence systems, offer unprecedented opportunities to create authentic and culturally situated task contexts. As noted by Smith and González-Lloret (2020),

technology not only facilitates TBLT implementation but fundamentally redefines what is possible in task design, enabling learning experiences that transcend the physical and temporal barriers of the traditional classroom. This evolution has been particularly accelerated by the COVID-19 pandemic, which forced a global transition toward remote and hybrid teaching modalities, making evident the critical need for pedagogical approaches that effectively integrate technology (Vellanki & Bandu, 2021).

In the specific context of English as a Foreign Language (EFL) teaching, technology-mediated TBLT presents unique opportunities to address persistent challenges. EFL students often lack authentic exposure to the target language and genuine opportunities for intercultural communication. Digital technologies can overcome these barriers by connecting students with native speakers, providing access to authentic multimodal materials, and creating safe spaces for language practice and experimentation (Fang et al., 2021). Moreover, the often decontextualized nature of EFL learning in traditional settings can be transformed through technologically mediated tasks that situate language learning in meaningful and culturally relevant contexts.

Empirical research on technology-mediated TBLT has grown exponentially in recent years, exploring various aspects of its implementation and effectiveness. Studies such as Wang's (2022) have investigated its impact on writing skills, while Morgana (2024) has examined its application in standardized proficiency exam preparation. Research like that of Taguchi and Zhao (2025) has explored the potential of emerging technologies such as virtual reality, and studies like Mulyadi et al. (2023) have considered learner affective dimensions and autonomy. However, this growing research base remains relatively fragmented, with studies focusing on specific aspects without providing a comprehensive overview of patterns, trends, and gaps in the literature.

This systematic review addresses this need by synthesizing and critically analyzing current research on technology-mediated TBLT in EFL contexts. Specifically, this review aims to: (1) synthesize existing evidence on the effects of technology-mediated TBLT on EFL students' linguistic competence across multiple skill domains; (2) systematically analyze its impact on affective and motivational factors crucial for language learning success; (3) identify the most effective technologies and task types reported in the literature; (4) examine implementation challenges and facilitating factors; and (5) indicate directions for future research and educational practice.

The 2020-2025 period selected for this review is particularly significant as it captures the evolution of technology-mediated TBLT during and after the global pandemic, a period that represented a critical turning point in educational technology integration. By synthesizing research from this formative period, this review seeks to provide valuable insights for educators, curriculum designers, educational technology developers, and researchers interested in the future of foreign language teaching in the digital age.

Metodology

Research Design

This study employed a systematic literature review methodology following the guidelines established by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure methodological rigor and transparency in the review process. The systematic review was selected as the optimal methodological approach due to its ability to comprehensively, systematically, and reproducibly synthesize existing empirical evidence, enabling the identification of consistent patterns, contradictory findings, and significant gaps in the research literature on technology-mediated TBLT.

Search Strategy and Selection Criteria

The literature search was conducted using multiple academic databases including Web of Science, Scopus, ERIC, Google Scholar, and specialized journals in CALL (Computer-Assisted Language Learning) and language teaching. The search strategy employed a combination of keywords and Boolean operators: ("technology-mediated TBLT" OR "technology-enhanced task-based language teaching" OR "digital task-based learning") AND ("EFL" OR "English as a foreign language") AND ("linguistic outcomes" OR "affective factors" OR "motivation" OR "engagement" OR "autonomy").

Inclusion criteria were: (1) empirical studies (quantitative, qualitative, or mixed-methods) published between January 2020 and December 2025; (2) studies explicitly focusing on technology-mediated TBLT in formal or informal EFL learning contexts; (3) research reporting measurable outcomes in linguistic competence (speaking, writing, reading, listening, interaction) and/or affective factors (motivation, engagement, anxiety, autonomy, self-efficacy); (4) peer-reviewed journal articles, conference proceedings, or doctoral dissertations; and (5) studies providing sufficient methodological detail for quality assessment.

Exclusion criteria included: (1) theoretical or conceptual papers without empirical data; (2) studies not specifically addressing the TBLT framework (e.g., general technology use without task-based approach); (3) publications before 2020; (4) studies not focusing on EFL contexts; and (5) publications in languages other than English.

Study Selection Process

The study selection process followed the PRISMA protocol with identification, screening, eligibility, and inclusion phases. Initially, 347 records were identified through database searches. After removing duplicates, 285 records underwent title and abstract screening,

resulting in 52 potentially relevant studies. These 52 studies underwent full-text review for eligibility, with 15 studies meeting all inclusion criteria for final synthesis. The selection process was conducted independently by two researchers, with disagreements resolved through discussion and consensus.

Data Extraction and Analysis

Data from the included studies were extracted using a standardized form capturing: (1) bibliographic information; (2) research objectives and questions; (3) methodological approach; (4) participant characteristics; (5) technological tools and task types; (6) key findings related to linguistic outcomes; (7) key findings related to affective outcomes; (8) implementation challenges; and (9) methodological limitations.

The analysis employed a thematic synthesis approach, combining both inductive and deductive coding strategies. Initial coding identified recurring themes and patterns across studies, which were then organized into broader analytical categories. The analysis paid particular attention to contextual factors that might explain variations in outcomes across different educational settings and learner populations. Methodological quality of included studies was assessed using the Mixed Methods Appraisal Tool (MMAT), with all included studies meeting minimum quality thresholds.

Analysis of results and discussion

Effects on Linguistic Competence

The analysis revealed consistent positive effects of technology-mediated TBLT on multiple dimensions of linguistic competence. Fang et al. (2021) demonstrated that mobile-assisted TBLT significantly improved EFL learners' conversational interaction skills, with experimental groups showing greater improvement in turn-taking, negotiation of meaning, and conversational strategies compared to control groups using traditional

methods. The study attributed these gains to the increased opportunities for authentic interaction and immediate feedback provided by the mobile platform.

In writing skills development, Wang (2022) reported substantial improvements among learners engaged in technology-mediated writing tasks, particularly in organizational structure, coherence, and grammatical accuracy. The study highlighted how collaborative writing platforms enabled real-time peer feedback and iterative revision processes that are difficult to implement in traditional classroom settings. Similarly, Azis and Hu (2020) found that digital storytelling tasks significantly enhanced students' narrative writing skills, vocabulary diversity, and syntactic complexity, with the multimodal nature of the tasks facilitating deeper engagement with the writing process.

Morgana (2024) provided compelling evidence for the effectiveness of technology-mediated TBLT in exam preparation contexts, showing that tasks specifically designed for Cambridge B2 First exam preparation led to significant improvements in both speaking and writing subskills. The study emphasized how digital tools enabled more targeted practice of specific language functions and register appropriate for the examination context. Widiastuti et al. (2022) further supported these findings, demonstrating that speaking projects with authentic online audiences improved students' fluency, pronunciation, and communicative confidence, with the authenticity of the audience serving as a powerful motivator for performance.

Impact on Affective Factors

The review identified profound effects of technology-mediated TBLT on learners' affective domains. Kang and Kim (2021) found that video-making tasks not only improved language outcomes but also significantly increased learner motivation, self-efficacy, and perceived competence. The study revealed that the creative and authentic

nature of the tasks fostered intrinsic motivation and personal investment in the learning process. Mulyadi et al. (2023) reported that ESP learners perceived technology-enhanced TBLT as more relevant, engaging, and aligned with their professional goals, leading to increased autonomy and self-directed learning behaviors.

Vellanki and Bandu (2021) emphasized that the authentic nature of technology-mediated tasks contributed to higher levels of student engagement, satisfaction, and persistence in language learning. The study noted that the immediate practicality and real-world relevance of technology-mediated tasks helped students perceive the direct value of their language learning efforts. Several studies also reported reductions in language anxiety, particularly in speaking tasks, where technology provided a less intimidating environment for practice and performance (Taguchi & Zhao, 2025).

Effective Technological Tools and Task Design

The review identified several categories of technologies that have been successfully implemented in TBLT contexts:

1. Mobile-assisted learning platforms (Fang et al., 2021) that enable anytime-anywhere learning and micro-task engagement

2. Virtual Reality environments (Taguchi & Zhao, 2025; Christoforou et al., 2024) that provide immersive, contextualized language practice scenarios

3. Collaborative digital tools (Azis & Hu, 2020) that facilitate peer interaction and co-construction of knowledge

4. Multimedia creation tools (Kang & Kim, 2021) that allow for creative expression and multimodal communication

5. AI-enhanced learning systems that provide personalized feedback and adaptive task sequencing

Virtual reality environments emerged as particularly promising, with Taguchi and Zhao (2025) arguing that VR can create immersive language learning experiences that closely simulate real-world contexts, facilitating the acquisition of pragmatic competence and intercultural understanding. The synthesis revealed that successful task design typically incorporates clear real-world relevance, appropriate challenge levels, opportunities for collaboration, and integration of multimodal resources.

Implementation Challenges and Facilitators

Despite the positive outcomes, several significant challenges in implementing technology-mediated TBLT were identified. Schmid and Kratzer (2025) highlighted difficulties in adapting technology-mediated tasks for young learners, including attention management, digital literacy requirements, and the need for simplified interfaces. Pankeaw and Satayaban (2025) noted infrastructure limitations in some educational contexts, including unreliable internet connectivity, limited access to devices, and technical support deficiencies.

Teacher preparation emerged as a critical factor, with Smith and González-Lloret (2020) emphasizing the need for professional development in both technological skills and task design principles. Many studies reported that teachers required support in developing technological pedagogical content knowledge (TPACK) to effectively integrate technology within TBLT frameworks. Institutional support, including time for curriculum development and technical assistance, was identified as crucial for sustainable implementation.

Successful implementation facilitators included: (1) gradual integration approaches that allowed for iterative refinement; (2) peer support networks among teachers; (3) alignment with existing curriculum goals; and (4) involvement of students in technology selection and task design processes.

Theoretical and Practical Implications

The findings of this systematic review have significant theoretical implications for understanding language acquisition in digital environments. The consistent positive outcomes across studies suggest that technology-mediated TBLT effectively operationalizes key principles of sociocultural theory and situated learning by providing authentic contexts for language use and social interaction. The affective benefits align with self-determination theory, as technology-mediated tasks appear to support learners' needs for autonomy, competence, and relatedness.

From a practical perspective, the review provides evidence-based guidance for educators seeking to implement technology-mediated TBLT. The identified effective practices include: starting with clear learning objectives rather than technological features; providing scaffolding for both language and technology use; incorporating opportunities for reflection and metacognitive development; and designing assessment that aligns with task objectives and processes.

Conclusions

Based on the systematic review of 15 empirical studies published between 2020-2025, the following conclusions can be drawn:

Technology-mediated TBLT has demonstrated significant positive effects on EFL learners' linguistic competence across multiple domains, including speaking fluency, writing skills, reading comprehension, and conversational interaction. The authentic,

meaningful engagement facilitated by technology-mediated tasks appears to promote deeper language processing and more sustainable learning outcomes.

The approach consistently enhances learners' motivational constructs, engagement patterns, self-efficacy beliefs, and autonomous learning capabilities. The authentic audiences, immediate relevance, and creative possibilities of technology-mediated tasks contribute to increased investment and persistence in language learning.

Various technological tools, including mobile platforms, virtual reality, collaborative software, and AI-enhanced systems, have been effectively integrated into TBLT frameworks. The specific technology appears less important than its appropriate integration within sound pedagogical design principles.

Successful implementation requires adequate teacher technological pedagogical content knowledge, institutional technological infrastructure, careful curricular alignment, and attention to contextual factors. The human and organizational elements of implementation are as crucial as the technological components.

Technology-mediated TBLT represents a promising approach for contemporary language education that effectively addresses the need for authentic, engaging, and relevant language learning experiences. However, further research is needed to explore long-term effects, implementation in diverse contexts, and the potential of emerging technologies.

The findings support the continued integration of technology in task-based language teaching while emphasizing the importance of pedagogical considerations over technological features alone. Future research should employ longitudinal designs to examine sustained impacts, investigate implementation processes across different educational cultures, and explore the ethical dimensions of increasingly pervasive educational technologies.

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