Task-Based Language Teaching in the Digital Era: Conceptualizing Technology-Enhanced Tasks for TESL

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ARTICLE INFO	ABSTRACT
	Technology has significantly reshaped language learning, offering new possibilities for integrating digital tools with Task-Based Language Teaching (TBLT). While TBLT is widely recognised for its effectiveness in second language acquisition, it is still necessary to explore how technology can enhance its core principles and improve learning outcomes. The main challenge lies in designing, implementing, and assessing technology-enhanced tasks that align with TBLT while addressing digital literacy gaps, task complexity, and assessment validity. This conceptual paper discusses how technology enhances TBLT in Teaching English as a Second Language (TESL). It explores theoretical models and frameworks that support technology-mediated tasks, such as online simulations, gamified learning, and collaborative digital activities. Using a critical analysis of existing literature, this paper aims to identify key benefits, challenges, and best practices concerning Technology-Enhanced Tasks with TBLT. This paper will provide insights into how technology could support language acquisition in task-based learning environments by synthesising current research. It will also highlight areas for further investigation, particularly in task design, assessment strategies, and teacher training. The paper contributes to the ongoing discussion on enhancing digital tools for language education, ensuring that technology serves as an effective complement to the TBLT approach.

1. Introduction

The rapid advancement of digital technologies has revolutionised educational practices, creating new opportunities and challenges for language instruction. In the field of Teaching English as a Second Language (TESL), Task-Based Language Teaching (TBLT) has been widely recognised as an effective communicative approach that prioritizes real-world, goal-oriented tasks to promote language acquisition [1,2]. Traditionally, TBLT has been implemented in face-to-face classroom settings, where learners engage in problem-solving activities, role-plays, and collaborative tasks designed to develop both linguistic competence and communicative ability. However, as digital

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technologies become more integrated into education, there is an increasing need to reimagine TBLT within technology-enhanced learning environments, as discussed by González-Lloret and Ortega [3]. This shift requires a conceptualization of technology-mediated tasks that leverage digital tools to enhance interaction, engagement, and learning outcomes in TESL.

The digital era offers a wealth of technological resources that can be effectively integrated into task-based instruction. Online simulations, gamified learning experiences, and collaborative digital activities introduce new dimensions of interactivity, multimodality, and learner autonomy, fostering a more immersive and adaptive language learning experience [4,5]. For instance, online simulations provide learners with authentic, interactive scenarios where they must navigate language use in real-time, developing linguistic and critical thinking skills, as mentioned by Cornillie *et al.,* [6]. Similarly, gamified learning incorporates game mechanics such as rewards, challenges, and progression systems to enhance learner motivation and engagement, as discussed by Reinhardt *et al.,* [7]. According to Jeong *et al.,* [8], collaborative digital activities, facilitated by platforms such as Google Docs, discussion forums, and video conferencing tools, promote peer interaction, negotiation of meaning, and co-construction of knowledge, aligning with TBLT's communicative principles. Several theoretical perspectives support the integration of technology-mediated tasks within TBLT and highlight the cognitive, social, and pedagogical implications of digital learning environments.

Despite the many benefits of technology-mediated tasks, their implementation is not without challenges. According to Beatty and Ken [9], task authenticity in digital settings remains a key concern, as online interactions may lack the immediacy and spontaneity of real-world communication. Additionally, learner autonomy and self-regulation become increasingly important in technology-enhanced learning environments, where students must navigate digital tasks with varying levels of guidance, as stated by Reinders *et al.,* [10]. As mentioned by Hampel *et al.,* [11], the role of instructors also evolves in technology-mediated TBLT, shifting from direct instruction to facilitating and moderating digital interactions, requiring new pedagogical competencies.

Moreover, based on the findings by Warschauer and Mark [12], the digital divide, referring to disparities in access to technology and digital literacy, can impact the effectiveness of technology-enhanced TBLT, particularly for learners from underserved educational contexts. The successful integration of digital tools in TBLT requires careful consideration of technological infrastructure, accessibility, and learner readiness to ensure equitable learning experiences. Addressing these challenges involves pedagogical innovation, teacher training, and research-driven approaches that optimize the design, delivery, and assessment of technology-mediated tasks.

While previous studies have explored various aspects of technology-mediated TBLT, there remains a lack of comprehensive research on the long-term impact of digital task-based learning on TESL proficiency. Additionally, the integration of technology with TBLT is often discussed broadly, but there is limited empirical evidence on its effectiveness in enhancing learner engagement and language acquisition in under-resourced educational settings. This study aims to address these gaps by analysing how technology-enhanced tasks influence language proficiency over time and evaluating their applicability in diverse TESL contexts, particularly in settings with limited digital resources.

This paper explores how technology facilitates the implementation of Task-Based Language Teaching (TBLT) principles in second language learning, the role of models and frameworks in supporting the integration of technology-enhanced tasks, and the challenges involved in designing, implementing, and assessing these tasks.

Some examples of empirical studies on TBLT are Bui *et al.,* [13], who compared the effectiveness of TBLT and the PPP method with third- and fourth-grade L2 learners in Vietnam, emphasising the importance of needs analysis in TBLT. Secondly, Larsen-Freeman and Diane [14] argued that

interaction facilitates language acquisition as meaning is negotiated. Then, Nunan and David [15] outlined seven principles of TBLT: scaffolding, task dependency, recycling, active learning, integration, reproduction to creation, and reflection.

2. Technology in Language Teaching
2.1 Implementation of TBLT and Technology in TESL "Theoretical Approach"

Technology has become an essential part of modern language teaching, helping both teachers and students in many ways. TBLT focuses on learning through real-life tasks, and technology has made this approach even more effective. Using technology in TBLT creates interactive learning environments where students communicate and practice the language in meaningful ways, improving their skills, as mentioned by Putri and Baiq [16]. This shift towards digital learning allows students to engage in real-world activities, making learning more practical and effective.

Task-based language teaching defines the use of authentic language to complete meaningful tasks that complement the language. According to Littlewood and William [17], Nunan and David [1], and Richards and Jack [18], it is a process-oriented method of teaching languages that places communicative language instruction at the centre of syllabus design and instructional objectives. TBLT's core idea is that communicating the curriculum's fundamental units are tasks, which are also the only components of the pedagogical cycle where meaning is prioritised.

The interaction, sociocultural, and ecological approaches three user oriented theories of Second Language Acquisition are the cornerstones of TBLT as highlighted by Ortega and Lourdes [19]. A psycholinguistic use-oriented theory that provides theoretical support for TBLT is the interaction approach to SLA. It emphasizes that involving students in communicative activities pushes them toward modified output, gives them constructive criticism and high-quality language input, and directs their attentional resources selectively toward structural characteristics throughout the interaction, as highlighted by several authors [20,21].

According to this theoretical viewpoint, TBLT offers the best linguistic settings and circumstances for negotiated contact, which may make it advantageous for language acquisition. On the other hand, TBLT is theoretically supported by the sociocultural approach to SLA. According to this method, language acquisition is physical, social, and symbolic. Learners' interactions with diverse social-material settings lead to the development of artefacts, as evidenced in the study by Hima *et al.,* [22], and "socially organised and goal-directed actions play a central role in human development". Therefore, this theoretical viewpoint affirms the benefits of TBLT in providing chances for collaborative discussions and scaffolding, which are essential components of learning.

Additionally, affordance theory, as discussed by previous studies, plays a critical role in understanding how learners perceive and utilize digital tools in language learning [23,24]. The affordances of online communication tools, virtual reality, and artificial intelligence (AI)-driven learning systems create unique opportunities for task design, expanding the range of possible learning experiences beyond traditional classroom-based interactions, according to Blin and Françoise [25]. By drawing on these theoretical foundations, technology-enhanced TBLT can be effectively structured to align with cognitive, social, and pedagogical principles, ensuring that digital tasks facilitate meaningful, contextualized, and interactive language use.

TBLT is theoretically supported by the ecological approach to language learning. Language acquisition is seen from an ecological perspective as a relational human activity that is jointly created by people and their surroundings, as outlined by Rod *et al.,* [26]. This viewpoint holds that language acquisition takes place in "the context of the learners' actions, where learners utilize language as well as other tools and the given conditions of the classroom to attain. According to Rod *et al.,* [26] page

number 124, language acquisition is done "to act, and by acting, in a world where language is performative," and students have specific objectives that are motivated by their intentions and motives.

2.2 Figure Style and Format

By using authentic tasks to enhance target language input, this TBLT can help students become more motivated to learn the language, as studied by the authors [27,28]. Several models of pedagogical stages have been proposed by eminent scholars to implement TBLT, including Ellis and Rod [29] review paper on that mentioned pre-task, main task, and post-task; Nunan and David [1] has proposed pedagogical tasks and real-world target tasks; and Williams *et al.,* [30] has proposed the pre-task phase, the task cycle, and the language focus. The main objective of this TBLT should be to improve learners' target language performances through meaningful assignments, regardless of the variations in their educational sequences. To create technology-enhanced TBLT, the current study modified the TBLT pedagogical stages from Willis and Jane [31] and Nielson *et al.,* [32]

Some renowned tasks are Collaborative writing platforms (Google Docs, Padlet). This platform supports group writing projects where students can see and comment on their peers' work. Enhancing collaborative learning at the same time. Secondly, Gamified learning apps (Quizizz, Kahoot) help reinforce language concepts in a fun way. The interesting features available in such apps capture students' interest and allow them to be engaged in the classroom, as stated by Reinhardt *et al.,* [7]. These apps also allow grammar and vocabulary to be learned interactively. Moving on, AI chatbots and virtual assistants (ChatGPT, Duolingo) provide instant conversation practice. For students who are weak in grammar, adjust content based on a student's progress, offering personalized exercises and feedback. While they are valuable tools, they should complement, not replace, human teachers, helping educators focus on creativity, mentorship, and deeper student engagement, according to Mulyadi *et al.,* [33].

3. Technology-Enhanced Tasks in TBLT
3.1 Models and Frameworks

Technology-enhanced TBLT models and frameworks have also been established regarding task design, implementation, and assessment. Such frameworks prevent the use of technology as an accessory merely by providing structures to help educators combine both language and tools when engaging learners authentically. A few researchers have presented models relating technology to TBLT principles that provide systematic methods to design tasks in digital spaces.

In a study by Iberahim *et al.,* [34] it is discussed that, in this digital age, the use of technology and its integration into teaching and learning English has become crucial. To effectively implement task-based language teaching, it is important to consider various models and frameworks that can be used to specialise in the tasks.

These frameworks provide a better foundation for enhancing the effectiveness of technology-enhanced tasks. Especially now that students are learning a lot from this modern era. A study by Iveson and John [35] investigates the use of technology in TBLT and highlights the advantages and challenges, like student engagement, corrective feedback, and the feedback process. It offers some perspectives on how TBLT frameworks can be adapted to facilitate the use of digital tools. A critical review investigates the connection between technology and TBLT, addressing how each area has informed and challenged the other in its process of achieving TBLT in technology-mediated

environments. It highlights important issues requiring attention for advancing technology-enhanced TBLT as put forward by Lai *et al.,* [36].

The SAMR model provides a framework in connection to TBLT. It is by explaining how the use of digital tools enhances the task used in the lesson. Puentedura's SAMR model, which stands for Substitution, Augmentation, Modification, and Redefinition, is a model used in educational technology as shown in a paper by Al-Khalidi *et al.,* [37]. In a review by Hamilton *et al.,* [38] traditional tools can be replaced by technology with not much change in lessons. In some ways, the method of the lesson can be retained, but the effectiveness and students' engagement can be increased. Besides that, technology opens up a variety of learning tasks, which increases learning opportunities in line with real-world tasks. This, of course, aligns with the TBLT approach.

3.2 Role of Technology-Enhanced Tasks in TBLT

Various studies have researched different types of technology-enhancing tasks that align with the TBLT goals and principles. CMC task engages learners in asynchronous communication using various digital platforms, as mentioned by González-lloret and Marta [39]. CMC refers to computer-mediated communication, where online platforms are used as the source of communication between individuals mentioned in the paper by Marani *et al.,* [40]. In the study by González-lloret and Marta [39], the effect of CMC on second-language learning through the application of tasks was studied. This is to compare both the use of digital platforms and face-to-face. Besides that, the impact of using this model found that many studies support the use of CMC-integrated learning.

Exploring collaborative writing tasks through technology is using digital applications that allow learners to work in pairs, groups or teams on particular writing tasks. According to Mulyadi *et al.,* [33], a quasi-experiment was done, and it was found that combining TBLT with learning technologies proved to be advantageous for learners' listening comprehension and speaking performance.

Computer-assisted language learning (CALL) was analysed by Aljohani and Nouf [41], which was evaluated and studied by Chapelle *et al.,* [4], and González-Lloret and Ortega [3] are considered in the use of TBLT. González-Lloret and Ortega [3] stressed the importance of defining the tasks with clarity to avoid the technologies being used for mere purposes such as extending the exercises. It is mentioned that the CALL framework acknowledges the term 'task' to encompass broader aspects, from classroom environment to activities. With the use of the Technology-Mediated TBLT Framework, it is hoped that the tasks can be more authentic and practical and that they don't deviate from TBLT principles. Mobile-assisted language Learning (MALL) assists in using real-world content, which includes authentic materials. MALL induced with TBLT allows the learners to communicate with their peers and learn from the interactions discussed by Jarvis and Huw [42].

According to Mulyadi *et al.,* [33], TBLT with the integration technology enhances tasks and enhances listening and speaking performance. It allows learners to interact and work in an autonomous mode. There are very limited studies concerning TESL, specifically concerning technology-enhanced tasks. Figure 1 shows the SAMR model by Puentedura.
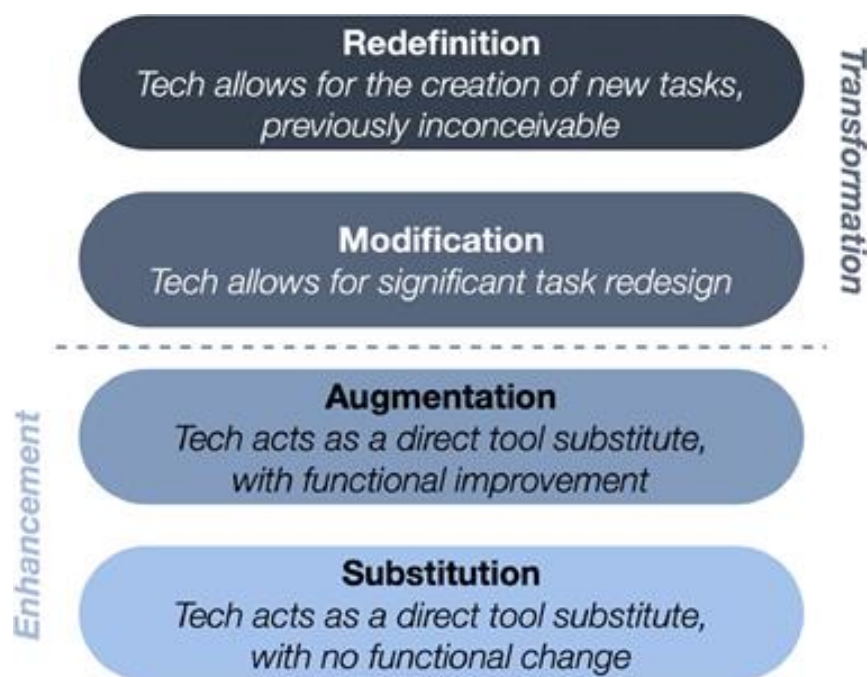
Fig. 1. SAMR model by Puentudura [34]

4. Advantages and Challenges in Implementing Technology-Enhanced TBLT

Technology-enhanced task-based Language Teaching (TBLT) has improved second language acquisition by increasing learner engagement, fostering authentic communication, and enabling adaptive learning experiences. However, the implementation of technology in TBLT presents challenges, including technical limitations, teacher and student preparedness, and complexities in task design and assessment.

4.1 Advantages of Technology-Enhanced TBLT

Mulyadi *et al.,* [33] state that technology enhances engagement and motivation by incorporating digital tools, such as mobile applications and gamified tasks. This encourages learner participation and reduces anxiety. Chong *et al.,* [43] highlight that learners experience a sense of accomplishment when completing real-world tasks, like blog creation and virtual role-play, which reinforce their motivation to use the target language. Furthermore, Fang *et al.,* [44] further explain that mobile-supported TBLT sustains engagement by integrating real-time feedback and scaffolding techniques, ensuring continuous learner involvement.

Mulyadi *et al.,* [45] emphasize that technology strengthens authenticity and real-world application in language learning by exposing students to video-based tasks, email correspondence and online discussions. This exposure makes language acquisition more relevant to practical use. Xue and Sijia [46] support this by explaining that mobile-supported TBLT enhances conversational skills through real-world simulations. For example, GPS-based vocabulary acquisition activities foster meaningful communication.

Belda-Medina and Jos [47] and Butarbutar and Ranta [48] assert that digital tools foster collaboration by supporting synchronous and asynchronous communication. Discussion forums and collaborative writing tools promote meaningful peer interactions, while mobile applications provide linguistic and task-based scaffolding to improve student participation and teamwork. mobile

applications encourage collaboration by offering linguistic and task-based scaffolding, hence improving peer communication and participation.

Alakrash *et al.,* [49] highlight the role of technology in personalizing learning experiences. Digital platforms offer individualized feedback that allows learners to refine their skills based on automated corrections and teacher evaluations. Mudra and Heri [50] add that features like bilingual texts and multimedia resources accommodate diverse learning styles. This makes language learning more inclusive and adaptive to student needs.

Nugroho *et al.,* [51] argue that technology also improves assessment by incorporating real-time tracking and automated feedback. Learners benefit from self-assessment tools, recorded presentations and interactive reflections as they facilitate ongoing evaluation. Mulyadi *et al.,* [33] further note that peer assessment is streamlined through online blogs and discussion forums, where students can review and critique each other's work constructively, promoting collaborative learning and critical thinking skills.

4.2 Challenges in Implementing Technology-Enhanced TBLT

Despite the benefits, the implementation of technology-enhanced TBLT faces several challenges. Chong *et al.,* [43] note that technical issues, such as internet connectivity and inadequate digital infrastructure, hinder the execution of digital tasks in institutions with limited resources. Fang *et al.,* [44] add that lesson preparation requires educators to invest significant time and effort. This increases their workload and limits their ability to implement technology-based lessons effectively.

Mulyadi *et al.,* [45] argue that teacher readiness remains a major concern as many instructors lack the digital literacy skills and pedagogical knowledge to design and implement technology-enhanced tasks. Mulyadi *et al.,* [45] suggests that professional development programs are necessary to equip educators with the skills needed to integrate technology into TBLT. Butarbutar and Ranta [48] and Mudra and Heri [50] explain that student readiness also varies, with some learners struggling to navigate digital learning environments. Issues such as unfamiliarity with technological tools and spending excessive time on non-language aspects of tasks can lead to decreased participation and reduced engagement.

Belda-Medina and Jos [47] states that task complexity presents another major challenge. Digital tasks must align with TBLT principles while remaining pedagogically sound. Mulyadi *et al.,* [33] emphasize that overly complex tasks require extensive scaffolding to ensure learner success, while Chong *et al.,* [43] caution that over-reliance on technological scaffolds may hinder cognitive engagement, which prevents learners from fully developing their language proficiency.

Fang *et al.,* [44] and Nugroho *et al.,* [51] discuss assessment difficulties in digital TBLT, especially in measuring communicative competence. Open-ended online tasks, such as discussions and presentations, do not always yield significant language gains. Moreover, there is concern that digital tasks place insufficient focus on grammar instruction, which affects linguistic accuracy and overall language development.

Xue and Sijia [46] states that cultural and contextual constraints also influence the successful implementation of technology-enhanced TBLT. Institutional policies, standardized testing requirements and rigid curricula may restrict the integration of digital tools into language instruction. Mulyadi *et al.,* [45] further note that learners' cultural backgrounds and communication preferences impact their willingness to engage in technology-mediated language tasks. High-context cultures may struggle with digital tasks that emphasize direct communication, while low-context cultures may find implicit learning strategies less effective.

4.3 Strategies for Overcoming Challenges

Bipasha and Sharmin [52] emphasize that improving digital infrastructure is crucial, especially in institutions with limited access to technological resources. Reliable internet connectivity, digital platforms, and user-friendly educational technology tools must be provided to ensure smooth integration into TESL classrooms. Schools should also adopt blended learning approaches to mitigate infrastructure limitations and ensure that students can access digital resources without disruptions.

Taourite and Fatima [53] highlight the importance of professional development programs in equipping teachers with the skills needed to implement digital TBLT effectively. Structured training on digital pedagogy, task design, and assessment methods ensures that educators are well-prepared to integrate technology into language instruction. Hands-on workshops and continuous mentorship programs can further support teachers in adapting to digital learning environments.

The Western Interstate Commission for Higher Education underscores the significance of culturally responsive digital learning [54]. Educators should incorporate diverse cultural materials and perspectives into their instructional design, ensuring that technology-mediated tasks reflect students' linguistic backgrounds and cultural contexts. Digital platforms, such as interactive storytelling applications and multilingual discussion forums, allow learners to engage with language tasks in ways that align with their cultural norms.

Similarly, Will and Najarro [55] discuss the role of culturally responsive teaching in leveraging students' cultural identities and lived experiences as instructional assets. They stress that integrating culturally relevant materials, such as localized role-play scenarios or region-specific multimedia content, within technology-enhanced TBLT can foster better engagement and academic performance. Alvarado-Ramos and Luis [56] highlights the importance of culturally responsive teaching in online classrooms. He emphasizes that adaptive learning technologies can be designed to accommodate diverse student needs. For example, AI-driven language platforms can personalize content based on learners' cultural contexts, which makes online language instruction more inclusive and effective.

Assessment remains a challenge in technology-enhanced TBLT, especially in measuring communicative competence and language development. Krishnan and Jeevanithya [57] explore how technology-enhanced formative assessments provide immediate feedback. This allows educators to monitor student progress in real time. The study recommends using digital tools such as quizzes, interactive reflections, and peer assessment platforms like Google Docs and Padlet to evaluate student performance in real time. Huong *et al.,* [58] further emphasise the importance of digital formative assessment in tracking student learning beyond traditional exams. They suggest that implementing self-assessment tools, peer feedback mechanisms, and e-portfolios ensures that students engage in continuous learning and reflection, ultimately improving their language proficiency over time.

5. Conclusions

The integration of technology into Task-Based Language Teaching (TBLT) has reshaped the landscape of Teaching English as a Second Language (TESL) by enhancing task authenticity, engagement, and interactivity. This conceptual paper has explored the intersection of TBLT and digital technologies, examining how technology supports core TBLT principles, the most effective types of technology-enhanced tasks, and the challenges involved in designing, implementing, and assessing such tasks. This study has acknowledged the limitations and challenges that need to be addressed for its successful adoption in TESL contexts.

Online platforms, gamified learning environments, and collaborative digital tools enhance task complexity, promote active engagement, and provide adaptive feedback, facilitating meaningful language acquisition as proposed by Beatty and Ken [9]. This study identified several digital task models and frameworks that align with TBLT's pedagogical objectives. These models illustrate how digital tasks expand the scope of TBLT, making language learning more interactive, engaging, and contextually relevant.

The challenges of integrating technology-enhanced tasks into TBLT. While digital tools offer significant pedagogical benefits, their implementation in TESL is accompanied by several constraints. Designing culturally appropriate digital tasks that mirror real-world discourse patterns remains a key challenge. Many teachers may lack adequate training or institutional support to integrate digital tasks effectively. The digital divide remains a significant barrier, particularly in under-resourced educational contexts. Issues such as limited internet access, lack of digital devices, and technological infrastructure challenges may create inequities in language learning opportunities, as put forward by Warschauer and Mark [12].

While this conceptual paper has provided valuable insights into technology-enhanced TBLT in TESL, certain limitations must be acknowledged. There is limited Empirical Research on TESL. Most existing studies on technology-enhanced TBLT focus on general second language acquisition (SLA), with fewer studies specifically examining TESL contexts. More empirical research is needed to explore how digital tasks impact English language learners across diverse TESL settings. Future research should focus on developing standardized models for TESL educators to implement, adapt, and assess digital TBLT effectively. Moreover, it is needed for longitudinal studies. Most studies on digital TBLT focus on short-term learning outcomes, providing limited insights into long-term language development and retention. Longitudinal studies are essential to assess the sustained impact of technology-enhanced TBLT on learners' proficiency, engagement, and communicative competence.

Acknowledgement

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