

Integrating Technology-Enhanced Communicative Language Teaching in EFL Contexts: A Mixed-Methods Analysis of Student Engagement and Language Proficiency Outcomes

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Abstract. *This study examines the effectiveness of integrating technology-enhanced communicative language teaching (TECLT) methods in English as a Foreign Language (EFL) university contexts. Using a mixed-methods approach with 120 upper-intermediate EFL learners over one academic semester, the research investigates how combining traditional communicative approaches with digital tools affects student engagement, motivation, and language proficiency outcomes. Quantitative data from pre- and post-tests, along with qualitative data from student interviews and classroom observations, reveal significant improvements in speaking fluency, interactive competence, and learner autonomy. The findings suggest that strategic integration of technology within a communicative framework addresses longstanding challenges in EFL teaching, particularly in contexts where target language exposure remains limited outside classroom settings. This study contributes to ongoing discussions about effective pedagogy in language education by demonstrating that technology serves not as a replacement but as an amplifier of communicative principles when implemented with clear pedagogical objectives.*

Key words: *English as a Foreign Language, Communicative Language Teaching, Technology-Enhanced Learning, Student Engagement, Language Proficiency, Mixed-Methods Research.*

Introduction

The teaching of English as a Foreign Language has undergone substantial transformation over the past several decades, moving from grammar-translation and audio-lingual methods toward more communicative and learner-centered approaches. Communicative Language Teaching (CLT), which emerged in the 1970s and 1980s, revolutionized language pedagogy by emphasizing meaningful interaction and authentic communication as both the means and ultimate goal of language learning (Richards, 2006). However, implementing CLT in EFL contexts has consistently presented challenges, particularly in educational settings where English serves primarily as an academic subject rather than a medium of daily communication, and where large class sizes, examination pressures, and limited resources constrain teachers' ability to create truly communicative learning environments (Littlewood, 2007). These contextual factors have led researchers and practitioners to explore how emerging technologies might address some of CLT's implementation challenges while preserving its core principles of authentic communication and learner engagement.

The integration of technology into language teaching is not a recent phenomenon, but the rapid advancement of digital tools, mobile applications, and online platforms over the past decade has created unprecedented opportunities for enhancing language learning experiences. Technology-enhanced language learning (TELL) encompasses a broad range of digital resources and tools, from learning management systems and multimedia presentations to mobile applications, social media

platforms, and video conferencing software that can facilitate authentic communication with speakers worldwide (Chun, Kern, & Smith, 2016). These technological affordances align remarkably well with communicative language teaching principles, as they can provide learners with access to authentic materials, opportunities for meaningful interaction, and contexts for real-world language use that extend beyond the physical classroom. However, the effectiveness of technology integration depends not on the tools themselves but on how they are pedagogically implemented to support language learning objectives (Hubbard, 2009).

Despite growing interest in technology-enhanced language teaching, research examining the systematic integration of digital tools within a communicative framework remains limited, particularly in EFL university contexts where learners possess intermediate to advanced proficiency but struggle with fluency, spontaneous production, and authentic communication. Many studies have focused on specific technologies or isolated interventions rather than examining comprehensive approaches that integrate multiple digital tools strategically within a communicative pedagogy. Furthermore, much of the existing research has emphasized quantitative outcomes such as test scores while paying insufficient attention to learners' experiences, engagement patterns, and the qualitative dimensions of language development that are central to communicative approaches. This study addresses these gaps by investigating how a carefully designed technology-enhanced communicative language teaching approach affects both measurable proficiency outcomes and the qualitative aspects of learner engagement, motivation, and communicative confidence in an EFL university setting.

The present research is guided by three primary questions: First, to what extent does technology-enhanced communicative language teaching improve EFL learners' language proficiency compared to traditional communicative approaches? Second, how does the integration of digital tools affect student engagement, motivation, and participation in communicative activities? Third, what are learners' perceptions of the benefits and challenges associated with technology-enhanced communicative instruction? By addressing these questions through a mixed-methods design that combines quantitative proficiency measures with qualitative insights from learners and classroom observations, this study aims to provide a comprehensive understanding of how technology can be effectively integrated into communicative language teaching to enhance learning outcomes in EFL contexts.

Methods

Research Design and Participants

This study employed a mixed-methods sequential explanatory design conducted over one academic semester (16 weeks) at a state university in Central Asia. The research involved 120 upper-intermediate EFL learners enrolled in Practical English Language courses, aged 19-22 years, with an average of 10 years of prior English instruction. Participants were divided into an experimental group (n=60) receiving technology-enhanced communicative language teaching and a comparison group (n=60) receiving traditional communicative language teaching without systematic technology integration. Both groups met for six hours of instruction weekly in classes of approximately 30 students each. Random assignment was not possible due to administrative constraints, so intact classes were assigned to conditions, with pre-test measures confirming no significant baseline differences between groups in language proficiency. All participants provided informed consent, and the study received ethical approval from the university's research ethics committee.

The researcher served as instructor for both groups to ensure consistency in teaching quality and communicative approach while varying only the degree of technology integration. Both groups followed the same syllabus focusing on developing communicative competence through task-based activities, authentic materials, and interactive exercises emphasizing fluency development, but the experimental group systematically incorporated digital tools and platforms to enhance these communicative activities. Demographic data collected through initial questionnaires revealed that participants in both groups had similar access to smartphones and internet connectivity, with over 90% owning smartphones and having regular internet access, though their prior experience using technology specifically for language learning varied considerably.

Technology-Enhanced Communicative Language Teaching Intervention

The experimental group's instruction integrated multiple digital tools and platforms selected for their affordances in supporting communicative language learning principles. The intervention was guided by Hubbard's (2009) framework for methodological integration of technology, ensuring that digital tools served clear communicative objectives rather than being used for novelty alone. Core components included: (1) a learning management system (Moodle) providing access to authentic multimedia materials, discussion forums for asynchronous communication, and collaborative writing spaces; (2) mobile applications including language exchange platforms connecting learners with English speakers globally for voice and text chat; (3) digital storytelling tools enabling learners to create and share multimedia narratives; (4) video conferencing software facilitating virtual exchange sessions with partner classes in English-speaking countries; (5) corpus tools allowing learners to investigate authentic language use patterns; and (6) social media platforms used for project-based collaborative tasks requiring real audience communication.

Each technology was introduced gradually with explicit instruction on its use and clear integration into communicative tasks designed to promote meaningful interaction. For example, learners used language exchange applications to conduct weekly conversations with native speakers on topics aligned with classroom themes, then reflected on these interactions in class discussions and incorporated insights into subsequent communicative activities. Digital storytelling projects required learners to research topics, script narratives, record voice-overs, and publish their stories online for peer feedback and authentic audience engagement. Virtual exchange sessions with partner classes involved collaborative problem-solving tasks requiring negotiation of meaning and extended interaction in English (Godwin-Jones, 2019). Throughout the intervention, technology served to extend communicative opportunities beyond classroom time, provide access to authentic language and interlocutors, and create meaningful contexts for language use.

Comparison Group Instruction

The comparison group received high-quality communicative language teaching following principles outlined by Richards (2006), including task-based learning activities, information gap exercises, role-plays, discussions, and project work emphasizing meaningful communication and fluency development. Classes utilized authentic materials from textbooks, newspapers, and audio-visual resources, and students engaged in extensive pair and group work focused on interactive communication. The key difference was that this group's instruction relied primarily on face-to-face classroom interaction and physical materials rather than incorporating digital tools and online platforms. This design allowed the study to examine specifically the added value of technology integration within a communicative framework rather than comparing communicative with non-communicative approaches.

Data Collection Instruments

Language proficiency was assessed using multiple measures to capture different dimensions of communicative competence. Pre- and post-tests included: (1) standardized speaking tests adapted from international proficiency frameworks, scored by two trained raters using detailed rubrics assessing fluency, accuracy, complexity, and interactive competence (inter-rater reliability $\kappa=0.87$); (2) listening comprehension tests using authentic materials with multiple-choice and short-answer items; (3) integrated writing tasks requiring synthesis of multiple sources; and (4) reading comprehension tests with authentic academic and general interest texts. All instruments demonstrated adequate reliability (Cronbach's $\alpha > 0.80$) based on pilot testing.

Student engagement was measured through multiple methods following Fredricks, Blumenfeld, and Paris (2004) conceptualization of engagement as comprising behavioral, emotional, and cognitive dimensions. Quantitative engagement data were collected through: (1) weekly engagement questionnaires using validated Likert-scale items assessing behavioral participation, emotional connection to learning activities, and cognitive investment; (2) learning management system analytics tracking time spent on activities, forum participation, and resource access; and (3) systematic classroom observations by a trained observer using a structured protocol recording on-task behavior,

interaction patterns, and participation in communicative activities. Qualitative data were gathered through: (1) semi-structured interviews with 24 purposefully selected participants (12 from each group) representing a range of proficiency levels and engagement patterns; (2) focus group discussions in each group exploring experiences, perceptions, and preferences; and (3) student reflection journals completed bi-weekly.

Data Analysis

Quantitative data were analyzed using SPSS software with appropriate statistical tests. Independent samples t-tests compared pre-test scores between groups to confirm baseline equivalence. Paired samples t-tests examined within-group changes from pre- to post-test, while independent samples t-tests and Analysis of Covariance (ANCOVA) using pre-test scores as covariates compared post-test outcomes between groups. Repeated measures ANOVA analyzed engagement questionnaire data across the semester. Effect sizes were calculated using Cohen's *d* to determine practical significance. Qualitative data underwent thematic analysis following Braun and Clarke's (2006) systematic approach. Interview and focus group recordings were transcribed verbatim, and transcripts were coded inductively to identify recurring patterns. Initial codes were organized into potential themes, which were then reviewed, defined, and named through iterative analysis. Observation notes and student journals provided additional data for triangulation. The mixed-methods integration occurred at the interpretation stage, where quantitative findings were explained and enriched through qualitative insights, providing a comprehensive understanding of the intervention's effects.

Results

Language Proficiency Outcomes

Analysis of pre-test data confirmed no significant differences between experimental and comparison groups across all proficiency measures, establishing baseline equivalence. Both groups demonstrated significant improvements from pre- to post-test across all language skills, indicating that both instructional approaches effectively promoted language development. However, the magnitude of improvement differed notably between groups. For speaking proficiency, the experimental group showed substantially greater gains ($M_{\text{gain}}=8.4$ points, $SD=2.1$) compared to the comparison group ($M_{\text{gain}}=5.2$ points, $SD=1.8$) on the 25-point scale, with ANCOVA revealing a significant group effect ($F(1,117)=78.3$, $p<0.001$, $\eta^2=0.40$) when controlling for pre-test scores. The effect size (Cohen's $d=1.64$) indicated a very large practical difference favoring technology-enhanced instruction. Specifically, the experimental group demonstrated superior performance in fluency and interactive competence dimensions, speaking with greater ease, maintaining longer conversational turns, and more effectively negotiating meaning during interactions.

Listening comprehension improvements were significant for both groups but showed a moderate advantage for the experimental group ($M_{\text{gain}}=12.3\%$, $SD=5.2$) compared to the comparison group ($M_{\text{gain}}=9.1\%$, $SD=4.8$), with ANCOVA indicating a significant group effect ($F(1,117)=12.4$, $p=0.001$, $\eta^2=0.10$, Cohen's $d=0.64$). Writing proficiency gains were also significantly greater for the experimental group ($M_{\text{gain}}=6.7$ points, $SD=2.3$) compared to the comparison group ($M_{\text{gain}}=4.9$ points, $SD=2.1$) on the 20-point scale ($F(1,117)=21.8$, $p<0.001$, $\eta^2=0.16$, Cohen's $d=0.82$), with the experimental group producing more complex and coherent texts. Reading comprehension showed the smallest between-group difference, with both groups making substantial progress and the experimental group showing only a slight advantage ($F(1,117)=4.2$, $p=0.043$, $\eta^2=0.04$, Cohen's $d=0.38$). These results suggest that technology-enhanced communicative language teaching particularly benefits skills requiring active production and interaction, while receptive skills improve substantially with either approach.

Engagement Patterns

Engagement data revealed distinct patterns between groups across the semester. The experimental group consistently reported higher behavioral engagement (active participation), emotional engagement (interest and enjoyment), and cognitive engagement (mental effort and strategy use) on weekly questionnaires. Repeated measures ANOVA indicated significant group differences in overall

engagement ($F(1,118)=34.6$, $p<0.001$, $\eta^2=0.23$), with the experimental group maintaining high engagement levels throughout the semester while the comparison group showed a gradual decline after the initial weeks. Learning management system analytics corroborated these findings, with experimental group students averaging 4.3 hours weekly on the platform compared to 2.1 hours for comparison group students using the same platform for accessing materials and submitting assignments. Forum participation was dramatically higher in the experimental group, with students posting an average of 8.7 substantive contributions weekly compared to 2.3 in the comparison group.

Classroom observations documented higher rates of voluntary participation and longer on-task engagement during communicative activities in the experimental group. Students in this group initiated interactions more frequently, sustained longer conversational exchanges, and demonstrated greater willingness to experiment with language and take communicative risks. Observers noted that experimental group students more often referenced and built upon out-of-class activities and online interactions during classroom discussions, suggesting stronger integration between in-class and independent learning. The comparison group displayed adequate engagement during structured activities but showed more passive behavior during less structured communicative tasks and relied more heavily on their first language during pair work.

Learner Perceptions and Experiences

Qualitative data from interviews, focus groups, and reflection journals provided rich insights into how learners experienced technology-enhanced communicative instruction. Thematic analysis identified five major themes characterizing learners' perspectives on the intervention. The first prominent theme concerned increased authenticity and relevance, with students describing how technology provided access to real English use and genuine communicative purposes that made learning feel more meaningful. As one participant explained in an interview, having regular conversations with native speakers through language exchange applications and publishing digital stories for authentic audiences created a sense that they were actually using English for real communication rather than merely practicing it in artificial classroom exercises. Students particularly valued opportunities to interact with English speakers beyond their classroom, describing these experiences as both motivating and challenging in productive ways.

A second major theme involved expanded learning opportunities and flexibility. Students appreciated how technology extended learning beyond classroom time and physical space, allowing them to access materials, practice skills, and engage in communicative activities according to their schedules and preferences. Multiple students noted that asynchronous discussion forums gave them time to formulate thoughtful responses, reducing the anxiety associated with spontaneous classroom speaking while still requiring meaningful communication. The ability to revisit recorded materials, pause and replay authentic listening texts, and work at their own pace on various activities was frequently mentioned as beneficial, particularly for students who felt they needed more time to process and produce language compared to their more advanced peers.

Increased autonomy and learner agency emerged as a third significant theme. Students described feeling more in control of their learning process through technology-enhanced instruction, with greater opportunities to pursue personal interests, select from varied resources, and make choices about how to engage with learning activities. Several participants noted that investigating language questions using corpus tools made them feel like researchers exploring language rather than passive recipients of teacher-transmitted knowledge. The self-directed nature of many technology-mediated activities appeared to foster responsibility for learning, with students reporting more active goal-setting and progress monitoring compared to their previous language learning experiences. However, some students initially struggled with this autonomy, indicating that explicit guidance on self-regulation strategies was necessary for all learners to benefit from increased independence.

The fourth theme addressed challenges and frustrations associated with technology integration. Technical difficulties, including internet connectivity issues, platform navigation problems, and occasional software glitches, were cited as sources of frustration that sometimes interrupted learning flow. Some students initially felt overwhelmed by the number of different platforms and tools,

requiring an adjustment period to become comfortable with the technological aspects of the course. A few participants expressed preference for traditional instruction, finding technology-mediated activities less personal or more complicated than face-to-face interaction. Time management emerged as another challenge, with students noting that the expanded opportunities for learning outside class required greater self-discipline and organization to balance coursework across subjects.

The final theme concerned enhanced confidence and motivation for communication. Students in the experimental group frequently described increased confidence in their ability to communicate in English, attributing this to the extensive practice opportunities and successful communicative experiences facilitated by technology. One student reflected that after a semester of regular conversations with native speakers online, speaking in class felt much less intimidating because they had already proven to themselves they could communicate effectively in English. The immediate feedback from authentic audiences and the concrete evidence of their developing abilities through recorded productions appeared to reinforce self-efficacy and motivation to continue improving. Several students noted that seeing their progress documented through digital portfolios and reviewing their own performances over time provided tangible evidence of improvement that sustained motivation during challenging periods.

Discussion

The findings of this study demonstrate that integrating technology strategically within a communicative language teaching framework can significantly enhance language learning outcomes in EFL contexts, particularly for skills involving active production and interaction. The superior speaking proficiency gains observed in the experimental group align with previous research indicating that increased opportunities for authentic communication and meaningful interaction promote fluency development (Godwin-Jones, 2019). Technology's role in providing access to native speakers, authentic materials, and genuine communicative purposes appears to address a fundamental challenge in EFL contexts where learners have limited exposure to target language use outside educational settings. The expanded communicative opportunities facilitated by digital tools effectively created an immersive English environment that extended far beyond the six hours of weekly classroom instruction.

The particularly strong effects on speaking fluency and interactive competence suggest that technology-enhanced communicative approaches are especially valuable for developing real-time processing skills and conversational abilities that require extensive practice with varied interlocutors. Regular interactions with native speakers through language exchange platforms and virtual exchange sessions exposed learners to diverse accents, communication styles, and discourse patterns that would be impossible to replicate through teacher-fronted instruction alone (Chun, Kern, & Smith, 2016). The necessity of negotiating meaning, requesting clarification, and maintaining extended conversations in these authentic contexts likely accelerated the development of strategic competence and conversational management skills that are central to communicative ability but difficult to develop through traditional classroom exercises.

The more modest advantages for receptive skills suggest that both technology-enhanced and traditional communicative approaches can effectively develop listening and reading comprehension when authentic materials and meaning-focused activities are emphasized. However, the experimental group's gains in listening comprehension may reflect their greater exposure to varied authentic speech through online videos, podcasts, and conversations with speakers from different linguistic backgrounds. The relatively smaller between-group difference in reading comprehension aligns with research suggesting that extensive reading benefits from access to appropriate materials regardless of whether they are delivered digitally or in print (Hubbard, 2009). These findings support a nuanced view of technology's role in language learning, suggesting its benefits are most pronounced for skills requiring active communication and interaction rather than for all language abilities equally.

The sustained high engagement observed in the experimental group addresses a persistent challenge in language education, particularly with adult learners whose motivation may wane as courses progress. Technology's affordances for providing varied, interactive, and personally relevant learning

experiences appeared to maintain interest and active participation more effectively than traditional instruction alone (Fredricks, Blumenfeld, & Paris, 2004). The opportunity to pursue individual interests through self-selected authentic materials, receive immediate feedback through interactive applications, and see tangible products of learning through digital portfolios likely contributed to sustained motivation. Furthermore, the authentic communicative purposes provided by technology, such as publishing content for real audiences and interacting with speakers beyond the classroom, created intrinsic reasons for engagement that transcended the extrinsic motivations of grades and course requirements.

The qualitative findings reveal important nuances about how learners experience technology-enhanced instruction and what factors contribute to its effectiveness. The emphasis students placed on authenticity and real-world relevance suggests that technology's primary value lies not in its novelty or multimedia capabilities but in its capacity to connect learners with genuine language use and communicative purposes. This aligns with sociocultural perspectives on language learning emphasizing that development occurs through participation in authentic communicative practices and social interaction (Littlewood, 2007). Teachers implementing technology-enhanced approaches should therefore prioritize authenticity of materials, tasks, and audiences over technological sophistication, ensuring that digital tools serve to create meaningful communicative contexts rather than merely delivering traditional exercises in digital formats.

The challenges students identified, particularly technical difficulties and initial overwhelm with multiple platforms, highlight the importance of careful implementation and adequate support when integrating technology into language instruction. These findings echo previous research indicating that technology integration requires not only access to tools but also pedagogical scaffolding, technical support, and guidance in developing digital literacy alongside language proficiency (Richards, 2006). Teachers adopting technology-enhanced communicative approaches must recognize that successful implementation requires investment in training students to use platforms effectively, establishing clear expectations and routines, and maintaining contingency plans for technical problems. The adjustment period several students described suggests that technology integration should be gradual and systematic rather than attempting to introduce multiple tools simultaneously.

The increased learner autonomy facilitated by technology-enhanced instruction represents both an opportunity and a challenge. While many students thrived with greater control over their learning and appreciated the flexibility to work according to their preferences, some struggled with the self-regulation demands. This finding underscores the need for explicit instruction in learning strategies, time management, and self-assessment skills alongside technology integration (Chun, Kern, & Smith, 2016). Teachers cannot assume that providing access to resources and opportunities automatically leads to effective independent learning; rather, learners require scaffolding to develop the metacognitive and self-regulatory capacities necessary for autonomous language development. This might include regular check-ins, progress monitoring systems, and instruction in goal-setting and reflection practices that help learners manage increased independence productively.

Several limitations of this study warrant consideration when interpreting findings. The use of intact classes rather than random assignment means that unmeasured group differences could potentially contribute to observed outcomes, though pre-test equivalence and the use of ANCOVA to control for baseline differences help mitigate this concern. The researcher serving as instructor for both groups ensured consistency but introduces the possibility that teacher enthusiasm or expectancy effects could favor the experimental condition. The relatively short duration of one semester may not capture longer-term effects or whether observed benefits persist beyond the intervention period. The specific cultural and institutional context of a Central Asian university may limit generalizability to other EFL settings with different technological infrastructure, student populations, or educational traditions. Future research should address these limitations through longer-term studies, random assignment where feasible, and replication in diverse contexts.

Conclusion

This study demonstrates that integrating technology strategically within a communicative language teaching framework can significantly enhance language learning outcomes and student engagement in EFL university contexts. The technology-enhanced communicative approach produced superior results particularly for speaking proficiency and interactive competence while maintaining high student engagement throughout the semester. These benefits appear to stem from technology's affordances for providing authentic communicative experiences, expanding learning opportunities beyond classroom time and space, and connecting learners with diverse interlocutors and genuine audiences for language use. However, the findings also reveal that technology integration requires careful pedagogical design, adequate support systems, and attention to developing learner autonomy alongside language proficiency.

The implications for language teaching practice are substantial. Teachers seeking to enhance their communicative language teaching should consider how digital tools can extend and amplify core communicative principles rather than replace face-to-face interaction or traditional effective practices. Technology should be selected and implemented based on clear pedagogical objectives aligned with communicative competence development, with particular attention to creating authentic purposes for communication and meaningful interaction opportunities. Professional development for language teachers should address not only technical skills but also pedagogical frameworks for integrating technology in ways that genuinely support language learning rather than using digital tools for their own sake.

Future research should investigate several important questions raised by this study. Longitudinal studies examining whether the benefits of technology-enhanced communicative instruction persist beyond the intervention period and affect long-term language development trajectories would be valuable. Research comparing different configurations of technology integration could help identify which digital tools and implementation approaches are most effective for particular learning objectives and student populations. Studies examining how technology-enhanced communicative approaches can be adapted for different proficiency levels, age groups, and educational contexts would support broader implementation. Finally, research investigating how to effectively prepare teachers for technology-enhanced language teaching and what factors support sustainable integration in diverse institutional contexts would inform teacher education and professional development initiatives.

As digital technologies continue to evolve and become increasingly integrated into educational contexts globally, the question facing language educators is not whether to use technology but how to use it effectively in service of language learning goals. This study suggests that when technology is thoughtfully integrated within a communicative framework with clear pedagogical purposes, it can substantially enhance learners' language proficiency, engagement, and communicative confidence. The key lies in maintaining focus on fundamental principles of effective language teaching while leveraging technology's unique affordances to create richer, more authentic, and more extensive opportunities for meaningful communication that develops the communicative competence essential for functioning effectively in English in academic, professional, and personal domains.

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