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Research Paper

A Systematic Review of Generative AI in CALL Published Research in Scholarly Journals

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Abstract

This study aimed to systematically examine attitudes toward GenAI and its applications in CALL research published in top-tier CALL journals. Forty papers met the inclusion/exclusion criteria and were classified as attitudinal, empirical, and combined. Using a principled approach to coding and thematizing the data based on the research questions of the current study, major themes and trends were identified. Findings indicate an overall positive attitude to GenAI integration into CALL research, while negative voices were also detected concerning the biased nature of GenAI in relation to certain stereotypes and access inequalities. Regarding empirical research, it turned out that most were conducted in formal settings and were most effective in the writing skill, followed by speaking skills, revealing a serious gap in connection to the other language skills and subskills. The study also discusses research-related implications and then concludes with suggestions for further examination of GenAI in view of the observed limitations.

Keywords: GenAI; CALL Research; CALL Journals.

1. Introduction

Like many other educational technologies, e.g., the Internet, social networking platforms, Computer-assisted Language Learning (CALL), Mobile-assisted Language Learning (MALL), etc., Artificial Intelligence (AI) tools have proven to be here-to-stay in English Language Teaching (ELT) and learning (Hınız, 2024). The new generation of AI, known as Generative AI (GenAI), debuted in November 2022 and has ever since brought along a conundrum in ELT and personalized language learning. Immediately after its emergence, it witnessed unprecedented popularity (over one-hundred million application subscribers and web interface users by early January 2023) (Lodge et al., 2023). While its advocates anticipated promising perspectives, arguing for leveraging its potential and judicious incorporation into educational settings, opponents have remained skeptical due to anecdotal evidence of GenAI's detrimental impacts on learners' critical thinking and creativity (Smith & Patel, 2024). Regardless of this rift in opinions, Chat Generative Pre-trained Transformer (ChatGPT), the main class of GenAI, and other similar tools have been utilized in a variety of ways in ELT, ranging from content creation such as lesson planning, materials development, and assessment, to personalized and interactive learning such as adaptive feedback, chatbots, role-playing, and gamified learning (Chen et al., 2025; Hwang et al., 2023; Shin & Lee, 2023).

Many studies have reviewed the use of GenAI in general educational settings (Nikolic et al., 2024; Tillmanns et al., 2025; Wang et al., 2024), and in ELT (Lai & Lee, 2024; Li et al., 2024), in particular. Most of these studies have focused on GenAI affordances, benefits, and challenges (Klimova et al., 2024; Mi et al., 2025). A large body of research, however, has explored the research foci, methodological features, and ethical considerations of GenAI in various disciplines including ELT (Lai & Lee, 2024; Prather et al., 2025). Surprisingly, reviews examining the use of GenAI in CALL, a fast-growing field in Applied Linguistics, have remained few and far between (Qu & Wu, 2024). This might be due to the misconception that GenAI is still in its infancy stage, and it is yet to be examined thoroughly in CALL research. However, some experts have pointed out that GenAI has been increasingly establishing itself in language teaching and

learning, and it is timely to uncover how it is guiding research trends in CALL (Shi & Aryadoust, 2024; Qu & Wu, 2024; Tafazoli, 2024), which is essentially concerned with the integration of technology in language learning. Admittedly, failing to critically investigate GenAI's status quo in this field may result in overlooked opportunities to leverage its potential in language learning.

This study aims to systematically review the Research Articles (RAs) published in top-tier CALL journals which have utilized and discussed GenAI. To this end, a rigorous approach to data collection was employed to ensure representativeness and identification of salient trends. This review basically identifies two major categories of RAs reporting on the use of GenAI in CALL research. The first category includes studies concentrating on attitudes and perceptions toward using GenAI in CALL environment, whereas the second category encompasses studies focusing on GenAI uses in CALL context, including the GenAI tools used, main foci, language skills and subskills reported in these RAs.

2. Literature Review

2.1. GenAI in ELT

AI is defined as technology that can perceive, observe, identify, understand, learn, respond, and resolve issues (Kumar & Thakur, 2012). GenAI, a class of AI based on Large Language Models (LLMs), refers to the AI type that concentrates on content creation, such as text, images, audio, and video, based on user inputs and training data (Luo, 2024). Luo adds that while traditional AI analyzes and uses existing data, GenAI generates outputs which are hard to distinguish from human-generated content. GenAI tools have been increasingly incorporated into ELT to provide engaging environments for students, offering individualized and interactive learning experience, which lead to enhancement in students' language skills performance (Hwang et al., 2023; Klimova et al., 2023; Liang et al., 2023; Liu et al., 2022; Zhai & Wibowo, 2023). Generally, most of the available literature on GenAI integration in ELT falls into two categories: a) attitudes toward GenAI and its affordances, and b) GenAI applications, tools, and effectiveness.

2.1.1. Attitudes toward GenAI and Its Affordances in ELT

Research into attitudes and perceptions toward GenAI in ELT can be divided into two broad classes depending on sample size and scope of the study. One includes individual studies examining the attitudes of a sample of teachers, students, or both, using surveys or interviews. The other involves review RAs that summarize prevalent trends of attitudes to GenAI in ELT. Both types have primarily demonstrated that students generally hold positive attitudes, and that teachers positively view the potential of GenAI tools for personalized materials and real-time feedback (Klimova et al., 2024; Lai & Lee, 2024; Li et al., 2024; Wang et al., 2024). However, concerns also exist about student overreliance on these tools which can affect their critical thinking and learning process (Lai & Lee, 2024). In addition, Wang et al. (2024) take an ambivalent position with regard to GenAI in language education, arguing that although students and teachers, in the 127 papers they reviewed, largely expressed positive attitudes because of perceived usefulness and ease of use of GenAI, issues related to ethical implications and inherent biases in GenAI tools could be observed. They linked these downsides to algorithmic bias and stereotypes that can influence learners' attitudes toward GenAI.

Li et al. (2024) found that most of the studies published after the first year of ChatGPT's launch were empirical in nature, indicating a strong inclination for data-driven insights, whereas theoretical RAs, though less in number, were found to explore new transformative frameworks in ELT context. The main role of GenAI was identified as a teaching assistant and writing facilitator, which was perceived positively by both teachers and students (Li et al., 2024). Similarly, Law (2024), in his scoping review of the impact of GenAI on ELT, observed an increased number of empirical RAs. One particular research question of Law's (2024) review addressed teachers and students' attitudes toward GenAI in the data. Reporting a dominant positive attitude in most of the reviewed studies, he recognized the high potential of integrating GenAI in ELT. In another study comparing English for Academic Purposes students' perceptions of GenAI and traditional grammar-checking tools, Kohnke (2024) revealed that students consider GenAI to be more comprehensive, nuanced, and authoritative than traditional tools. Moreover, some participants in Kohnke's study valued GenAI due to its enhancing metacognitive awareness and self-regulated learning, while a few found it so overwhelmingly detailed that it hindered their learning processes. Ethical issues and privacy concerns were also raised as disadvantages of adopting GenAI in the learning process.

Concerning GenAI affordances in ELT, Crompton et al. (2024) identified 42 studies exploiting GenAI in ELT environment. They applied grounded coding and elucidated GenAI's affordances in ELT relating to speaking, writing, reading, pedagogy, and self-regulation. The challenges, however, included technological failures, limited functionality, apprehension, and the standardization of language. Mi et al. (2025) recognize technological, educational, and social benefits of GenAI, while highlighting such issues as students' unequal GenAI access, literacy, and writing ability as the downsides of GenAI tools. Using GenAI can change class time from knowledge transfer and acquisition to using knowledge to solve real-world problems through collaborative work and critical engagement (Kostka & Toncelli, 2023), as well as encouraging "learn[ing] through experimentation and experience" (Rudolph et al., 2023, p. 12). While enumerating the potential risks of integration of GenAI tools in ELT classroom (i.e., privacy, bias, accessibility, authenticity, and academic integrity), Vaccino-Salvadore (2023, p. 5) maintains that these risks can be mitigated, and GenAI tools can develop "a more inclusive, fair, and effective learning environment." Klimova et al. (2024) warn that albeit GenAI can be very advantageous for teachers in assessment and teaching materials development and preparation, it is still hard for them to replace the existing teaching and assessment methods to boost students' heuristic skills. A recent study by Aryadoust et al. (2024) investigated how GenAI can aid in specific language skills like constructing listening assessments. The findings of this study showed that by effective prompt tuning and human oversighting, test designers can generate listening texts, questions, and audios that specifically target different proficiency levels. Despite all the skill-specific affordances, Aryadoust et al. (2024) hint at major limitations of GenAI utilization in listening assessment such as authenticity and validity.

2.1.2. Effectiveness of GenAI Use in ELT

Exploring effectiveness of GenAI in ELT necessitates scrutiny into (quasi-)experimental studies and meta-analyses that examine if students' performance would be different when GenAI tools are employed in the learning/teaching processes. Having conducted a scoping review of the impact of GenAI on ELT, Law (2024) claims that GenAI has brought about a paradigm shift in ELT. Law's (2024) analysis of the impact of GenAI on ELT in several experimental papers showed enhancement in L2 writing and learning motivation via personalized scaffolding, prompt feedback, and resource development. GenAI, as Law posits, also improves engagement, adaptive assessment, and rapid grading but entails ethical issues like plagiarism, bias, and academic dishonesty. In some of the studies that Law reviewed, authors have concluded that these challenges outweigh the benefits. Guan et al.'s (2024) meta-analysis of 15 studies on the efficacy of GenAI in informal ELT settings, with a focus on proficiency, self-regulation, and learning motivation, disclosed significant impacts on the first two aspects, echoing GenAI's potential in improving language learning outcomes but failure to affect learning motivation. On a minor scale, individual studies, as well, affirm that GenAI has had a positive impact on ELT. For instance, Karataş et al. (2024, p. 19344) suggest that ChatGPT positively affects students' learning, particularly in "writing, grammar, and vocabulary acquisition, and enhances motivation and engagement through its versatile and accessible nature." Chen et al. (2025) documented that using GenAI for role-playing does not significantly facilitate students' speaking performance compared to peer role-playing activities, but it could heighten their intrinsic motivation. These mixed results keep the door open for more confirmatory experimental, systematic, and meta-synthetic studies to surface the prevalent trends and future directions.

For teachers' benefits, Aryadoust et al.'s (2024) study also offers testimony to the positive impact of GenAI in ELT as an aid for constructing proficiency-tailored listening tests. From a functionality and usability perspective, Tolstykh and Oshchepkova (2024, p. 10) identified 150 AI-powered tools used in education. Some of these tools are associated with ELT, which "can be considered both learning companions for students and teaching assistant for educators, support various aspects of the ESL educational process." These ELT-purported GenAI tools fall into four main groups, namely, content creation tools, assessment tools, tutoring tools, and planning tools. Overall, these tools have been reported to facilitate ELT and English learning (Tolstykh & Oshchepkova, 2024). Nonetheless, considering GenAI versatility and facilitative role in ELT without accounting for its adaptivity to social justice and learning equity is too naïve. In this regard, Alm and Watanabe (2023, p. 19), guided by Freirean critical pedagogy framework, assert that much should be done to make sure that "[ChatGPT] integration [in ELT] serves goals of equity, social justice and the development of critical consciousness, not just efficiency." All individual and meta-synthetic accounts on GenAI's effects on ELT, whether for self-regulated learning or teaching and pedagogical purposes, point to its efficacy and versatility, while casting doubts on its risks for academic integrity, algorithmic biases, and vulnerability to causing social inequities.

2.2. GenAI in CALL Research

Despite a multitude of review studies on attitudes toward GenAI, its affordances, and effectiveness in education and ELT, there is still a lack of reviews specifically focusing on GenAI in CALL RAs. Among the limited number of studies delving into the effectiveness of GenAI integration into CALL, Fazal et al. (2024) focused on gender-based differences in students' writing skills to guide inclusive learning initiatives. Their review of the literature showcased males' superiority in confidence and favorable attitudes toward technology over females and variations in CALL usage between the two genders (i.e., females prefer communication, while males opt for competitive activities). Building on literature, this secondary content analysis reveals that GenAI tools improve collaboration and writing ability through tailored feedback for both genders, and gender-related disparities in GenAI tool use affect learning outcomes. Similarly, Qu and Wu's (2024) review of GenAI adoption into CALL showed that students' oral and written skills were positively influenced through simulated dialogues, and the students' intrinsic motivation grew stronger in the dynamic interaction between GenAI and CALL intervention. To the best of our knowledge, except for these two review studies (i.e., Fazal et al., 2024; Qu & Wu, 2024), which mainly focus on gender-based differences and intrinsic motivation in the context of using GenAI in CALL intervention, no other studies have presented a systematic review of this line of inquiry.

2.3. This Study

The paucity of research into the salient trends in GenAI application in the field of CALL justifies the current study as a pioneering effort to unravel GenAI's position in CALL published research. This kind of review study can track down how GenAI-driven tools are shaping research in CALL top-tier journals, which can guide future investigations (Law, 2024). Moreover, qualitative analysis of the stakeholders' attitudes to GenAI and its effects in CALL is deemed necessary since these narratives can reveal the status quo of adoption and acceptance of GenAI in this context. Considering this aim, this study addresses the following research questions.

RQ1: What are the attitudes and perceptions toward GenAI in RAs published in CALL top-tier journals?

RQ2: What are the uses of GenAI reported in RAs published in CALL top-tier journals?

3. Methodology

Inspired by the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021), this systematic review has targeted RAs that have utilized and discussed GenAI published in CALL top-tier journals. Given that CALL research is now considered developed enough, with its dedicated journals (e.g., *ReCALL*), conferences (e.g., WorldALL) and associations (e.g., EUROCALL), CALL scholars are discussing the field's maturity (Hubbard & Colpaert, 2019) and recommend conducting review/meta-analytic studies to examine the impact of new technologies on the field (Gillespie, 2020). Although GenAI has just started gaining traction in technology-mediated language instruction (Qu & Wu, 2024), there has not been enough publications to examine its impact in CALL and its various subfields (see Zhu & Wang, 2025). Our concentration on CALL journals in the current systematic review was a principled choice, allowing us to dig deeper into the most relevant publication platforms for RAs on GenAI and exclude the so-called grey literature (Law, 2024).

3.1. Data Collection

To choose top-tier CALL journals, the researchers initially checked other similar reviews or synthetic studies (in particular, Gillespie, 2020; Choubsaz et al., 2024; Mohsen et al., 2024) to collate a list of potential CALL journals. The initial list comprised of *ReCALL*, *Computer Assisted Language Learning (CALL)*, *Language Learning & Technology (LL&T)*, *CALICO Journal*, *System*, *Journal of Computer Assisted Learning (JCAL)*, *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)* and *Computer-Assisted Language Learning Electronic Journal (CALL-EJ)*. Two of the most widely used online databases, Web of Science (WoS) (Core Collections HSCI and SSCI) and Scopus, were then checked to provide us with Quartile 1 (Q1) journals (i.e., the ones with the highest SJR and IF). *IJCALLT* was then excluded as it appeared only in ESCI of WoS. After visiting the homepages of the 7 remaining journals, we decided to exclude *System* and *JCAL*, as the former has merits in Applied Linguistics (Lei & Liu, 2019), and the latter does not concentrate on the learning and teaching of languages using computers - the very basic definition of CALL based on Boulton and Choubsaz (2025). To target the most relevant RAs on GenAI in the 5 top-tier CALL journals, a list of keywords was compiled. We followed the practice of Law (2024) in generating the list and used the Boolean conjunction

“generative artificial intelligence” OR “generative AI” OR “GenAI” OR “ChatGPT” OR “Chat GPT” AND “language education” OR “language teaching” OR “language learning” to search on the homepages of these 5 journals. A total of 40 RAs were identified, downloaded, and carefully examined for any possible mismatches or oddities. After this initial round of reading, 10 review and conceptual papers were disregarded, including the two papers from *CALICO Journal*, which led to the complete exclusion of this journal. The final dataset was then compiled with 30 RAs from *ReCALL* (4), *CALL* (15), *LL&T* (7), and *CALL-EJ* (4) concentrating on attitudes and perceptions toward using GenAI in a CALL environment or focusing on GenAI uses in a CALL context. It should be added that, unlike many other review and synthetic papers, our study did not have a timeframe for the inclusion of RAs in the final dataset. This was owing to the specific focus we had on including any RA on GenAI that are published in top-tier CALL journals, irrespective of their year of publication (2022, 2023, 2024 or 2025).

3.2. Data Analysis

To extract the relevant information from the 30 RAs under study, a systematic coding of data was conducted (Robson et al., 2019). Following the practice of Onwuegbuzie et al. (2016), we developed a structured data collection instrument (see Supplementary Material) for a two-step coding process. In the attribute coding phase, a scheme was initially used on Microsoft Excel to record the bibliographical information of RAs (e.g., authors and years of publication), the research participants and settings to help us see the weight of teachers and learners (or both) in the studies as well as the formal or informal settings. In the pattern coding phase, which was used to extract the rest of the data, we developed meta-codes, grouped them to produce major themes and recorded them on the developed coding scheme. Specifically, for the studies on perceptions and attitudes, we collected data on the GenAI tools studied, the research focus (i.e., the primary area of investigation), the explicitness of perception/attitude statements, as well as the level of GenAI acceptance (i.e., positive, negative, or ambivalent) among participants. Concerning the studies on GenAI uses, data gathered on GenAI tool used, research focus, skill or subskill covered plus the outcomes of using GenAI (i.e., effective or mixed). For data presentation purposes in the coding scheme, we decided to record the foci of each type of study under separate columns. However, to ease the discussion of this part of our work, we consolidated the focus of both types of studies in the manuscript. Before embarking on data analysis, the two researchers independently coded 20% of the data and negotiated the discrepancies. Inter-rater reliability was substantial, with Cohen’s kappa calculated at 0.84.

4. Results and Discussion

Given the study’s review-based approach, the findings first present the key details – study types, research participants, settings, and focus – across both major categories of RAs before discussing attitudes and perceptions as well as the uses of GenAI in CALL research.

Regarding the study types, the findings indicated that purely empirical RAs (N=15) that have collected and analyzed primary data on GenAI adoption/use have been dominant in CALL research, followed by attitudinal studies (N=9) that have investigated the participants’ attitudes and perceptions toward GenAI and then combined studies (N=6) that have portions of both major categories of RAs (i.e., empirical and attitudinal). Confirming the results of Law (2024) who could identify 24 empirical studies in his scoping review of GenAI in ELT, and Zhu and Wang (2025) who indicated the predominance of empirical studies investigating GenAI in language education, our findings reveal that CALL researchers realize the significance of setting up empirical designs (mostly quantitative) to evaluate the overall impact of GenAI tools on the development of various areas of English language teaching and learning such as the four skills. On the flip side, others have attempted to explore learners and teachers’ attitudes toward GenAI by adopting qualitative data collection instruments (e.g., interviews and focus group discussions) or combine both approaches to have a deeper understanding of research participants’ perceptions and use of GenAI in CALL contexts.

In terms of research participants, the dominance of learners (N=20) is not an unexpected finding. However, the low number of teachers (N=5) or RAs that have both learners and teachers as research participants (N=3) highlights the need for more studies on teachers’ perspectives and use of GenAI in CALL contexts. By taking the same stance, yet in the broader field of language learning and teaching, Li et al. (2024) underscores the significant role of educators in the optimal integration of GenAI tools such as ChatGPT and draws on the crucial role that teacher training programs and professional development sessions might play in equipping teachers with knowledge and expertise they need in today’s classes.

Regarding research settings, the high weight of formal settings (N=19) such as universities and schools and the low weight of informal ones (N=2) attest to the prevalence of GenAI in structured educational environments over more casual or self-directed learning contexts. Notably, almost half of studies (N=14) are conducted in Asia, mainly in Chinese universities and institutions. This is in line with the findings of Law (2024) in which 21 of the 41 reviewed studies in ELT were conducted in formal language settings with eastern Asian countries as the most productive macro research contexts. On the other hand, there seems to be a need for CALL scholars to set up projects, experiments, or studies to examine the impact of GenAI in informal settings. After all, as Guan et al. (2024) underscore its impact on second language acquisition within informal contexts, GenAI has proven to have a significant effect on learners' "English proficiency and self-regulation, demonstrating its versatility in enhancing language learning outcomes" (p. 1).

Concerning the research foci, as discussed in the methodology, we adopted pattern coding to be able to form meta-codes and then group them together to generate major themes. Given the variety of synonyms and acronyms that authors used to describe the participants' attitudes or use of GenAI, this type of coding assisted us in using more unified terminology for data presentation and discussion purposes. As indicated in Figure 1, the effects of GenAI (N=20), GenAI and feedback (N=8), acceptance of GenAI tools (N=3), and leveraging GenAI tools/creating content using AI tools (N=5) have been the most dominant research foci in CALL RAs on GenAI.

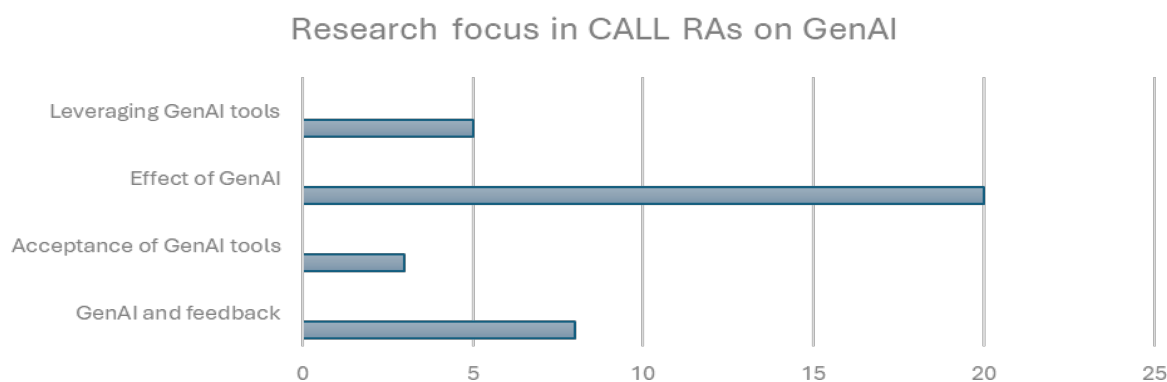


Figure 1. Research Foci in CALL RAs on GenAI

To elaborate, the trendiest research focus – namely, the effects of GenAI – was evident in studies where the primary area of investigation concerned the effectiveness, impact, role, influence, or support of AI tools in learning, teaching, or needs analysis. For instance, in Shi et al. (2025), the authors examined the effects of automatic writing evaluation (AWE) and ChatGPT on undergraduate Chinese students' writing performance, ideal L2 writing self, and experiences. The CALL RAs focusing on the use of GenAI tools to receive feedback, creating GenAI-AWE, comparing teacher feedback vs. GenAI feedback fell into the GenAI and feedback category. An example for this was Ziqi et al.'s (2024) study through which the authors explored 59 undergraduate Chinese L2 writers' perceptions of corrective feedback from the AI-assisted writing system (ChatGPT-3.5) in completing academic writing tasks. The RAs that discussed the leverages of GenAI tools or content creation with the adoption of GenAI-related instruments as their focus, were classified as somehow dominant in the dataset. For example, Shin and Lee (2023) examined ChatGPT's potential as a resource for generating L2 assessment materials on par with those created by human experts. The least dominant research focus was identified in the group of CALL RAs that concentrated on the level of acceptance of GenAI tools. To provide an example, An et al. (2023) investigated students' behavioral intentions to use AI in L2 learning, and assessed the roles of related technological, social, and motivational factors in that process. All in all, the identified research foci in this study are comparable to those of Wang et al. (2024) in the sense that both studies consider the adoption/acceptance of GenAI and its impacts as the primary areas of examination in the reviewed RAs. The difference, however, is that our analysis concentrated on the identified foci in CALL RAs published in pertinent CALL journals to target a specific audience, unlike Wang et al. (2024) who gave a picture of the dominant foci in the entirety of education for a general group of readers. Similarly, when compared to Law (2024), who presented the benefits and drawbacks linked to the application of GenAI in language teaching and learning as the primary research focus of his dataset, our study provides a clearer picture for CALL authors to know what foci are prevalent (e.g., GenAI and feedback), which ones are already researched to a certain extent (e.g., leveraging GenAI tools), and which are under-researched or even not researched at all (e.g., GenAI and ethics in CALL contexts).

4.1. Attitudes and Perceptions toward GenAI in CALL Research

To answer the first research question, we needed to consider the number of studies in which a clear attitude toward GenAI implementation in CALL top-tier journals was expressed. Out of 15 RAs that we coded as attitudinal or combined (i.e., they included an explicit attitude/perception component in addition to their empirical aspect), 7 studies exhibited a positive attitude, 7 papers expressed an ambivalent attitude, while only 1 paper adopted a negative attitude. Interestingly, the attitude and perception statements in these 15 purely attitudinal (or combined studies) RAs were explicitly mentioned by the authors, an encouraging finding that demonstrated the clarity of reporting in CALL studies, as recommended in previous CALL syntheses (Choubsaz et al., 2024).

To elaborate, the CALL authors of the 7 papers presenting a positive narrative confirm that participants' experiences with GenAI tools have been largely constructive – particularly due to the tools' support in academic writing and writing mechanics. This finding is also echoed in other recent reviews (e.g., Klimova et al., 2024; Lai & Lee, 2024; Law, 2024; Li et al., 2024). Fathi and Rahimi (2024), for instance, explored the EFL learners' attitudes and perceptions toward the contribution of AI-assisted writing mediation to their academic writing skills development and reported how positively these learners viewed ChatGPT and its non-judgmental nature in the think-aloud protocols and interviews they had with the researchers. In the other 7 CALL RAs with an ambivalent attitude toward GenAI, both negative and positive views were observed. This finding aligns with the work of Wang et al. (2024), who reported that although participants in their study generally expressed positive attitudes due to the perceived usefulness of GenAI, both students and teachers raised concerns about its ethical implications and inherent biases. An example of a study with an ambivalent attitude in our dataset was Creely et al. (2025). Even though the authors testified to the hesitance they observed among educators incorporating GenAI tools in their programs, particularly for beginners, they could feel the enthusiasm for learning about GenAI and its potential advantages among adult language learners. In the only RA that expressed a negative attitude toward GenAI in CALL, the learners' negative reactions and rejection of ChatGPT-generated feedback – analyzed by the authors through the lens of the Technology Acceptance Model (TAM) – contributed to a general sense of GenAI rejection within the study (Ziqi et al., 2024); a finding that has been reported in both Cotton et al. (2023) and Liu et al. (2024) to reflect some common concerns teachers have including plagiarism and ethical use of ChatGPT in language learning classes.

In our analysis of attitudes and perceptions, we also extracted the used GenAI tools in the RAs to realize what tools have attracted attention in CALL contexts. Unlike the results of Zhu and Wang (2025) who reported AWE, bots, machine translation, and automatic speech recognition as the widely adopted AI tools in language education spanning from 2013 to 2023, our findings indicated that the launch of ChatGPT in November 2022 and its free availability have led to an extensive adoption of OpenAI's tool in CALL RAs. Corroborating Law's (2024) findings, and as seen in Figure 2, we noted that various versions of ChatGPT are investigated in 10 attitudinal RAs (ChatGPT: 7, ChatGPT-3.5: 1, ChatGPT-4.0: 2). As mentioned earlier in the text, both groups of learners and teachers perceived it as useful given its potential to turn the often-tedious process of language learning in a CALL environment into an engaging and interactive experience (Qu & Wu, 2024).

It should be added that CALL authors have not relied solely on ChatGPT but have employed 'GenAI in general' (N=4) plus some other GenAI tools (i.e., Poe AI, Pi, New Bing, Ernie Bot, virtual companion named Lucy, the digital English interpreter in iFlytek Spark, a Chinese GenAI tool for academic purposes and an AI chatbot called Iruda). Such various adoption of GenAI tools in CALL within a very short period is indeed encouraging and is expected to be significantly broader in the years to come (Fazal et al., 2024).

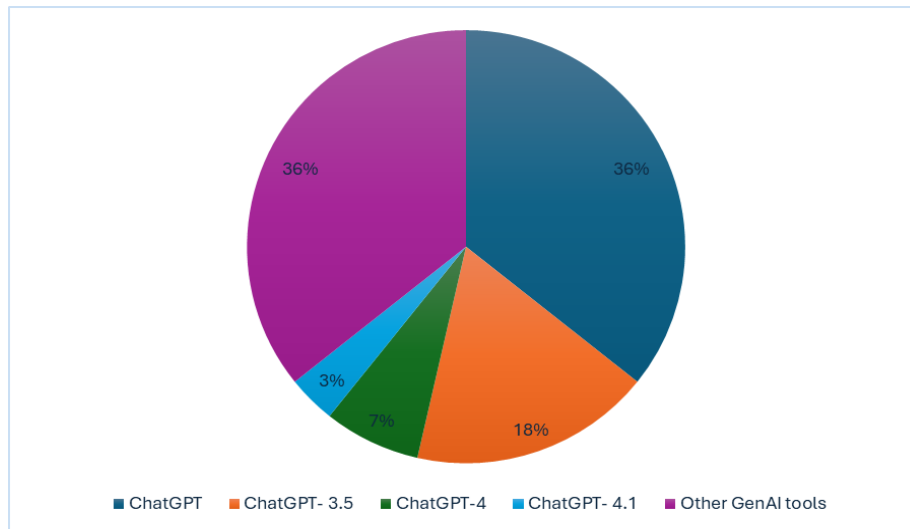


Figure 2. GenAI Tools Studied in Attitudinal CALL Research

4.2. Uses of GenAI in CALL Research

To answer the second research question, that is, the uses of GenAI reported in RAs published in CALL top-tier journals, we paid heed to the skills or subskills that were concentrated on using GenAI. Moreover, we also took the outcome of the GenAI adoption into account to realize if it had been effective, ineffective, or resulted in a mixed outcome. Out of 21 RAs that we coded as purely empirical or combined (i.e., they included an explicit empirical component in addition to their attitudinal aspect), the concentration of 9 studies was on the writing skill, 3 on the speaking skill, 2 on both integrated skills and vocabulary, and 1 on both grammar and reading. In terms of the outcomes, 16 of the reviewed studies reported an effective outcome, meaning that GenAI use enhanced participants' acquisition of the targeted skill, 5 studies reported a mixed outcome, and none reported GenAI to be ineffective.

To elaborate, the 9 studies on the writing skill demonstrated that GenAI tools, predominantly ChatGPT, were able to assist learners enhance their written drafts and be more motivated in completing higher-level tasks assigned to them. This assistance mainly included real-time feedback on the structures of their sentences, suggestions for the use of a more diverse range of vocabulary, and recommendations for grammar improvement; the findings that are fully in line with those attained by Guan et al. (2024), Karataş et al. (2024) and Law (2024). To give an example from the dataset, Zare et al. (2025) researched the effect of adopting ChatGPT 4.0 on the level of motivation of Iranian undergraduate students' argumentative writing. The authors found out that the students' interaction with the GenAI tool could lead to "a positive lasting effect on the learners' motivation to write essays in English" (p. 15) owing to ChatGPT's supportive learning environment, the useful interactions learners had with it as their tutor, and the meta-cognitive awareness the tool encouraged while tackling learners' particular writing issues (Zare et al., 2025). With regard to the three studies focusing on the speaking skill, confirming the findings of Zhu and Wang (2025), we realized that GenAI tools adopted in CALL environments could facilitate artificial conversations between learners and various forms of chatbots (e.g., chatbot called Iruda) to be able to engage in somehow genuine conversations plus ask-and-answer tasks. In addition, such chatbots or conversational GenAI tools could simplify assessing learners' speaking via simulated dialogues or produced voice messages (Qu & Wu, 2024). For instance, Aldosari (2024) attempted to examine the impact of GenAI on the speaking skill, willingness to communicate, and academic enjoyment of a group of EFL learners in Saudi Arabia. The findings of the study indicated that the experimental group could outscore the control group by its reliance on ChatGPT as the learning tool.

Among the few studies addressing integrated skills in the dataset, Kim et al. (2022) reported on the design and development of a GenAI chatbot called Ellie, and its affordances to engage learners in various problem-solving L2 tasks on a mix of language skills. Regarding vocabulary, Zamanpour and Etemadzadeh (2024) examined the effect of a GenAI-driven corpus to underline its high capacity to significantly impact Iranian ESP learners' usage of lexical bundles and idioms. A notable lack of research was observed on the adoption of GenAI tools for grammar and reading (as mentioned previously, 1 RA examined each; however, we are not discussing examples here to save space); and to our surprise, no study examined the use of GenAI tools in teaching/learning listening and pronunciation in a CALL environment. Such

under-researched skills/subskills (i.e., reading, listening, grammar, pronunciation) were also reported in Li et al. (2024) and Zhu and Wang (2025). In fact, given the importance of these skills/subskills, leveraging GenAI tools to enhance learners' mastery of them seems a promising direction for future CALL-based pedagogical interventions. Additionally, more studies are needed to examine the impact of GenAI on integrated language skills in genuine CALL environments – where a mastery of a combination of skills gains more significance. As Zhu and Wang (2025) put it, more RAs need to address the development of multimodal language pedagogies, particularly owing to the recent advancements that multimodal GenAI has marked in the fields of ELT and CALL (Vartiainen & Tedre, 2023).

Similar to our analysis of attitudes and perceptions, we extracted the used tools in the studies on GenAI uses in CALL top-tier journals. As it is depicted in Figure 3, different versions of ChatGPT were adopted in 18 purely empirical or combined studies (ChatGPT: 10, ChatGPT 4.0: 5, ChatGPT-3.5: 2, ChatGPT 4.1: 1), a finding that accords with the widespread adoption of ChatGPT in the CALL spectrum “spotlighting the significance of aspects like ease of use, control, boredom, and joy in melding learners' motivational drive and engagement” (Qu & Wu, 2024, p. 19496).

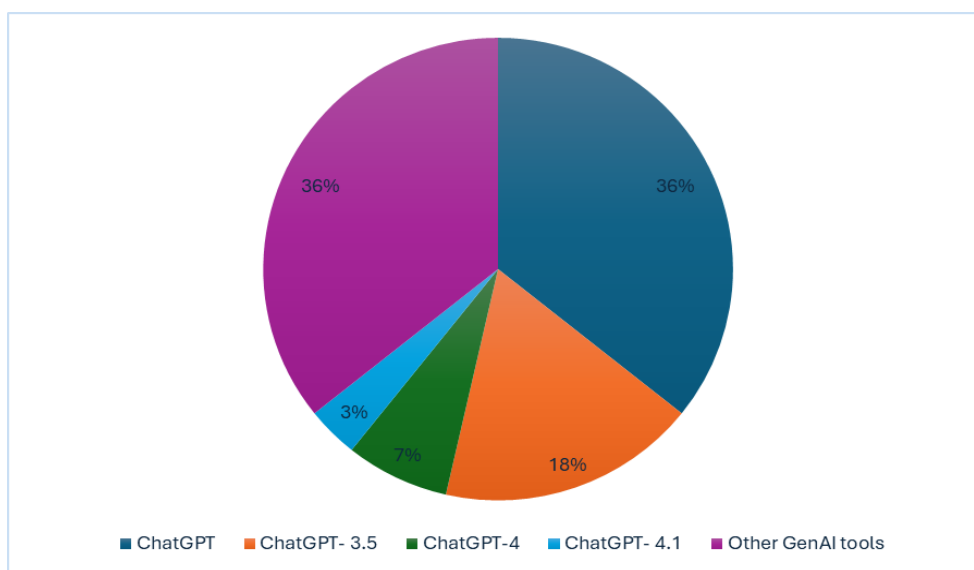


Figure 3. GenAI tools Used in Empirical CALL Research

Notably, CALL authors' adoption of GenAI-assisted tools was not limited to ChatGPT; they also utilized Gemini, Microsoft Co-Pilot, JAIS, Diffit, a virtual companion named Lucy and the digital English interpreter in iFlytek Spark, a Chinese GenAI tool for academic purposes, 2 AI chatbots, an L2 learning voice chatbot (Ellie) and an Artificial Intelligence Driven Corpus (AIDC) to set up their mainly empirical studies and incorporate GenAI in their programs to the extent possible. We should also bear in mind that, although the reliance on GenAI tools in the reviewed studies might appear limited, especially considering GenAI's growing dominance in CALL environments (Qu & Wu, 2024), this may be due to the short timeframe CALL researchers have had to implement these tools, assess their effectiveness, and publish in CALL top-tier journals.

5. Conclusion

This study offered a systematic analysis of the attitudes toward GenAI and its applications in CALL research. It was motivated by the researchers' perception of the need to chart the trends in this ever-growing field to enlighten other CALL researchers to embark on either conducting replicatory studies to corroborate the available findings or carrying out investigations into less attended areas like the ones identified in this paper. The outcome of this paper reflects a general positive attitude toward GenAI due to its affordances and accessibility, while a few negative attitudinal recurrent themes such as algorithmic stereotypes and biases were also found underly students and teachers' hesitance about or distrust in GenAI. Moreover, the preponderance of empirical studies insinuates that CALL researchers have realized that they must go beyond seeking views and preferences, and now they should offer empirical findings on the effectiveness of GenAI applications in formal and informal settings. These findings offer several implications. First, educators, equipped with a favorable classroom perception of GenAI, can guide their students to make use of GenAI responsibly to brainstorm, plan, edit, revise, and self-train in English language learning courses. Curriculum developers should bear in mind that

assessment in the traditional sense is not viable anymore in the presence of GenAI, which provides students with nicely crafted responses. Instead, courses/syllabi should be designed that encourage students to use GenAI to enhance their critical thinking and boost their command over cognitive and metacognitive strategies. Finally, policy makers should clearly specify ethical considerations such as equal access to GenAI, bias inherent in GenAI, and academic integrity in their national and international guidelines.

Despite its contributions, this study is prone to some limitations, which future research could address. First, the findings of this study provide somewhat preliminary evidence on the growing role of GenAI in top-tier CALL journals. Perhaps, exploring the same research questions as the ones in this study from a broader scope, for instance, by including RAs from sister ELT and Applied Linguistics journals can present a more comprehensive view of the current trends and future directions. Additionally, a more detailed content analysis of the dataset can unravel other less conspicuous trends not directly identified in this study. This depends on how detailed the aims are and what foci are pursued. Lastly, it should be acknowledged that more time needs to pass until the overexcitement of the GenAI integration in ELT and CALL research settles down before realistic conclusions can be drawn regarding the position of GenAI in CALL research.

Author Contributions

Both authors contributed equally to the conception, design, data collection, analysis, and writing of the manuscript.

Conflict of Interest

The authors have no conflicts of interest to declare.

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