

Proven or Promising? Global TELL Trends and Patterns in Foreign Language Education

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Abstract

In recent decades, language education has focused on Technology Enhanced Language Learning (TELL) research, which is expanding; however, there has been a dearth of systematic reviews of TELL studies from the Web of Science Core Collection, the most rigorous journals, spanning from 2006 to date. Lack of composite analyses hinders our understanding of the field's global footprint and methodological issues. To address this gap, the researcher systematically reviewed a data set of 20 open-access articles published between 2006 and 2025. This systematic review, following PRISMA, searched for key variables including publication years, geographic publication, research aims, research design, participants, instruments, and the status quo of TELL findings. The findings demonstrate a dramatic increase in TELL studies since 2015 and led primarily by the U.S., Taiwan, and China. Based on the research trend, it appears that there are studies focused on evaluating different aspects of digital tools, developing pedagogical frameworks, and the learning and teaching contexts. There is a predominance of university students as study participants, and most studies have relied on mixed methodologies. The identified tools included surveys, learners' and educators' learning management system (LMS) use, virtual reality technologies (VR), and bibliometric software for article analysis. While learning outcomes in general have been favorable, certain realities, such as user overload (motivational), sociocultural factors, and teacher readiness, still remain. Adjudicated by studies published, this systematic review provides valuable insights and one important contribution in particular: a mapping of two decades of TELL studies, which has highlighted regions of the world that are underrepresented and learner identities that are underrepresented within studies. This recent review has shed light on the need for TELL studies to consider broader learner identities, not just certain learner contexts, on broader research on developing contact-sensitive/informed pedagogies, and research has demonstrated a lack of theoretically informed pedagogies

Keywords: Digital Language Pedagogy, global language education trends, technology-enhanced language learning, TELL, systematic review

TELL Araştırmalarında Kanıt Mı, Potansiyel Mi? Küresel Yabancı Dil Eğitimi Eğilimleri ve Desenleri

Özet

Son yıllarda dil eğitimi alanında giderek artan bir şekilde Teknoloji Destekli Dil Öğretimi (TELL) araştırmalarına odaklanılmasına rağmen, Web of Science Core Collection'da yer alan, en saygın dergilerde yayımlanan TELL çalışmalarının 2006 yılından günümüze kadar olan sistematik bir incelemesine ilişkin ciddi bir eksiklik bulunmaktadır. Alana dair kapsamlı analizlerin eksikliği, küresel ölçekteki eğilimleri ve yönetsel sorunları yeterince anlamamızı engellemektedir. Bu boşluğu doldurmak amacıyla, araştırmacı 2006–2025 yılları arasında yayımlanmış, açık erişimli 20 makaleyi sistematik biçimde incelemiştir. PRISMA protokolüne bağlı kalınarak yürütülen bu sistematik derlemede; yayın yılları, coğrafi dağılım, araştırma amaçları, araştırma desenleri, katılımcı profilleri, kullanılan veri toplama araçları ve TELL bulgularının mevcut durumu gibi değişkenler analiz edilmiştir. Bulgular, 2015 yılından itibaren TELL çalışmalarında belirgin bir artış olduğunu ve bu artışın ağırlıklı olarak ABD, Tayvan ve Çin öncülüğünde gerçekleştiğini göstermektedir. Araştırma eğilimleri, dijital araçların çeşitli yönlerine ilişkin değerlendirmelere, pedagojik çerçeve geliştirme çalışmalarına ve öğrenme-öğretme bağamlarına odaklanan çalışmalara işaret etmektedir. Katılımcıların çoğunluğunu üniversite öğrencileri oluşturmakta olup, çalışmaların büyük kısmı karma yöntem yaklaşımı benimsemiştir. Kullanılan araçlar arasında anketler, öğrenen ve

öğretmenlerin öğrenme yönetim sistemleri (LMS) kullanımı, sanal gerçeklik teknolojileri (VR) ve makale analizleri için bibliyometrik yazılımlar yer almaktadır. Genel anlamda öğrenme çıktıları olumlu olmakla birlikte, kullanıcı yorgunluğu (motivasyonel), sosyokültürel etkenler ve öğretmen yeterliliği gibi bazı yapısal sorunlar varlığını sürdürmektedir. Yayımlanan çalışmalar ışığında yürütülen bu sistematik derleme, alana dair iki on yıla yayılan araştırmaları haritalandırmakta ve yeterince temsil edilmeyen coğrafi bölgeleri ve çalışmalar içerisinde sınırlı biçimde yer verilen öğrenen kimliklerini vurgulamaktadır. Bu güncel derleme, TELL araştırmalarının yalnızca belirli öğrenen bağlamlarına değil, daha geniş öğrenen kimliklerine odaklanması gerektiğine, bağlama duyarlı pedagojiler geliştirilmesine yönelik araştırma ihtiyacına ve kuramsal temeli zayıf olan pedagojik yaklaşımlara dikkat çekmektedir.

Anahtar Sözcükler: Dijital Dil Pedagojisi, Küresel Dil Eğitimi Eğilimleri, Teknoloji Destekli Dil Öğretimi, TELL, Sistematik Derleme

1. Introduction

Language learning is inherently complex and multifaceted, and according to Lightbown and Spada (2021) it involves the continuous interaction with diverse linguistic inputs and the systematic development of various language skills. The swift growth in 21st century technology, especially over the last few decades, has significantly altered the field of language education, allowing students unprecedented access to an extensive inventory of instruments and internet-based resources (O'Dowd, 2007). These innovations not only facilitate exposure to authentic language use but also support skill development through engaging and interactive tasks. Shadiev and Huang (2019) highlight that technology is instrumental in handling the shifting demands and goals of learners, educators, and policymakers in instructional contexts. Its application spans a range of pedagogical functions, enhancing both the effectiveness and personalization of language instruction.

The field of study known as Technology-Enhanced Language Learning (TELL) focuses on exploring how technology can be effectively deployed in the context of language learning and instruction (Yeşilel, 2016). From a broader perspective, Karanthi (2017, p. 31) refers to TELL as “the use of computer as a technological innovation to display multimedia as a means of complementing a teaching method”. While TELL has been around since the 19th century, the advent of personal computers in the latter half of the twentieth century marked a watershed point. There was an upsurge in the popularity of Computer-Assisted Language Learning (CALL) software, which allowed students to study at their own speed and practice at any time. The advent of the internet in the 1990s, which enabled worldwide connectivity and access to vast resources, was a game-changer for teaching English to speakers of other languages via TELL, as it provided language learners with authentic materials and online communities. In the early 21st century, the widespread adoption of mobile devices led to an even greater expansion of the reach and scope of TELL. Drawing on the broad appeal of tablets and cell phones, a segment within TELL, known as Mobile-Assisted Language Learning (MALL), was established with the goal of providing language learners with anytime, anywhere language learning experiences. Learners had the opportunity to access language assets and possibilities for informal education while on the move, thanks to mobile apps, podcasts, and social media platforms (Chapelle, 2001; Godwin-Jones, 2016; Stockwell & Hubbard, 2013).

In addition to technological developments, instructional theories and methods have influenced the development of TELL. Fostering meaningful interactions and actual use of language, contemporary TELL strategies accentuated student-driven, task-oriented, and societal positioned techniques (Thorne, 2003). The way digital platforms and mobile apps are combined in language instruction is very effective use of technology. According to Chau and Nyugen (2021) digital TELL tools in language education now serve far more than a supplementary role; they provide interactive, learner-centered environments that actively support language development. Duong et al. (2021) in their study unearthed a significant contribution of TELL tools to student-driven strategies for vocabulary learning.

According to Park and Son (2020), these online educational settings enable the cultivation of vital twenty-first-century skills while contributing to the attainment of integrated language skills, all within a flexible, self-directed context. Generating immediate, tailored feedback is one of these technologies' greatest benefits since it boosts autonomy among learners and enhances instruction. In Tran and Nyugen's (2021)

study, TELL boosted positive attitudes and increased self-efficacy in academic writing. Additionally, technology makes the potential for learning to be extremely tailored.

As explained by Crews et al. (2015), adaptive learning systems offer a capacity to constantly change task complexity and material to accommodate the distinct learning goals, preferences, and skill level of each student. Kebritchi et al. (2017) and Murray et al. (2012) have demonstrated that this tailored strategy strengthens motivation, sustains learner engagement, and thereby enables greater effectiveness in language learning. Concurrently, digital platforms generate significant opportunities for shared learning. Through online social networks, asynchronous interactions, and remote classrooms, students can communicate with classmates, share their thoughts and enhance their communication skills. Critical interpersonal abilities such as operating together as a team while encouraging fellow teammates are further developed through such interactions. González-Lloret (2020) points out that technology enriches and diversifies learning, while also building a classroom atmosphere that is more socially conscious and responsive.

The Roman demigod of beginnings and transitions, Janus, is typically depicted with two distinct faces in traditional representations; one facing forward and the other facing backward. This double-faced representation serves as a metaphor for the merits and demerits of approaches in foreign languages (Dewaele & MacIntyre, 2014; Pektaş & Şık Keser, 2024). Integrating technology into the overall teaching and learning of foreign and second languages is not uncommon for learners, teachers, or directors; each approach comes with both advantages and disadvantages in the context. Having mentioned the merits of TELL, the synthesized literature conversely unravels some drawbacks of TELL. Overdependence of TELL highly confines learners' cognitive intellectual potential (Chau & Nyugen, 2021), besides TELL may result in unsatisfactory results if learners are equipped with low language proficiency and poor digital literacy (Shadiev & Yang, 2020; Zhang & Zhou, 2022) for instructors if not balanced and appropriately employed, instructors may serve for the TELL not TELL serves for instructors and many mislead factors such as inappropriate TELL design, insufficient learner characteristics, teaching context and limited budget may cause TELL to yield drawbacks and negative results in language teaching context (Zhang et al., 2024). Despite limitations, TELL has been shown to be an effective strategy in the aforementioned studies in the language teaching context.

Given the extensive utilization and revolutionary functions of immersive technologies, in conjunction with the envisioned applications of TELL, it is vital to continually review the literature to discern the categories and trends of recent studies. Although there is a plethora of research on TELL employing experimental design (Yeşilbağ & Korkmaz, 2021), qualitative (Yeşilel, 2016), mixed methods (Santiana et al., 2024) and bibliometric analysis (Zhang et al, 2024), the limited time spanned systematic reviews (Zanuidin, 2023), there is dearth of systematic reviews providing a comprehensive understanding based on titan of database, Web of Science (WoS), for reviews. To compensate this research gap, to provide deeper insights for educators, learners and policy makers and to contribute to EFL academia, this study aims to address this underexplored area via employing a comprehensive Systematic Review of TELL studies to seek answers for the research questions formulated below:

1. What is the status quo of publication years, countries, aims, research designs, participants-documents and technological instruments of TELL studies spanning from 2006 to 2025?
2. What are the tendencies of TELL studies' findings ranging from 2006 to 2025?

2. Methodology

Initially developed in the realm of medicine, the Systematic Review has established itself as a reputable and transparent method for inquiry. Yet, studies on Systematic Reviews are not restricted to the field of healthcare; they have evolved and been adopted for interdisciplinary studies. Currently, systematic reviews are conducted for various objectives across multiple disciplines, utilizing diverse sources of evidence to address distinct inquiries (Munn et al., 2018). In a similar vein, Machi & McEvoy (2012) highlight that Systematic Review studies are a vital source of knowledge for any field of science, and furthermore, provide useful synthesis and new ideas to researchers and learners. Within this scope, it falls under the broader concept of literature reviews, yet it demonstrates variations in methodology and criteria selection. Conventional literature reviews tend to be limited to eminent authors or literature based on quick research. This clearly indicates that the same studies are repeatedly cited, introducing persistent bias into literature reviews. The research by Mallet et al. (2012) has contrasted the deficits of conventional literature reviews

and noted the credibility and advantages of systematic reviews and when researchers follow systematic review principles as widely as possible, systematic reviews exhibit superior outcomes compared to conventional literature reviews. Gough and Elbourne (2002) outline that the routine of a clear Systematic Review Protocol not only helps scholars stay on track of the research but also enhances broader transparency for the review, making it a great source for future implications.

This study utilized a systematic review method because of its existing advantages to enhance methodological rigor, maintain transparency in the research process, and reduce unnecessary researcher bias. Systematic reviews offer the opportunity to compile and synthesize disparate studies to develop a clearer and broader representation of the research landscape. With these advantages in mind, the researcher undertook the task of conducting a systematic review, using the Web of Science (WoS) Core Collection, to fill a significant gap in the Technology-Enhanced Language Learning (TELL) literature. There is existing TELL studies that remain temporally limited or thematically constricted. In reviewing peer-reviewed, open-access sources from 2006-2025, this systematic review provides a longitudinal and integrative analysis of TELL study, while enhancing the unity and evidence-base of the field.

The Figure 1 below demonstrates Systematic Review and the track to be followed for researchers

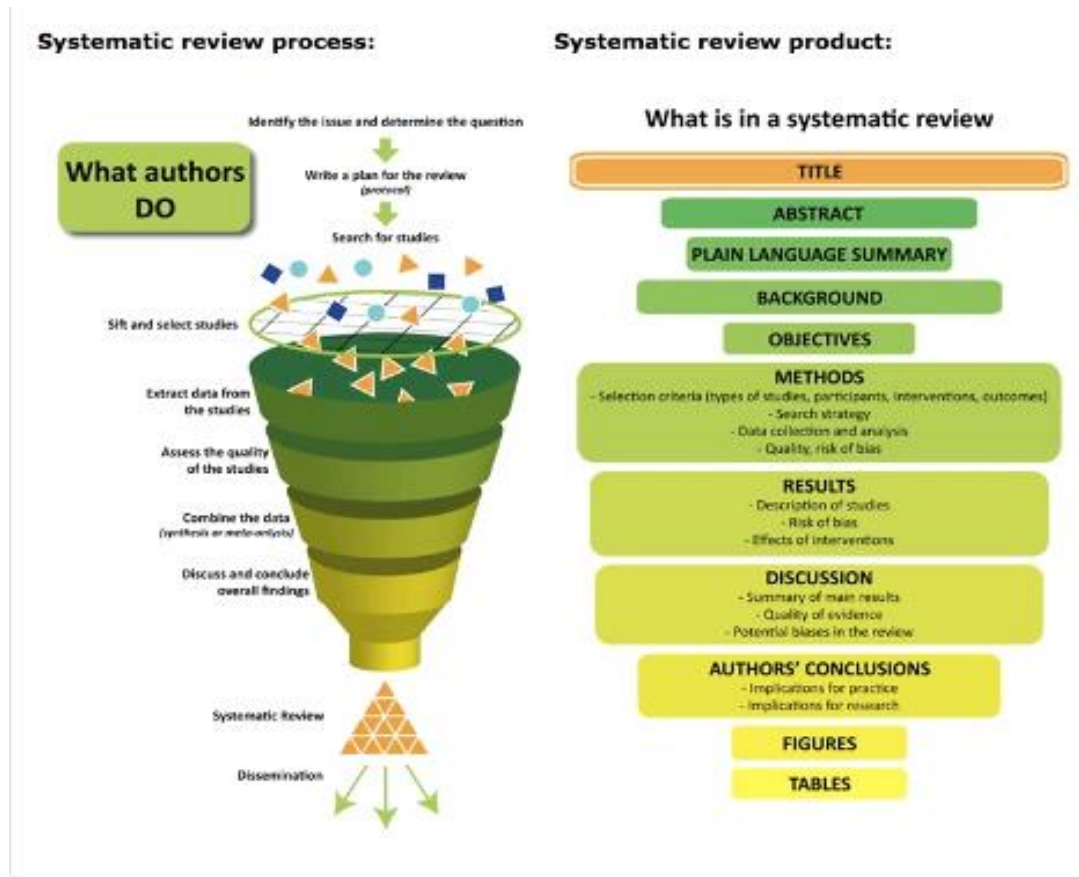


Figure 1. Systematic Review Step by Step Guide (University of Johannesburg Library, 2025)

The researcher retrieved articles in Web of Science Core Collection (WOS) as one of the most dependable bibliographic databases repeatedly operated in review studies (Pranckutė, 2021) and steered a Systematic Review as methodology referencing Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), residing major periods as: identification step, screening step, and inclusion-exclusion step flow diagram (Page et al., 2021). Subsequently, the researcher included studies on and with TELL for the current study. However, to narrow the scope of the study, studies conducted within disciplines other than language teaching, such as computer science and engineering, were excluded. The indexes of the articles served as inclusion or exclusion criteria; hence, articles published in certain SSCI, ESCI, and AHCI indexes were

included. In this regard, articles published in one of the most prestigious global databases, Web of Science (WoS), were selected; thus, other databases were excluded. In addition, open-access full-text articles and reviews were included, while book chapters, conference proceedings, and early-access articles were omitted. Lastly, based on the inclusion and exclusion criteria, the oldest dated article was published in 2006; thus, SSCI, ESCI, and AHCI-indexed articles and reviews, ranging from 2006 to 2025, were incorporated into the study. Articles outside the TELL topic, written in languages other than English, were excluded from the study.

Figure 2 details the PRISMA diagram about TELL studies.

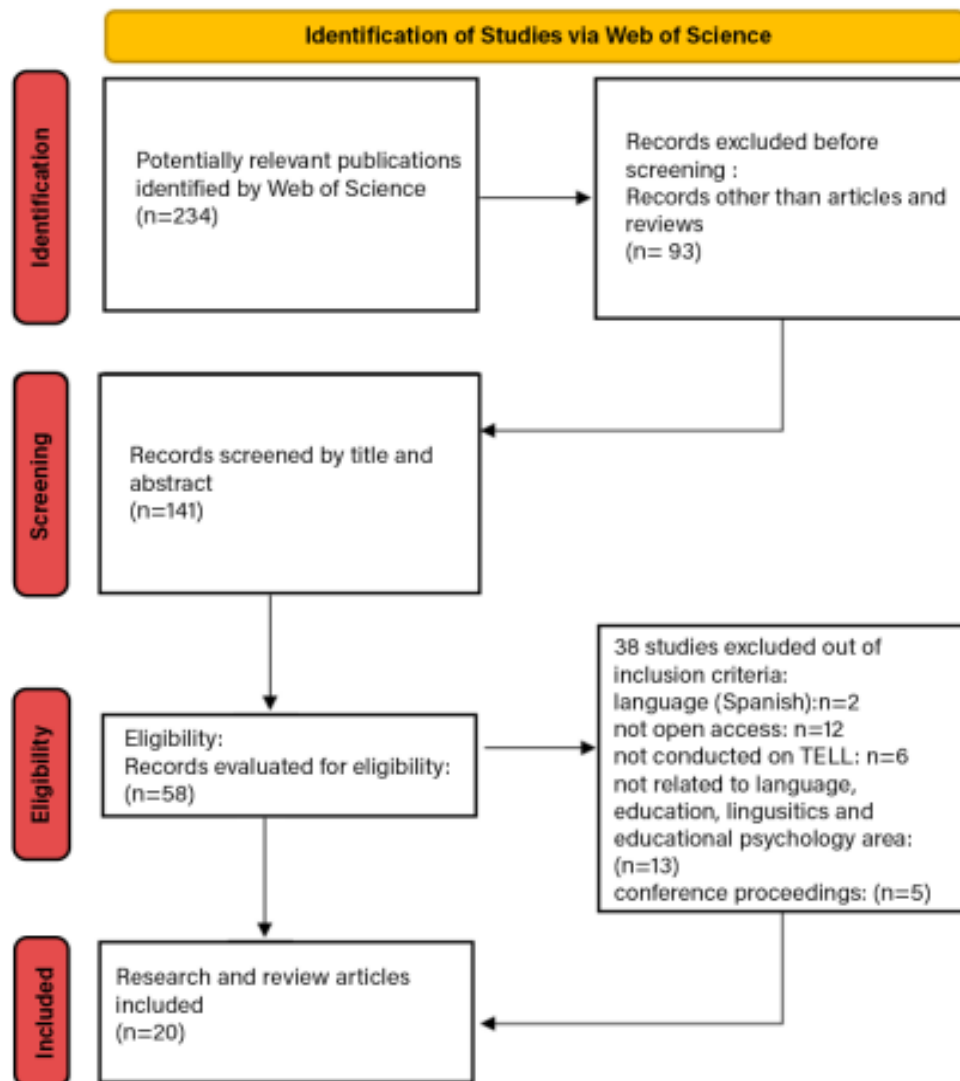


Figure 2. PRISMA Diagram of TELL records (Adapted from Page et al , 2021)

Consequently, the researcher included studies on and with TELL for the current study. For Identification, the Web of Science Database was selected to retrieve raw data. The researcher, to identify studies on TELL, benefited from Boolean operators as TS= (("technology") AND ("enhanced") AND ("language learning" OR "language teaching" OR "teaching language*" OR "technology-enhanced language learning" OR "technology enhanced language learning " OR " technology-enhanced language learning -tell")). The researcher identified 243 studies on Web of Science. Records that were not in article or review categories, as well as duplicates (n=93), were also removed. After the initial Screening, 141 studies remained after

searching on abstracts, keywords, and titles relevant to the topic of "Technology-Enhanced Language Learning" (TELL). In this phase, 93 papers that did not align with the objectives of the current review were removed. For Eligibility, articles outside the TELL topic and those in languages other than English were excluded from the study, leaving 58 studies remaining. The researcher painstakingly employed inclusion and exclusion criteria. For inclusion, there were 20 studies that met the objectives and criteria of PRISMA (See Appendix A for detailed PRISMA data extraction of TELL studies). Table 1 below informs about the inclusion and exclusion criteria. Finally, the researcher employed content analysis to categorize the data and follow the steps for a comprehensive analysis (Fraenkel & Wallen, 2000).

This review devised a thematic scheme with two categories depending on the research questions. For enhanced review reliability, two coders independently evaluated the papers during the initial coding, addressing and resolving coding discrepancies prior to inter-coder resolution. In order to explore the reliability of the thematic coding process, inter-rater agreement was evaluated using Cohen's Kappa coefficient. Two independent coders reviewed and coded the final set of studies. The coefficient of 0.83 indicates almost perfect agreement by the coefficients interpretation guidelines provided by Landis and Koch (1977). Any discrepancies were resolved through discussion prior to obtaining the Kappa coefficient. The high level of agreement improves the trustworthiness and consistency of the coding process in the systematic review.

Table 1.

Inclusion-Exclusion Criteria of TELL Studies

Criteria	Inclusion	Exclusion
Year	2006 to date	Before 2006
Type	Open Access Articles & Reviews	Conference Proceedings
Database	Web of Science	Google Scholar, ProQuest, TR Dizin
Disciplines	Language and Education	Computer Engineering, Environmental Studies
Indexes	ESCI, SSCI & AHCI	BKCI-SSH, SCI
Language	English	Languages other than English

3. Findings

The researcher sought answers for the Research Questions of 'what the status quo of publication years, countries, aims, research designs, participants-documents and technological instruments of TELL studies spanning from 2006 to 2025 and 'what the tendencies of TELL studies' finding ranging from 2006 to 2025 are'. To provide a comprehensive understanding, the emerging themes and subcategories of results are elaborated below. This section will provide an overview of the descriptive and main findings of the selected TELL studies. Thus, it will be divided into two subheadings.

3.1. Descriptives of the TELL Studies

The researcher created categories to pursue answers to the first research question and explored and analyzed the status quo and distribution of publication years, countries, aims, research designs, research participants and documentation, and research instruments in studies related to the TELL spanning from 2006 to 2025.

3.1.1. TELL Studies Per Year

As illustrated in Figure 3, publication years show a gradual increase in scholarly work on Technology-Enhanced Language Learning (TELL) between 2006 and 2025.

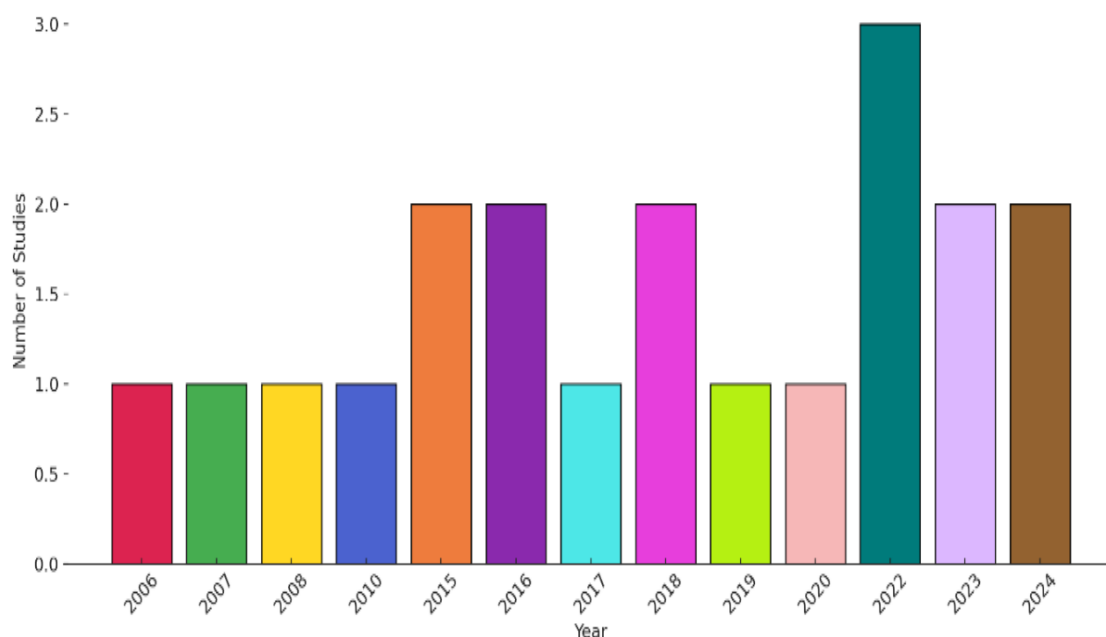


Figure 3. Studies in TELL Per Year

Though there are publications on TELL in 2025, they are centered on exclusion criteria thus ended in 2024. The aim is to review up to date references thus encapsulated 2025 as year. The older references in this dataset, such as Oxford (2006), Yang and Chen (2007), and Chinnery (2008), did indicate an emerging curiosity regarding the pedagogical opportunities for digital tools, but only one study was published in those foundational years. This limited early output demonstrates how TELL was an experimental topic in its infancy. Thus, it can be named as consistent emergence (2006-2010). Throughout this period (2006, 2007, 2008, and 2010), there was only one study each year, indicating the nascent stage of the field; A slightly more detectable trend in research activity starts in 2015 with rising slow but global attention to digital integration in education. In 2015, publications mildly picked up ($n=2$) that year, including Chiu's (2015) work about internet based collaborative writing environments. This trend appeared to continue in 2016 and 2018 (two publications each year) that addressed student engagement or structural pedagogical change through flipped or blended approaches (Lee, 2017; Diaz & Hortiguera, 2016). 2022 can be grouped as an interest peak year and stands out by producing the greatest number of publications ($n=3$), one of which is Chen's (2024) exploratory study on mobile and VR-assisted oral language learning.

On the other hand, the increased output in 2022 likely indicates that interest in digital learning solutions began to rise again after the COVID-19 pandemic, which forced educators to rapidly adapt to online and hybrid models of education. 2023 and 2024 stayed consistent with the 2022 output ($n=2$), indicating that TELL is no longer up-and-coming, but a recognized and rapidly developing field of inquiry. In summary, the visual representation displays the developmental trajectory from early exploration in the 2000s to methodologically sophisticated and pedagogically diverse inquiry in the 2020s. In addition, the increased growth in scholarly articles in the TELL research area suggests that the world is increasingly relying on educational technologies, while the theoretical and conceptual frameworks in this area are maturing.

3.1.2. TELL Studies Per Countries

Figure 4 illustrates the geographical distribution of TELL research by country. Major findings include that the USA ($n=5$) is the highest contributor, followed by Taiwan ($n=4$), People's Republic of China ($n=3$), Spain ($n=2$), while Australia, England, India, Indonesia, Iran, Malaysia, and Vietnam contributed with one study each.

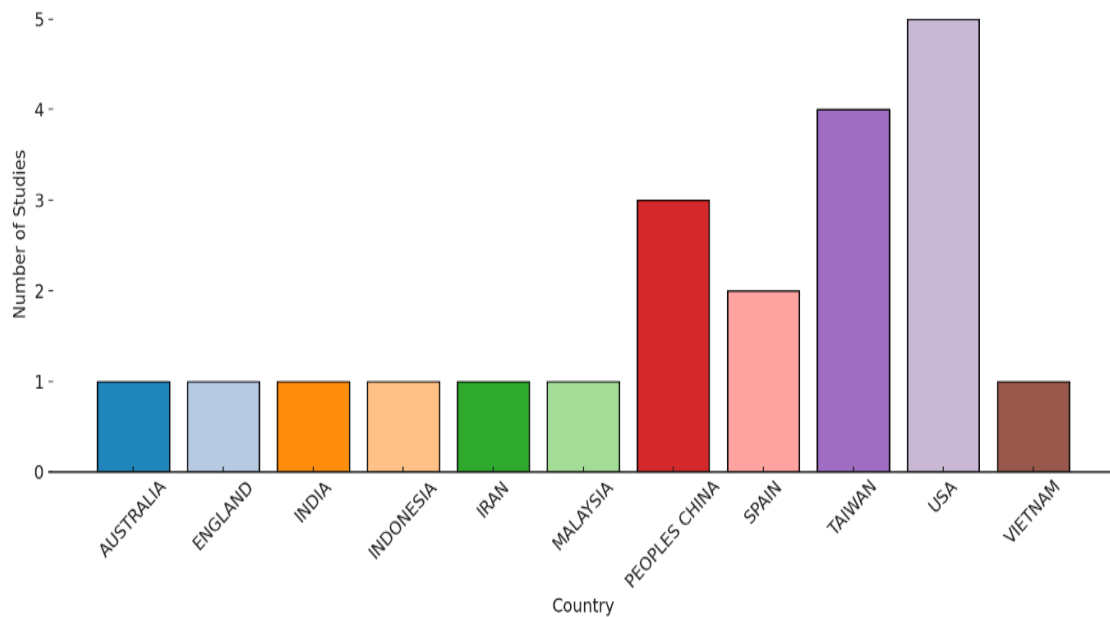


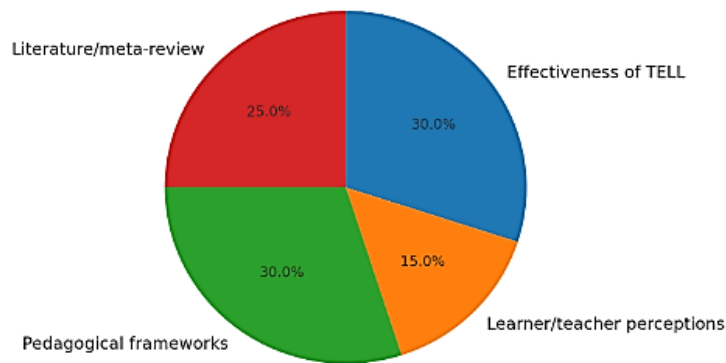
Figure 4. Dissemination of Countries in TELL

The overall distribution of studies by country reveals a clear overrepresentation from East Asia and North America, with the bulk of studies originating from the US ($n=5$), followed by those from Taiwan ($n=4$) and the People's Republic of China ($n=3$). This finding suggests several intersecting factors, including the presence of strong educational technology industries, growing policy supports for digital innovations in education, and established research communities. The United States is represented by foundational and reflective works, such as Ebsworth et al. (2010) and Chun (2019), which suggest early adoption and critical engagement with TELL practices. Taiwan's more recent role in the studies was illustrated with contextualized and cutting-edge applications of virtual reality and mobile devices in further language learning by Chen (2024), showing that Taiwan has invested in immersive technologies. Similarly, studies from China (Hasumi & Chiu, 2024), which were also undertaken for bibliometric mapping and trend analysis, suggest a sophistication in research focus.

The representation of studies by European countries is notable, although there are fewer publications. Spain is represented in two studies: Diaz & Hortiguera (2016), and Dooly & Massats (2015) both centered around pedagogically innovative practice and the role of integrating digital tools in their educational contexts. The last few studies from Australia, England, Iran, Indonesia, India, Malaysia, and Vietnam, each have one study contributing to a growing localized interest in TELL, whereby the greater a research-intensive focus taken by one area is also considered to be limited by a lack of focus in many areas. These previous findings suggest that while TELL scholarly engagement has an international focus, there is a disparity in research output. With limited data based on samples of studies from Africa, South America, and parts of Southeast Asia, there may be continued barriers to sustained academic engagement with the field of educational technology, such as access, funding, or infrastructural support.

3.1.3. Research Aims in TELL

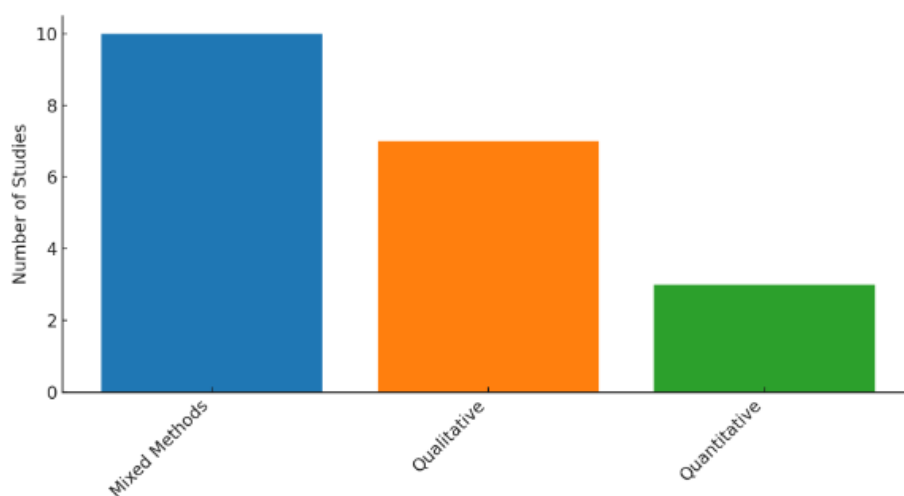
Figure 5 shows the distribution of research aims reveals a balanced spread across four dominant themes.

Figure 5. *Distributions of Aims in TELL Studies*

The primary aim is to evaluate TELL's effectiveness (n=6), including attempts to measure learners' performance gains, specifically in writing and speaking, as a result of technology-enhanced interventions. For instance, Oxford (2006) examined grammar-checking software (Atajo 3.0) to evaluate its impact on writing performance, while Chen (2024) assessed the role of Virtual Reality (VR) and mobile tools in enhancing student engagement and interaction. Equally prominent are **pedagogical framework** studies (n=6), which focus on developing or analyzing instructional models that integrate digital tools into language teaching. Examples comprise Do (2022), who applied flipped learning principles in designing lessons, and Zou et al. (2018), who explored the application of learning theories in CALL environments. Studies targeting **literature and meta-review** studies (n=5) demonstrate a shift toward synthesizing accumulated knowledge. Dooly and Massats (2015), Stickler and Shi (2016), and Chun (2019) all engage in mapping research trends, highlighting the field's increasing maturity and reflexivity. Lastly, **learner and teacher perceptions** (n=3) provide insight into the human experience of TELL. Yang and Chen (2007), for example, explored student views on using blogs to improve writing skills. Ebsworth et al. (2010) investigated teacher reflections on technology adoption in ESL settings. These research suggests a developmental trajectory in TELL research, initially focused on validating its effectiveness, then expanding toward critical reflection and instructional theorization.

3.1.4. Research Designs in TELL

In Figure 6, based on the dataset, the mixed-methods approach was the dominant research design, with 11 studies employing this approach. The mixed method approach is a way of triangulating data and typically draws together quantitative data (test results) with qualitative data (interviews and reflections).

**Figure 6.** *Research Methods in TELL Studies*

For example, Yang and Chen (2007) focused on learners' writing improvement and the unique mode of instruction offered by blog-based instruction. They drew on survey data to assess what learners' beliefs were about their writing before engaging in the blog-based activity and supplemented their qualitative analysis with students' comments on their blog posts. Lee (2017) also employed questionnaire and focus groups as part of an evaluation of collaborative learning in digital learning environments. Although the mixed method was the most commonly employed design, six qualitative designs were the second most commonly employed design, which also predominantly examined perception studies and review studies. In both cases (Chinnery, 2008; Chun, 2019), qualitative designs enabled in-depth interpretive analyses of shifting TELL paradigms and online learner identities. Both of these studies acknowledged their sensitivity to context and were fairly heavily interpretive. Contrary to the mixed methods and qualitative design approaches, experimental and correlational methods were used in three studies. In all the studies, the researchers focused on evaluating a specific tool, assessing how to fit and validate their own framework using a tool. For example, Chen's (2024) experimental studies examined what and how students learn through interventions involving specific VR and mobile tools. Other sources of quantitative data typically included participant survey data and general learner interactions with engaging technology (Chinnery, 2008; Chun, 2019; Chen, 2024). The prevalence of mixed methods in the dataset indicates TELL researchers operate with methodological sophistication. Specifically, TELL researchers engage with both accuracy and empirically sound data as a representation of numbers, and are also authenticating the previous added value of narrative to their work.

3.1.5. Research Participants & Documentation in TELL

The most typical study population, as shown in Figure 7 above, among the research participants was university students ($n=8$). This sounds logical, based on higher education serving as a laboratory to explore new pedagogical innovations. Oxford (2006), Lee (2017), and Chen (2024) all conducted their studies in university contexts, with many focusing on English as a foreign language (EFL) learners. There is a growing representation of articles and documents as units of analysis ($n = 6$), especially in review or bibliometric study designs. For example, Hasumi and Chiu (2024) deployed VOSviewer to map citation networks in TELL. Seyyedrezaei et al. (2024) conducted a large-scale bibliometric study to identify themes. Teachers were featured as participants in only two studies (Ebsworth et al., 2010; Diaz & Hortiguera, 2016), but in these cases, mainly in regard to the context where an adaptation or pedagogical framework was being implemented. Other less frequent categories were high school students (Yang & Chen, 2007) and EFL learners in general classroom contexts. Overall, studies in TELL continue to be situated in university contexts; however, parallel travel toward meta-research and broad field evaluations was also unearthed in TELL post-2020.

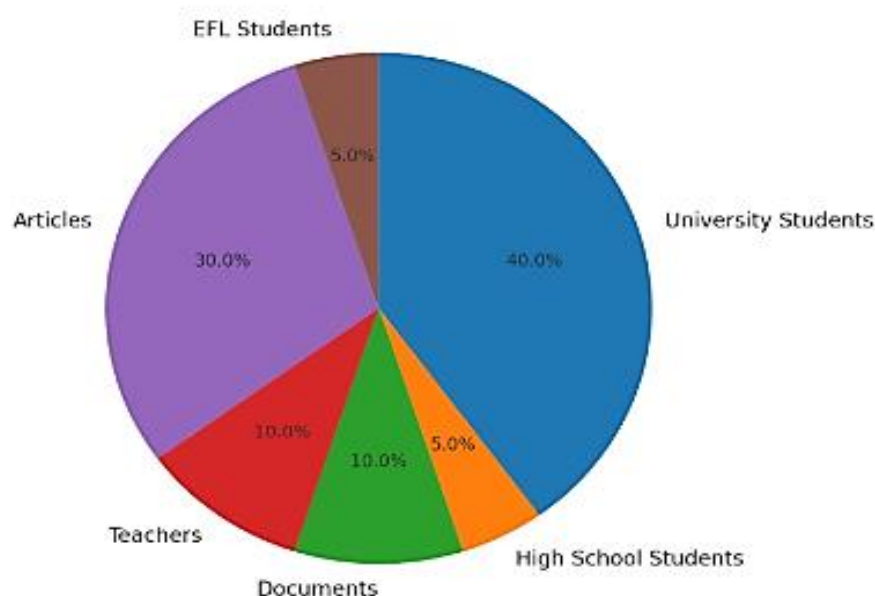


Figure 7. Numbers of TELL Participants and Documents

3.1.6. Research Instruments in TELL

TELL research examined a range of technological instruments, reflecting the breadth of the field, as illustrated in Figure 8. The most commonly used category of instrument developing research, were the survey and interview tools (n=6), and often these instruments were measures of perceptions or used in mixed-methods studies; Santiana et al. (2024) employed pre/post questionnaires to capture student perceptions on their learning in an e-learning environment based on CANVAS. LMS/Web platforms (n=4) including CANVAS, Moodle, or custom web applications, were quite frequent in studies of blended or flipped learning. For example, Do (2022) and Santiana et al. (2024) demonstrated that the learning voices in their studies were enabled by this platform, supporting lesson delivery and, to some degree, tracking lesson outcomes. Document review instruments (n=4), including coding frameworks and manual content analysis approaches, can be used for meta-review approaches (Chun, 2019; Stickler & Shi, 2016). In addition to document review, the invited instruments included VR and mobile instruments (Chen, 2024), as well as bibliometric instruments such as VOSviewer (Hasumi & Chiu, 2024), teaching materials instruments, and theoretical frameworks like Activity Theory, used to interpret digital teaching strategies. The tools used, on the whole, are becoming increasingly sophisticated, ranging from surveying to immersive environments and AI-supported bibliometric instruments. The array of instruments that emerged illustrates both the adaptive capacity and ability for methodological diversity with which TELL researchers conduct studies in the field.

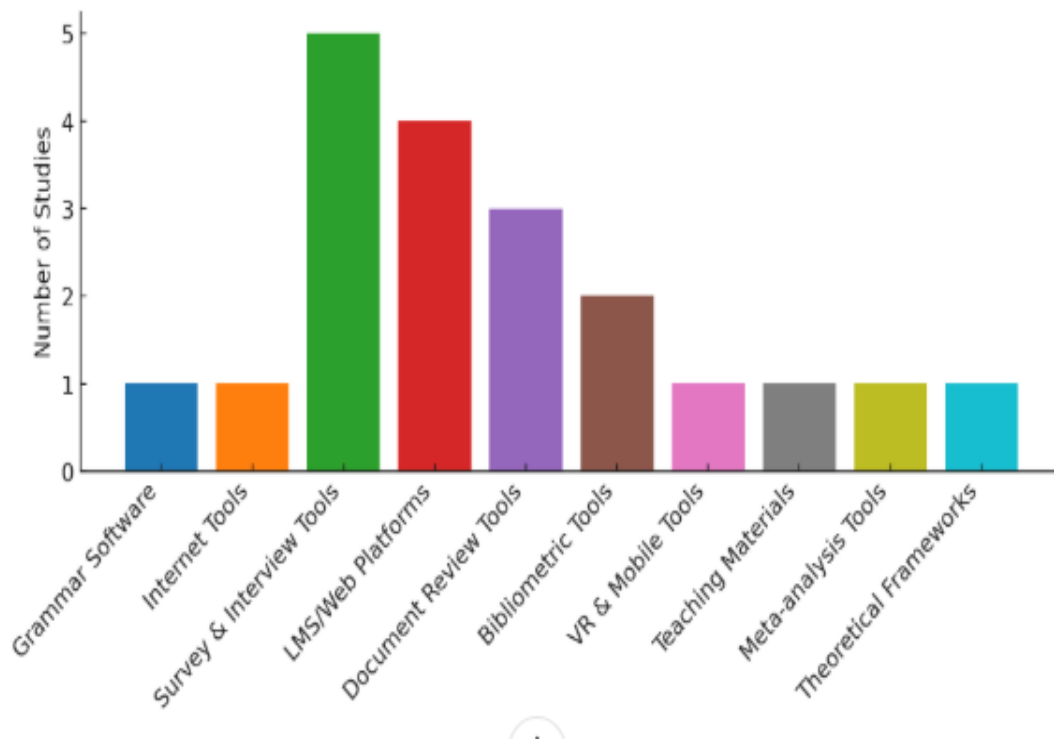


Figure 8. Data Gathering TELL Instruments

3.2. Evolving Status Quo of TELL

In this part, as indicated by the reviewed TELL studies, TELL has grown as a research space, with research foci, tools, and contexts taking on new forms. The review identifies four main trends for the research results among the 20 studies considered.

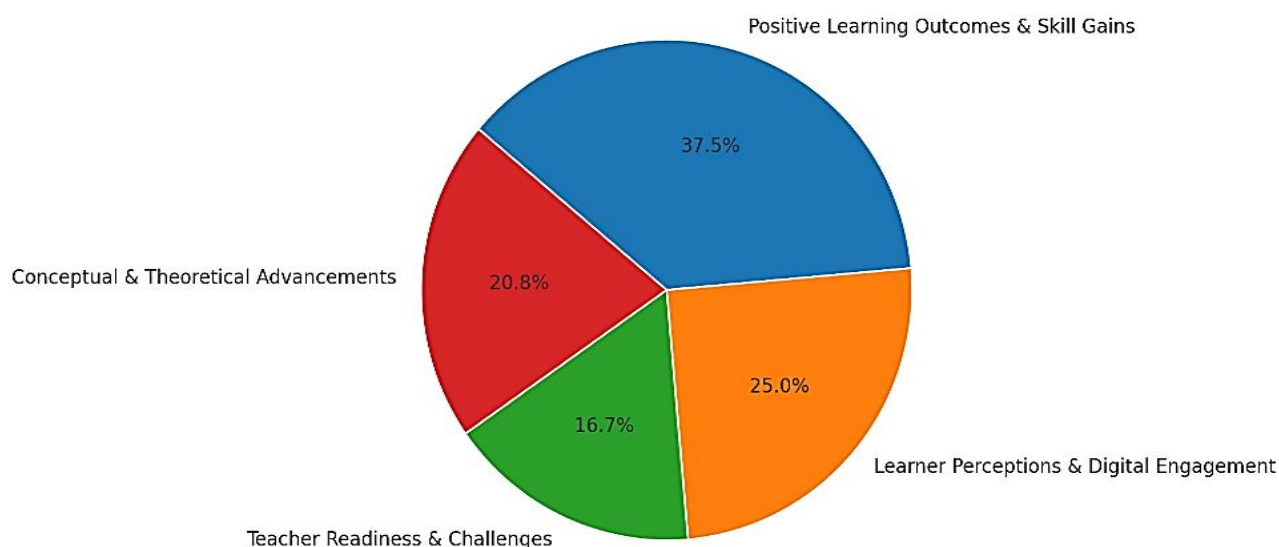


Figure 9. *Tendencies of TELL studies*

3.2.1. Learning Outcomes and Skill Development

A number of studies ($n = 9$) indicated that researchers emphasized learners' positive learning outcomes and skill development from TELL. For example, Oxford (2006) demonstrated improvements in academic language writing among ESL learners through the use of grammar-checking software. Chen (2024) indicated that a VR learning activity is helpful for learners' speaking anxiety, even if their speaking analysis scores did not indicate much of a difference between the experimental and control groups. Seyyedrezaei et al. (2024) also identified some improvements in measurable engagement and speaking fluency after the leveraging mobile applications and flipped classroom. Although challenges have been experienced within TELL studies, most of the reviewed TELL studies demonstrate the potential usefulness of digital tools for language acquisition, with nearly all of these studies linked to structured learning environments through scaffolding in task outcomes. The use of emotional support features (reducing anxiety) was exceptionally useful in enhancing learner performance (writing and speaking).

3.2.1.2. Mixed Learner Perceptions and User Experience

Six studies reported mixed student feedback on the use of TELL tools. For example, Yang & Chen (2007) found that learners were generally positive about a blogging activity that facilitated reflection and communication. However, some of the students in Santiana et al. (2024) reported that the LMS (CANVAS) platform frustrated them due to confusion over navigating the large amount of cognitive load. Similarly, Chiu (2015) referenced some usability for students with using one of their interactive websites for writing support. While learners are generally positive in reporting their flexible and interactive technology experiences, the experiences differ in terms of interface clarity, learning experience, and access to technology. Thus, if technology adds more complexity, then the learner is better off disengaging.

3.2.1.3. Conceptual and Theoretical Development

Despite only a handful of studies ($n=5$) aimed at better understanding trends and developing conceptual frameworks (not to measure immediate learning), this represents a meaningful balance moving forward. For example, Hasumi & Chiu (2024) explored research trajectories using bibliometric tools (VOSviewer) and developed a bioecological model for TELL. Stickler & Shi (2016) and Chun (2019) provided critical syntheses of the earlier research and offered directions for the future. Dooly & Massats (2015) studied digital storytelling to make connections between pedagogy and technology and the models of collaborative learning they proposed. Movement from testing technology to developing conceptual frameworks to guide

new pedagogies and new avenues of scholarship was evident. This reflects a developing field of TELL, clearly indicating an increased interest in theoretical foundations and strategic vision.

3.2.1.4. Teacher Readiness and Contextual Limitations

A few studies (n=4) focused on teachers' experiences and highlighted variable levels of readiness, confidence, and support. Ebsworth et al. (2010) found that pre-service teachers were excited by TELL nevertheless lacking practical experience. Alternatively, Diaz and Hortiguera (2016) specifically reported that in-service teachers experienced more structural and professional challenges to technology integration. With this being said, it is known that teachers' enthusiasm may be compromised by time limitations and ultimately lead to issues with technical training. Each study emphasized that a teacher's preparedness undoubtedly impacts the viability of TELL. For example, even the most adept tools are useless in a classroom context if educators do not have training, confidence, or an adequate support system.

In brief, the findings from the studies on TELL conducted between 2006 and 2025 indicate a balanced approach that combines effective testing of technologies, exploration of the learning experience, assessment of the teacher's context, and development of a more holistic framework. While the language performance context remains salient, the field is diversifying and expanding to emphasize not only emotions and the context surrounding technology use, but also the entire conceptual space of Digital Language Learning. TELL is now viewed not only as the evaluation of technology for language teaching and learning but also shifted to encompass a more holistic learner-centered inquiry.

4. Discussion

The progression of TELL research from 2006 to 2025 reflects a cycle of maturation that has stemmed from technological shifts and the global educational climate. The earliest research (Oxford, 2006; Yang and Chen, 2007) documented the use of digital tools, but an academic context with a significant historical tradition was still in its infancy. In this early TELL research cycle (2006-2010), a wider set of formative research is very sporadic and at least for now foundational. From 2015 onward, there appears to be a more deliberate focus on output, which aligns with the growing entrenchment of flipped classrooms, blended learning, and mobile technologies (Chiu, 2015; Lee, 2017). The high volume of output in 2022 coincided with post-pandemic readjustment in the academic setting as many institutions pivoted to hybrid delivery systems. Nasution and Batubara (2024) mirrors the recent research's finding that 2022 was revealed as the most prolific publication year in their review. Chen's (2024) study included mobile-assisted language learning (MALL) via VR as it is part of a digitally evolving ecosystem of digital possibilities (VR and MALL). This recent trend appears to be aligned with global-level analyses that have noted an increase in edtech-related research following the advent of COVID-19 (Klimova, 2021; Vermila & Kurniawati, 2025). Overall, the upward trend in output indicates that TELL has transitioned from an experimental edge case to the centerpiece of language education during a period of peripheral practice, backed by a maturing conceptual ecosystem and a broader pedagogical context.

The regional landscape of the TELL research, as highlighted in the review, shows both concentration and disparity. The United States (n=5), Taiwan (n=4), and China (n=3) dominate these studies, as these countries have a supporting research ecosystem and policy frameworks that prioritize their digital integration. These reports demonstrate varying degrees of innovation, ranging from mobile-assisted instruction (Chun, 2019) to bibliometric trend analysis (Chen, 2024; Hasumi & Chiu, 2024). The recent advances in immersive and mobile-based interventions in Taiwan graphically illustrate this national investment in digital innovation. Analogously, the United States has also been an important country in continuing to reflectively document and provide foundational insights into TELL. The current results demonstrate parallels with other bibliometric analysis study (Sun & Long, 2025). In their comprehensive study, The USA was the leading country in publication. Author-centric international research publications have largely become the purview of fields such as education and language teacher education. Furthermore, the underrepresentation of the African continental and South American regions suggests creative constraints for further engagement. The limited representation from countries, such as Indonesia, Iran, and Vietnam, each having only one study, reinforces long-standing issues of inequality in research capacity and access. These patterns resonate with the overall global criticisms of edtech research. Scholars (Darvin, 2025; Viberg & Kukulska-Hulme, 2022) note that, while the potential of digital language learning extends to a global sphere, access to publishing, institutional support, and infrastructure development remains uneven.

Inducing cross-national collaborations and capacity building will provide opportunities to address disparities and contribute to a more inclusive global TELL community.

The research aims review illustrates an even distribution of four areas of focus: evaluating effectiveness (n=6), developing pedagogical models and frameworks (n=6), conducting literature and meta-analyses (n=5), and examining learner and teacher perceptions (n=3). The early studies were predominantly account-driven, with Oxford (2006) utilizing grammar tools and Chen (2024) and VR to assist language learning, demonstrating the initial interest in establishing a reason to engage in a digital intervention through some evidence of effectiveness. In more recent years, some have argued that the focus of TELL is also shifting towards more reflective and theoretical work. For example, Stickler & Shi (2016) and Chun (2019) presented reflections on the progression of TELL research itself. On the other hand, the researcher examined the development of pedagogical models (Zou et al., 2018; Do, 2022) these studies built on teaching strategies that were contextually delivered and emergent from the study, which is, in similar fashion, is being discussed in other scholarship about the way contemporary academics are calling for a shift towards more complexity and theory-based digital pedagogy (Godwin-Jones, 2023; (Su & Zou, 2023). What the researchers demonstrate, then, is a development continuum beginning with the need to justify a digital intervention, through its development and theoretical orientation. The addition of perceptions of teachers and learners as data sources was a further valuable addition, establishing a degree of emotionality and expectancy in TELL which, while not often included in account-based outcomes, is still integral to the teaching experience.

The predominance of mixed-method designs (n=11) outlined in the TELL studies reflects methodological advancements in the field. As an approach, mixed-method designs combine both quant and qual data, supporting TELL research's dual aims to measure the tech impact on learning outcomes while aiming to also capture the nuanced lived experiences of users. For example, Yang and Chen (2007) examined writing instruction beliefs collecting survey data but also conducted a content analysis of the comments left on their blogs. Likewise, Lee (2017) triangulated questionnaire and focus group data to evaluate student experiences in digital collaborative learning environments. The inclusion of qualitative-only studies (n = 6) confirms the acknowledgment and value placed on deep, interpretive inquiry in exploring learner identity and pedagogical transformation (Chinnery, 2008; Chun, 2019). Additionally, there were experimental and correlational methodologies (n=3), which provide a more controlled evaluation of the efficacy of the tool, as seen in Chen's (2024) use of VR interventions. This range of methodologies reflects an overall shift in educational research to paradigmatic pragmatism (Dube et al., 2024), where researchers select designs based on research questions rather than adhering to philosophical ties. As this trend continues and the use of mixed methods increases in TELL research it continues to support Reinders and White's (2016) assertion that in digital language learning, both numerical precision and interpretive sensitivity are required. Each recent CALL study similarly reflects this trend, with findings emphasizing how integrated designs provide more holistic pictures of technology's impact (Godwin-Jones, 2023; Viberg & Kukulska-Hulme, 2022).

TELL research (n=8) predominantly uses university students as sample populations, most commonly those studying English as a foreign language (EFL). Many studies conducted by Oxford (2006), Lee (2017), and Chen (2024) have highlighted the uniquely consistent role of higher education as a site for innovation testing. Lawson and Turner (2021) speculate that the institutional nature of universities, coupled with their infrastructure of tools and methodologies, allows for the easy trial of technologies, frameworks, and methodologies. It is likely that the focus on university students acts as a barrier to generalizability; There have been only two studies that explicitly included teachers (Ebsworth et al., 2010; Diaz & Hortiguera, 2016) and even fewer that considered primary or secondary learners (Yang & Chen, 2007). It should be noted that there has also been an increase in document studies for TELL research (n=6) the most notable of which include meta-analysis and bibliometric studies, signaling a shift to more reaction to practice and field-mapping work (Hasumi & Chiu, 2024; Seyyedrezaei et al., 2024). The limited number of teachers and non-tertiary learners surveyed in TELL research reflects the recognized under-representation of teachers that existed in the TELL literature as a whole. Noorizi (2025) claimed that broadening the type of participants could enhance the social responsiveness and contexts to which TELL research can be applied. Keeping teachers as more than just implementers and also involving them as co-researchers may bolster sustainability and relevance of technology-enabled language learner research (Su & Zou, 2023)

TELL research shows impressive diversity in the selection of methodological tools. Surveys and interviews remain the top two tools used (n=6), especially for studies dealing with learner perspectives and measures

of learning instruction effectiveness. Santiana et al. (2024) specifically used pre- and post-questionnaires to collect data on students' experiences related to a CANVAS-based learning context. Clearly, web-based environments ($n=4$), such as Canvas or Moodle, are significant alternatives since they serve a dual purpose as learning aids and data collection tools. Do (2022) and Santiana et al. (2024) demonstrated the full functionality of learning management systems as an extensive web-based platform that also serves as an interactive space for learners to engage and collect learning outcomes. Document review tools were also developed, which included coding frameworks and bibliometric software, such as VOSviewer, providing a distinct advantage for synthesis and trend studies (Chun, 2019; Hasumi & Chiu, 2024). The technology related to TELL sites reflected the use of immersive and emerging tools, specifically VR and AI-supported analytics, which points to the development of innovative research methods related to TELL. In turn, this represents a wider trend in edtech to develop learning ecosystems that are personal, adaptive, and flexible (Darvin, 2025; Klimova, 2021). As TELL research continues to develop, so will the tools that researchers depend on, becoming both analytic and participatory, which will provide them with a fuller understanding of language learning before, during, and after interactions in digital environments.

A major takeaway from TELL research is the consistent and demonstrated positive outcomes, accompanied by significant skill development. The nine studies in your review (see, for example, Oxford (2006), Chen (2024), Seyyedrezaei et al. (2024) showed that they had positively influenced learner writing fluency, speaking confidence, and task involvement. Most notably, they employ digital forms of grammar-checking software, and mobile applications as affordances for scaffolding and emotional regulation (anxiety-reducing features in VR-supported lessons). These examples closely align with more general findings in the literature. For example, Bang (2024) argues that it is not just the technology, but the integration of it with structured, learner-centered pedagogies that become cognitive and affective scaffolds. Viberg and Kukulska-Hulme (2022) have demonstrated the growing role of mobile and immersive technologies in aiding self-regulatory skills and autonomous learning. These shared insights reiterate that considering the designed use of technologies, not just their existence, is the key driver of successful outcomes.

While most reports on TELL projects yielded encouraging results, this review of the literature included six studies that told a more complex story: learners took pleasure in the flexibility and interactivity of working in the TELL setting but also expressed frustrations such as usability issues and cognitive overload. For example, Santiana et al. (2024) acknowledged student complaints about the navigation pathways of CANVAS, while Chiu (2015) documented students' difficulty with the complexity of a writing platform interface. On the contrary, Yang and Chen (2007) reported that learners were motivated by blogging because it was a communicative task, demonstrating that design clarity and the social context can influence students' views. These simultaneous positive and negative experiences reflect the continuing tensions of digital learning design. Darvin (2025) observes that a student's degree of engagement depends on the degree of alignment between the user experience and the pedagogical intent of the program. Godwin-Jones (2023) also reminds us of the importance of designing for inclusivity and intuitive navigation, especially in low-bandwidth or multilingual spaces. Consequently, a TELL design screen should not merely account for functionality, but ideally for navigational ease, clarity of objects, and contextual relevance in case any one of these aspects interferes with student engagement.

Although there were fewer studies focused on theoretical development ($n=5$), such as those published by Stickler & Shi (2016), Chun (2019), and Hasumi & Chiu (2024), they laid the foundational work for the developing identity of TELL. Instead of simply evaluating the tool, these studies focus on development models, including bioecological and collaborative frameworks, which encourage scholars to examine digital pedagogy more broadly. The shift from product-oriented research aligns with a recent call in the literature for moving beyond effectiveness studies to theorizing TELL as a socio-cognitive and affective learning ecosystem (Su & Zou, 2023; Rezai et al., 2024). Theoretical development of this type will ultimately create an interdisciplinary space, while still permitting the opportunity for researchers to extrapolate theories defined in cognitive science, educational technology, and applied linguistics. As the field develops, the application of such frameworks is imperative if we wish to truly develop sustainable, learner-centered TELL practices that clearly derive from theory and not simply trends.

Although only four studies specifically addressed the issue of teacher readiness, their findings are important. Ebsworth et al. (2010) and Diaz & Hortiguera (2016) noted that pre-service participants' enthusiasm for (and competency with) TELL was highly discrepant from that of in-service participants, who encountered systemic barriers, such as a lack of infrastructure and inadequate professional

development, impacting their ability to implement TELL consistently and sustainably. These issues echo the wider research that has put teachers as drivers of technological innovation globally, as even with sophisticated tools, if teachers aren't properly supported with training, time, and institutional frameworks, they may not use them in their real classrooms (Kessler & Hubbard, 2017). Additionally, Simon and Zeng (2024) underscored that teachers taking part in research around TELL tools as co-designers increased their buy-in and adaptability within their context. Therefore, a future-focused TELL framework must be founded not just on technological affordances, but also on integrating educators as co-constructors of their digital pedagogy.

5. Conclusion

The studies reviewed exhibit a TELL terrain that is dynamic, multi-layered, and capable of breadth and depth in its development process. From the early stages of effectiveness testing to framework mapping and nuanced learner-teacher interactions, the field now presents a comprehensive vision of technology-enhanced language education. With its original intention of testing effectiveness set aside, the focus of TELL is now on designing meaningful, inclusive, and sustainable learning experiences, grounded in pedagogy, theory, and context. Academics must continue to grow and develop the field, but we are at a time when future research needs to address the existing gaps, especially in diversifying learner populations and countries, supporting teacher agency, and ensuring equity for global participation. By situating TELL within both critical inquiry and real-world contexts of practice, academics and policymakers can create a future where technology affords language learning, as well as learner identity, autonomy, and global connectivity.

6. Implications and limitations

This recent study presents early-career researchers, teachers, lecturers, directors, and learners with holistic insights into TELL studies. There is a scarcity of studies on TELL in Türkiye in the Web of Science database; hence, researchers may work jointly to undertake WoS-indexed mixed-methods, empirical, and qualitative studies to advance Turkish academia in this area. Furthermore, the findings of the inquiries designated an augmented demand for in-depth comprehension. Consequently, researchers should prioritize qualitative studies over exclusively quantitative studies. Further, comparative TELL studies involving languages beyond English might expand awareness of the influence of language on TELL adaptations among learners. In a nutshell, TELL practices at national, international, and global levels can be synthesized to develop contemporary TELL policies across micro, meso, and macro levels.

There nevertheless remain some caveats to this research. The primary issue is that aside from research and reviewing articles, other genres of printed and online resources relevant to the realm of language studies are largely overlooked. These other forms of published work encompass books, conference proceedings, reports, theses, and dissertations that may shed light on TELL-related language studies. Additionally, the raw data for publications were drawn solely from the Web of Science database, limiting the scope of the research. The researcher suggests integrating grey literature and diversified databases that might have provided a more thorough synopsis. Next, the analysis entailed WOS articles in the English language. Unfortunately, the recent study in theory pretermits the noteworthy impacts of TELL in erstwhile studies on languages other than English, which could offer discrete prospects or insights. Lastly, although the absolute utility of the systematic review approach is palpable in action, it confines the methodological range. Employing other methods, such as bibliometric mapping analysis, might render a moresubtle perception of the state-of-the-art in language research. These caveats indicate avenues for extensive research to unfold the findings of this present study.

Note on Ethical Issues

This study was presented as a research paper at Isparta Language Teaching Conference 24 (ILTEC24), Isparta University of Applied Sciences, Isparta, Türkiye, October 10-11, 2024.

Conflict of interest

The author has no conflicts of interest to declare.

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APPENDIX A. PRISMA Data of TELL Studies

Author(s)	Year	Title	Journal Name	Study Design	Participants / Context	Focus / Outcomes
Alvi, Irum	2022	A Comprehensive Community of Inquiry Framework for Exploring Technology Enhanced Language Learning	IAFOR Journal of Education: Technology in Education	Quantitative survey with Col framework	129 L2 learners in India	Investigates the influence of teaching, cognitive, social, learning, emotional, and technological presences on TELL learning experiences.
Chen, Yi-chen	2024	Effects of technology-enhanced language learning on reducing EFL learners' public speaking anxiety	Computer Assisted Language Learning	Experimental (3-group comparison)	33 Taiwanese EFL university students	VR-facilitated instruction significantly reduced public speaking anxiety compared to lecture-based instruction.
Chinnery, George M.	2008	Biting the Hand that Feeds Me: The Case for e-Language Learning and Teaching	CALICO Journal	Conceptual / review	N/A	Critiques CALL terminology and proposes 'e-language learning/teaching' as more inclusive, advocating practical and collaborative TELL.
Chiu, Hsiu-Lan Wendy	2018	Twenty-first-century second language literacy development in universities	In The Idea and Practice of Reading (pp. 11-24)	Conceptual / book chapter	University-level L2 learners	Discusses 21st-century literacies in second language reading development, highlighting digital literacy integration, multimodal practices, and the role of technological affordances in university contexts.
Chun, Dorothy M.	2019	Current and Future Directions in TELL	Educational Technology & Society	Review article	N/A	Reviews cutting-edge uses of technology for language and languaculture learning; suggests future trajectories integrating multimodal and VR.
Díaz, Adriana Raquel; Hortiguera, Hugo	2016	TELL-ing it like it is: Practical implications from a critical stance on technology-enhanced language learning	Revista de Lenguas para Fines Específicos	Action research / conceptual	University Spanish language learners	Critically examines TELL 'hype', highlighting pedagogy-led innovation with examples from cognitive grammar and affective engagement strategies.

Author(s)	Year	Title	Journal Name	Study Design	Participants / Context	Focus / Outcomes
Do, Anh Tuan	2023	Blended teaching of English speaking in a Vietnamese context: Design and procedure	TESOL Journal	Conceptual feature article	EFL university learners in Vietnam	Proposes a technology-enhanced pedagogy combining LMS, TTS, and ASR for oral English teaching.
Dooly, Melinda; Masats, Dolores	2015	A critical appraisal of foreign language research in CLIL, young learners, and TELL published in Spain (2003–2012)	Language Teaching	Systematic review	N/A	Reviews TELL studies in Spain, identifying trends, methodological gaps, and the need for stronger theoretical frameworks in TELL research.
Ebsworth, Miriam Eisenstein; Kim, Alexis Jeong; Klein, Tristin J.	2010	Projections: From a Graduate TELL Class to the Practical World of L2 Teachers	CALICO Journal	Mixed-methods (questionnaires & interviews)	90 pre- and in-service ESL/FL teachers	Examines experiences in a graduate TELL course, finding increased knowledge but challenges in application and resources.
Hasumi, Toshiyuki; Chiu, Mei-Shiu	2024	Technology-enhanced language learning in English language education: Performance analysis, core publications, and emerging trends	Cogent Education	Bibliometric analysis	1816 publications	Identifies TELL research fronts including flipped learning, MALL, DGBL, and emerging multimodality trends.
Lee, Biwen	2017	TELL us ESP in a Flipped Classroom	EURASIA Journal of Mathematics, Science and Technology Education	Experimental (pre-post survey)	Undergraduate ESP learners (TOEIC prep)	Investigated flipped classroom approach for TOEIC preparation. Found high student satisfaction and improved engagement, especially for students with prior TOEIC experience.
Olivares-Cuhat, Gabriela	2018	How to tailor TELL tools for older L2 learners	ELIA – Estudios de Lingüística Inglesa Aplicada	Conceptual / review	Older adult L2 learners	Reviews cognitive aging effects on L2 acquisition and proposes guidelines for designing blended TELL courses tailored to older learners' cognitive and motivational profiles.
Oxford, Raquel	2006	Effects of technology-enhanced language learning on second language composition	Hispania	Experimental (non-equivalent pretest-posttest design)	52 intermediate university Spanish learners	Investigated the impact of structured computer-assisted grammar practice on L2 composition quality and quantity; found significant improvements in fluency (word count) and some aspects of accuracy.

Author(s)	Year	Title	Journal Name	Study Design	Participants / Context	Focus / Outcomes
Santiana, Santiana; Margana, Margana; Putro, Nur Hidayanto Pancoro Setyo; Widodo, Pratomo	2024	Students' Attitudes Toward the Use of CANVAS in the EFL Virtual Learning Environment	International Journal of Language Education	Mixed methods (survey + interviews)	118 Indonesian EFL students	Assesses attitudes toward CANVAS using TAM framework, finding positive perceptions on usefulness and ease of use.
Seyyedrezaei, Masumeh Sadat; Amiryousefi, Mohammad; Gimeno-Sanz, Ana; Tavakoli, Mansoor	2024	A meta-analysis of the relative effectiveness of technology-enhanced language learning on ESL/EFL writing performance: retrospect and prospect	Computer Assisted Language Learning	Meta-analysis	64 studies	Finds a large positive effect ($g = 1.00$) of TELL on ESL/EFL writing performance; effectiveness varies by genre and technology type.
Stickler, Ursula; Shi, Lijing	2016	TELL us about CALL: An introduction to the Virtual Special Issue (VSI)	System	Editorial / literature review	N/A	Overview of CALL/TELL developments via System journal articles, highlighting trends towards ecological and integrative studies and CALL's normalization in mainstream applied linguistics.
Yang, Shu Ching; Chen, Yi-Ju	2007	Technology-enhanced language learning: A case study	Computers in Human Behavior	Descriptive case study	44 male 10th-grade EFL students in Taiwan	Explored perceptions and attitudes towards Internet-based TELL tools (e.g. online discussions, video-conferencing) in EFL learning; found increased motivation and positive attitudes towards TELL activities.
Zainuddin, Nurkhamimi	2020	Technology Enhanced Language Learning Research Trends and Practices: A Systematic Review (2020-2022)	Electronic Journal of e-Learning	Systematic review	17 studies	Identifies TELL trends and practices, highlighting dominant quantitative designs and university settings.
Zhang, Ruofei; Zou, Di; Cheng, Gary	2024	Technology-enhanced language learning with null and negative results since 2000: A systematic review based on the activity theory	Education and Information Technologies	Systematic review	49 studies with NNR	Analyses features and reasons for null/negative TELL results, proposing a 17-item checklist for future evaluations.
Zou, Di; Xie, Haoran; Wang, Fu Lee	2018	Future trends and research issues of technology-enhanced language learning: A technological perspective	Knowledge Management & E-Learning	Conceptual review	N/A	Reviews technological trends (e.g., AI, VR) in TELL, proposing a Future TELL Model and research agenda.