

## **AI as a Dialogic Partner in Project-Based Language Learning: Empowering Young Learners Through Digital Literacy and Global Citizenship**

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### **Abstract**

This study examines how generative AI can enrich technology-enhanced project-based language learning (TePBL) in primary classrooms through international telecollaboration. Grounded in the socially responsive pedagogy advocated by Dooly et al. (2021), the Young Activists' Adventure connected primary learners in Catalonia, Spain, and a smaller cohort in Abuja, Nigeria, to co-create awareness work around UN Sustainable Development Goal 6 (Clean Water and Sanitation). Project activities combined relationship building, local inquiry, and public-facing production, including community-based activities on water preservation, collaborative presentations, and multimodal campaign outputs. A custom ChatGPT 4 interface was added as a child-focused tool to guide language use, writing, and editing during interactions. Using thematic analysis across classroom discourse, AI-mediated interaction traces, learner artefacts, and participant feedback, the study identifies three interrelated functions of the AI tool in the learning ecology: supporting participation in authentic dialogue, enabling rapid revision through immediate individualized feedback, and assisting learners in translating inquiry into persuasive public messaging. Evidence related to the Zone of Proximal Development (ZPD) suggests that AI support helped learners move from what they could do independently to what they could do with guided support, especially when teacher mediation shaped prompting norms and required evaluation of outputs. Findings suggest that generative AI can operate as a dialogic scaffold in telecollaborative PBL when it is ethically framed, pedagogically bounded, and embedded within strong teacher orchestration that protects learner agency, reciprocity, and critical judgment.

*Keywords:* GenAI, custom GPT, telecollaboration, PBL

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## Introduction

Technology enhanced project-based language learning often brings a familiar tension in primary classrooms. Learners have meaningful ideas but limited linguistic resources, especially when an audience is real and waiting online. This study starts from that tension and asks what changes when generative AI is embedded inside a carefully moderated telecollaborative project as mediated support. Telecollaboration goes beyond simple online contact between schools. It is an embedded dialogic process where geographically distant participants co produce shared objectives through social interaction using synchronous and asynchronous communication tools (Sadler & Dooly, 2016). Outcomes depend heavily on design and facilitation, since classroom dynamics, institutional constraints, and interactional patterns can disrupt reciprocity if they are not anticipated (Coşkun, 2023). The Young Activists' Adventure (<https://sites.google.com/xtec.cat/the-young-activists-adventure/home>) connected two contrasting learning contexts, the Global South and Global North. Education systems in both the Global South and North reproduce social inequalities, though the South faces additional structural disadvantages such as lower visibility of research and persistent colonial legacies (Sepúlveda et al., 2022). In this project, primary school students from Catalonia, Spain, represented the Global North context, while the Global South was represented by a smaller cohort from Abuja, Nigeria, who participated through an inclusion oriented, free education setting. Shared work focused on Sustainable Development Goal 6 and the creation of an awareness campaign in English. Reciprocity was protected by positioning Nigerian learners as collaborators and knowledge holders through lived experience related to water access and preservation. They were also provided with equal access to digital affordances.

Even with robust task sequencing, primary learners often need support to ask precise questions, negotiate meaning, and craft persuasive messages for audiences beyond the classroom. The project therefore introduced a customized ChatGPT 4 interface to support target language communication. This choice was guided by a sociocultural view of learning as mediated activity and by the ZPD claim that support can expand what learners can do in the moment (Vygotsky, 1978). Because ZPD is often referenced but rarely made observable, Murray and Arroyo (2002) offer an operational lens by treating appropriate challenge and help seeking as indicators of productive support across a sequence of tasks. Generative AI also raises risks. Support can become a substitute for thinking when it is treated as an answer factory. AI can potentially introduce risks such as loss of cognitive autonomy, meaning students may rely on AI instead of engaging in their own thinking (García-López & Trujillo-Liñán, 2025). Research on AI driven scaffolding stresses that support should fade as competence develops, warning that static scaffolds can lead to over reliance and prioritize surface correction over deeper engagement (Omar et al., 2025). At the same time, ChatGPT use can increase engagement because responses are fast and experienced as immediately useful. Jepkemoi et al. (2024) reports that ChatGPT supported adaptive learning experiences and was linked with emotional, cognitive, and behavioral engagement. Grounded in the socially responsive pedagogy advocated by Dooly et al. (2021), this study examines how generative AI functions when embedded within a technology enhanced PBL design implemented through international telecollaboration. Two research questions guided the analysis:

- RQ1: How did learners use the customized ChatGPT 4 interface during technology enhanced project based telecollaboration to support target language communication, content creation, and intercultural exchange?
- RQ2: What evidence suggests that the customized ChatGPT interface helped students move from what they could do independently to what they could do with guided support during telecollaborative PBL tasks?

## Literature Review

Telecollaboration is widely described as a structured form of online intercultural exchange where geographically distant classes work together through synchronous and asynchronous communication to support language development and intercultural learning (Sadler & Dooly, 2016). Coşkun's (2023) systematic review underscores that outcomes depend heavily on design and facilitation. This aligns with the socially responsive orientation referenced in the study framing (Dooly et al., 2021), where collaboration is built around relationship, shared purpose, and ethical attention to whose voice is heard. Project-based language learning fosters authentic language use by connecting communication to real-world outcomes, audiences, and collaborative decision-making. Jaleniauskienė and Venckienė (2025) emphasize teamwork, learner agency, and the creation of a final product through planning and revision. School-based evidence supports these benefits. A qualitative case study shows how project staging can support acquisition and engagement when tasks are sequenced and teacher-guided (Sadad et al., 2024). Farouk (2016) links PBL to willingness to communicate, suggesting that purposeful inquiry and collaborative production can shift motivation and participation. The ZPD offers a principled way to frame the learning claim in this study, namely, whether support helps students move from independent performance to more capable performance with guidance (Vygotsky, 1978). Murray and Arroyo (2002) formalize this approach for adaptive systems by observing patterns that indicate when learners are either insufficiently challenged or experiencing excessive difficulty. While their context is intelligent tutoring, the main idea applies to PBL language tasks. If support works, it should reduce unproductive struggle while preserving learner responsibility for intent, choice, and meaning making.

Within CALL, many AI-driven tools can be framed through Intelligent Computer-Assisted Language Learning, including tutorial systems and dialogue-based systems that support meaning-focused interaction (Schulze & Heift, 2012; Ward, 2017). Dialogue systems research positions chatbots as interlocutors for language development rather than simple feedback engines (Bibauw et al., 2022). Warschauer and Xu (2024) argue that AI for language learning has entered a new phase where generative systems can support interaction and meaning making, but only when pedagogy protects learner agency and critical judgment. Liang et al. (2021) show that research has focused heavily on writing, reading, and vocabulary, which makes classroom governance and design choices central when generative tools enter younger learning contexts. Recent evidence suggests generative AI can be designed to function as a dialogic partner rather than an authority. Tang and Putra (2025) ground this in heteroglossia, where meaning develops through interaction among multiple voices (Blackledge & Creese, 2014).

AI literacy in compulsory education is increasingly framed as more than tool use, including understanding how AI works and how it shapes social life (Casal Otero et al., 2023). Gunupudi et al. (2024) show that scaffolding digital literacy in Global South contexts requires structured support that accounts for uneven access and different starting points. Equity risks are not only about access. Algorithmic bias in educational AI can reproduce inequities if outputs and assumptions are not critically examined (Baker & Hawn, 2022). Ethical integration also involves privacy and transparency, since AI-mediated language learning can involve sensitive learner data and opaque system behavior (Selvam & González Vallejo, 2025). Broader reviews of AI-based tutoring systems highlight implementation and oversight challenges, reinforcing the need for educator involvement rather than tool led pedagogy (Zerkouk et al., 2025). Taken together, the literature sets up the logic of this study. Telecollaboration requires careful moderation and reciprocity (Coşkun, 2023). PBL provides an authentic, public task structure

(Farouck, 2016; Jaleniauskiene & Venckiene, 2025; Sadad et al., 2024). ZPD offers a principled way to test whether support expands what learners can do (Murray & Arroyo, 2002; Vygotsky, 1978). AI and digital literacy research highlights both opportunity and risk, especially when equity and critical evaluation are treated as nonnegotiable design goals (Gunupudi et al., 2024; Jepkemoi et al., 2024; Omar et al., 2025; Zerkouk et al., 2025).

### **Methodology**

This study used a qualitative design to examine how generative AI operated within technology-enhanced project-based telecollaboration in primary classrooms. Data were analyzed using Braun and Clarke's thematic analysis framework (Braun & Clarke, 2006). The focus was not tool accuracy, but learner activity in context, specifically how pupils planned, drafted, revised, and communicated while working toward shared campaign outcomes. RQ2 was interpreted through the Zone of Proximal Development, treating development as movement from independent performance toward more capable performance with mediation (Vygotsky, 1978). To support this stance, the analysis focused on changes between initial attempts and AI-assisted revisions, using help-seeking and difficulty calibration as measures of guided progress (Murray & Arroyo, 2002).

### **Participants**

The Telecollaborative project themed Young Activists' Adventure connected two cohorts in Catalonia, Spain and Abuja, Nigeria. The project lasted three months. Spain cohort (n = 52) were fourth graders from Sant Jordi School in Mollet del Vallès, aged 9 to 10, with English levels ranging from beginner to intermediate. Nigeria cohort (n = 7) were from Oakbridge Foundation School in Abuja, aged 9 to 14, with an intermediate English level. Learners engaged in local inquiry and community perspectives related to water access and preservation. Their families were briefed before the project began and supported participation.

### **Learning Sequence and AI Integration**

The learning design followed three phases aligned with relationship building, inquiry, and production. In the entry phase, learners participated in a synchronous Mystery Classroom game where question quality functioned as strategic communication, and AI support was used to craft clearer and more efficient questions. In the inquiry phase, learners investigated SDG6 through local realities and shared findings through collaborative digital presentations. In the production phase, learners co created multimodal campaign artefacts such as presentations, stories, comics, theatre scripts, and project anthem, often using AI support during drafting and revision.

A customized ChatGPT 4 interface was integrated as a child-facing scaffold to support target language communication, drafting, and revision. When Spanish learners used other languages, facilitators instructed the system to respond only in the target language (English). The tool was framed as optional support rather than authority, and outputs were treated as drafts requiring learner judgment. This design aligns with evidence that AI driven scaffolding can support learners through immediate feedback while requiring careful design to reduce over reliance (Omar et al., 2025). Teacher scaffolding remained central, with modelling of prompting, justification routines, and critical evaluation of outputs, reflecting reliability and implementation concerns that make human oversight essential (Zerkouk et al., 2025). Given evidence that ChatGPT tools can generate strong engagement effects, structured guidance was

treated as necessary, so engagement translated into learning rather than convenience (Jepkemoi et al., 2024).

## **Data Sources**

Data sources included classroom discourse during key activities, AI-mediated interaction traces (learner prompts and AI responses), learner artefacts (drafts and final products), and participant feedback collected through reflections and forms, including student and family feedback about AI and telecollaboration.

## **Thematic Analysis Procedure**

The analysis followed a four-stage thematic sequence (Braun & Clarke, 2006). First, the dataset was reviewed for familiarization across the three project phases. Second, initial codes were applied across sources, prioritizing function within the activity sequence rather than surface features alone, while tracking ZPD relevant indicators such as shifts from vague to precise language, movement from general to strategic help seeking, and increasing selectivity in tool use over time (Murray & Arroyo, 2002; Vygotsky, 1978). Third, codes were iteratively refined into candidate themes aligned with the research questions. Fourth, themes were reviewed and consolidated into the reported codebook and analytic trail. Coding was conducted by a single analyst manually and with support of AI powered data analysis tools. To strengthen trustworthiness, the coding process prioritized traceability through a codebook, repeated returns to the dataset during theme refinement, and triangulation across discourse data, AI traces, learner artefacts, and participant feedback.

## **Ethical Considerations and Trustworthiness**

Safeguarding and transparency were built into planning, including family communication and consent related to AI use with children. Trustworthiness was strengthened through triangulation across discourse, AI traces, artefacts, and feedback, and through attention to sequences of activity rather than isolated examples. The research followed the UAB Code of Good Practice and the 1979 Belmont Report principles, ensuring respect, beneficence, and justice, with guardian consent obtained for participating children.

## **Results**

The thematic analysis produced three themes that explain how learners used the customized ChatGPT 4 interface during the telecollaborative PBL sequence. Table 1 provides the thematic map and its alignment to RQ1 and RQ2. Table 2 provides an excerpt-level evidence trail with verbatim learner prompts and verbatim AI responses drawn from the interaction traces. Across themes, a consistent pattern was error-tolerant, low-pressure scaffolding. Learners often wrote with nonstandard spelling or grammar, yet the AI responded to communicative intent and simultaneously modelled standard English in its own output. This pattern is consistent with mediated support that helps learners sustain performance during demanding tasks (Murray & Arroyo, 2002; Vygotsky, 1978), while underscoring the importance of pedagogical framing to avoid over-reliance and ensure human oversight (Omar et al., 2025; Zerkouk et al., 2025). The supportive tone and immediacy also align with reported engagement effects in classroom ChatGPT use (Jepkemoi et al., 2024).

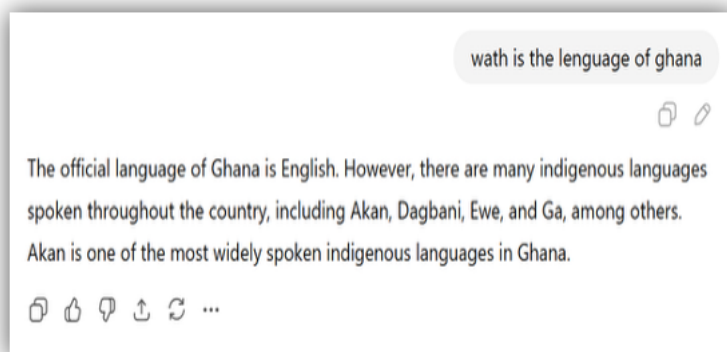
**Table 1**  
*Thematic Map and Alignment to Research Questions*

Theme	Core pattern observed	Typical project phase(s)	Main RQ link
Theme 1. Low pressure linguistic scaffolding through error tolerant interaction	AI prioritizes meaning, responds despite spelling and grammar errors, models standard English in output	Inquiry, Production	RQ1, supports RQ2
Theme 2. Structured support for inquiry and campaign production	AI converts broad requests into steps, options, and ready to use campaign language	Production, Inquiry	RQ1
Theme 3. Participation support and gentle interactional regulation	AI invites participation, maintains supportive tone, and softly enforces target language norms	Entry, Inquiry	RQ1, supports RQ2

**Theme 1: Low Pressure Linguistic Scaffolding Through Error Tolerant Interaction**

Learners frequently initiated prompts using simplified syntax and nonstandard spelling. Rather than interrupting the interaction to correct errors, the AI typically answered the request and provided accurate spelling and phrasing in its own response. This created a low-pressure support space that sustained task momentum while offering linguistic models that learners could reuse in project artefacts. In ZPD terms, the AI functioned as a mediational resource that reduced breakdown risk and supported continued performance within the task (Murray & Arroyo, 2002; Vygotsky, 1978).

**Figure 1**  
*AI Response Despite Learner Spelling Errors*



The learner prompt, “*wath is the language of ghana,*” contains nonstandard spelling, yet the AI responds immediately to communicative intent and provides a well-formed answer with accurate spelling and sentence structure. This interaction exemplifies low-pressure scaffolding through implicit modelling, allowing learners to sustain inquiry without evaluative interruption (Murray & Arroyo, 2002; Vygotsky, 1978).

## Theme 2: Structured Support for Inquiry and Campaign Production

A second pattern was the AI's tendency to structure learning support into lists, steps, and labelled options. This was especially visible during production tasks, when learners asked for help in broad terms. The AI responded by transforming vague requests into actionable routines, including poster planning steps, poster title suggestions, and structured question sets for topic learning. These outputs can support engagement and self-regulation, but they also highlight the need for teacher mediation so that the tool remains a scaffold rather than a substitute for thinking (Jepkemoi et al., 2024; Omar et al., 2025; Zerkouk et al., 2025).

## Theme 3: Participation Support and Gentle Interactional Regulation

A third theme concerns participation norms. The AI offered friendly openings that invited learners into environmental talk and English practice. It also enforced target language discipline through polite redirection rather than punitive correction. This combination supports an affectively safe interactional space while maintaining instructional boundaries, which is compatible with mediated support during performance (Murray & Arroyo, 2002; Vygotsky, 1978).

**Table 2**

*Verbatim Interaction Excerpts Illustrating Low-Pressure Scaffolding*

Excerpt ID	Theme	Learner prompt (verbatim)	AI response (verbatim)	What this shows
E1	Theme 2	"can you give us ideas to make a poster about water"	<p>"Of course! Here are some fun and creative ideas for making a poster about water:"</p> <p>"Title Ideas"</p> <p>"1. 'Water: Every Drop Counts!'"</p> <p>"2. 'Save Water, Save Life'"</p> <p>"3. 'Water is Precious'"</p> <p>"4. 'Be Water Wise!'"</p>	The AI responds immediately and provides structured, correctly spelled campaign language.
E2	Theme 2	"can you help in make poster digital"	<p>"Sure! I'd love to help you make a digital poster. Here are some steps you can follow:"</p> <p>"1. Choose a Topic" "First, decide what your poster will be about. For example, do you want to make a poster about saving water, protecting oceans, or another environmental topic?"</p>	The AI recasts the learner's nonstandard grammar into accurate English and gives a stepwise routine.

E3	Theme 3	<i>“hello”</i>	<i>“Hi there! How are you today? Would you like to learn something fun about the environment or practice some English?”</i>	Low stakes entry, supportive tone, and an invitation to practice English without pressure.
E4	Theme 3	<i>“nos puedes ayudar para la cancion en eglisn”</i>	<i>“I am sorry, could you write that in English?”</i>	Gentle regulation of target language expectations, supportive rather than punitive.
E5	Theme 1	<i>“wath is the language of ghana”</i>	<i>“The official language of Ghana is English. However, there are many indigenous languages spoken throughout the country, including Akan, Dagbani, Ewe, and Ga, among others. Akan is one of the most widely spoken indigenous languages in Ghana.”</i>	The AI responds to meaning despite spelling errors and models standard spelling and sentence structure.
E6	Theme 1	<i>“tell me synonym of awareness campaign about water”</i>	<i>“A synonym for ‘awareness campaign about water’ could be ‘water conservation initiative’ or ‘water stewardship program.’ Other alternatives might include ‘water awareness drive’ or ‘water education campaign.’”</i>	Vocabulary expansion with accurate spelling and register, without explicit correction pressure.
E7	Theme 2	<i>“your ask 10 questions for we”</i>	<i>“Sure, I can ask you 10 questions! These will be fun questions about water and the environment. Let's see how much you know and maybe learn something new!” “1. What is the largest ocean in the world?” “2. Can you name a river in Africa?” “10. What is something you can recycle at home?” “Take your time to think about the answers, and if you need help with any of them, just ask!”</i>	The AI turns an ungrammatical request into a structured learning routine while modelling standard English forms and a supportive tone.

## **Cross-Theme Interpretation Linked to RQ1 and RQ2**

The excerpts show that learners used the AI to sustain participation in inquiry and production, including planning poster work, generating campaign language, building topic knowledge, and organizing questioning routines. Importantly, the AI did not treat spelling and grammar errors as barriers to participation. Instead, it answered meaningfully while modelling standard forms. Interpreted through the ZPD lens, this pattern is consistent with mediated support that helps learners stay within productive task engagement and access linguistic models that may extend what they can do in the moment (Murray & Arroyo, 2002; Vygotsky, 1978). At the same time, the evidence reinforces a design implication: because the AI can quickly generate complete outputs, teacher mediation and clear classroom norms remain essential so that AI use supports learning rather than over-reliance (Omar et al., 2025; Zerkouk et al., 2025), and so that engagement is channeled into meaningful production (Jepkemoi et al., 2024).

### **Discussion**

Findings suggest that the customized ChatGPT 4 interface supported telecollaborative PBL when positioned as a low-pressure dialogic scaffold within a socially responsive design (Dooly et al., 2021). In this project, authenticity and communicative stakes were produced through telecollaboration as co-production across distance (Sadler & Dooly, 2016), a format that requires careful facilitation to avoid predictable breakdowns in reciprocity and task engagement (Coşkun, 2023). Within this environment, the AI consistently responded to learner intent despite spelling and grammar errors and modelled standard English in its own output, which can be interpreted as mediated assistance that helps learners sustain performance during demanding tasks (Murray & Arroyo, 2002; Vygotsky, 1978). The results also highlight how AI support interacted with PBL mechanics. PBL relies on iterative production, planning, drafting, revision, and public facing outputs (Jaleniauskiene & Venckiene, 2025), and classroom evidence suggests learning benefits when project stages are sequenced and teacher guided (Sadad et al., 2024). In this study, the AI often converted broad requests into steps, options, and ready to use language, which can increase perceived usefulness and sustain emotional, cognitive, and behavioral engagement (Jepkemoi et al., 2024). However, engagement alone is not evidence of learning. When scaffolding does not fade or when outputs are treated as final products, the tool can promote surface completion and over-reliance rather than learner authored meaning making (Omar et al., 2025).

These patterns also connect to established CALL positions on AI. ICALL and dialogue systems conceptualize AI as support that can structure interaction and offer timely assistance (Schulze & Heift, 2012; Ward, 2017), and chatbot research frames conversational tools as interlocutors that can support language development beyond simple correction (Bibauw et al., 2022). In the generative AI era, pedagogical design is decisive because learners must maintain agency and critical judgment when systems can generate fluent output instantly (Warschauer & Xu, 2024). The dialogic orientation of the tool can also be understood through heteroglossia, where meaning develops through interaction among multiple voices (Blackledge & Creese, 2014; Tang & Putra, 2025). Equity and governance remain central, especially in projects that connect settings with different resources. Algorithmic bias can reproduce inequities if outputs and assumptions are not critically examined (Baker & Hawn, 2022), and AI literacy in compulsory schooling must include evaluation and social consequences, not only tool use (Casal Otero et al., 2023). Evidence from Global South contexts also suggests that structured scaffolding is necessary to support participation and reduce uneven opportunity (Gunupudi et al., 2024), while privacy and transparency remain ethical imperatives for AI-mediated learning (Selvam

& González Vallejo, 2025). Reviews of AI tutoring systems likewise underline implementation challenges and reinforce the need for educator oversight rather than tool led pedagogy (Zerkouk et al., 2025).

A key implication is that the educational value of generative AI in PBL depends on teacher mediation and competence. Human-in-the-loop approaches emphasize that AI becomes educationally meaningful when teachers validate, contextualize, and set boundaries (Memarian & Doleck, 2024). This aligns with calls for teacher AI competencies (Ng et al., 2023) and for stronger AI literacy in teacher education (Daher, 2025). It also aligns with evidence that preservice teachers report increased confidence alongside concerns about accuracy and integrity when using tools such as ChatGPT (Karataş & Yüce, 2024), and with broader synthesis showing rising attention to governance and teacher development in AI education research (Tan et al., 2025).

Limitations include the absence of long-term follow-up beyond the duration of the study. As a result, the longer-term influence of AI as a dialogic partner cannot be claimed outside the project timeframe. In addition, the limited cohort size and cohort imbalance reduce the likelihood that outcomes can be interpreted at a broader scale. Future work should extend follow up periods and expand cohort size across contexts to strengthen claims about sustained developmental change within ZPD aligned interpretations. Overall, the findings support a practical claim: the question is not whether AI can produce language, but how educators can configure AI so children can do more with it than they can do alone (Vygotsky, 1978).

### **Conclusion**

This study examined how a customized ChatGPT 4 interface functioned inside telecollaborative technology enhanced project-based language learning for primary learners. Findings indicate that learners mainly used the AI as low pressure support during inquiry and production, with the system sustaining task continuity by responding to communicative intent despite frequent language errors and by modelling accurate English in its own output. The AI also helped operationalize project work by turning broad requests into structured routines and reusable campaign language. At the same time, the results underline that educational value depends on teacher mediation that protects learner authorship, sets boundaries, and builds evaluative judgment alongside tool use (Daher, 2025; Memarian & Doleck, 2024; Ng et al., 2023). More broadly, the study contributes to ongoing discussions about AI literacy and classroom governance by foregrounding teacher competence and professional development as enabling conditions, not optional add-ons (Karataş & Yüce, 2024; Tan et al., 2025).

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### **Declaration of Generative AI and AI-Assisted Technologies in the Writing Process**

Generative AI and AI assisted technologies were used for language editing and readability only.

**Tools:** ChatGPT. Microsoft Copilot.

**Extent:** Moderate.

All analytical decisions, interpretations, and final wording were made by the author.

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