

Beyond digital-native assumptions: A systematic integrative review of Generation Z teachers and learners in English language education

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ABSTRACT

Generation Z is increasingly being discussed as both a teacher cohort and learner population in English-language education amid the expansion of digital platforms and generative artificial intelligence. However, evidence is distributed across teacher- and learner-focused studies, creating the risk that findings about learners may be attributed to teachers from the same cohort. This systematic integrative review examined teacher professionalism, pedagogy, technology use, learner experience, and implementation conditions, while maintaining a distinction between direct teacher evidence and contextual learner evidence. Searches completed on 19 May 2026 covered Dimensions, Google Scholar, ERIC, GARUDA, publisher websites, and DOI registries. Forty-one articles with resolvable DOIs were retained in the evidence maps. Directed qualitative content analysis and study-level methodological flags were applied to 40 full texts comprising 12 teacher-focused and 28 contextual studies. The evidence base was recent and geographically uneven: 35 articles were published between 2023 and 2026 and 13 were situated in Indonesia. In the core studies, Generation Z English teachers were represented as developing professionals negotiating identity, authority, resilience, and digital agency, rather than as uniformly competent digital natives. Technology and engagement frequently co-occurred in studies describing relevant, interactive, and learner-centred tasks, but this pattern did not establish effects on engagement or language learning. Reported uses of generative AI include material preparation, feedback, and personalisation, accompanied by concerns about accuracy, dependence, integrity, and human oversight. As 28 studies relied primarily on self-report or perception evidence, claims regarding effectiveness remain limited. The synthesis organises recurring implications into an equity-sensitive framework that connects professional identity and early career resilience, ELT-specific digital pedagogy, critical AI literacy with human oversight, and institutional support. Its originality lies in separating teachers from learner evidence, treating generation as a situated context rather than a causal explanation, and connecting ethical digital transformation with sustainable teacher capacity.

Keywords: Generation Z English teachers, English language teaching, teacher professional identity, digital pedagogy, generative artificial intelligence.

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INTRODUCTION

English-language education is being influenced by the rapid diffusion of digital platforms and generative artificial intelligence (GenAI), while Generation Z is beginning to be examined as foreign-language teachers.¹ A recent systematic review documented exponential growth in empirical Gen AI research in language learning and teaching, with higher education and English as a foreign language contexts dominating the evidence base.² Recent studies involving Gen Z students and foreign-language teachers have documented students' generally positive interest in Gen AI, teachers' use of and concerns about Gen AI, and the contextually negotiated nature of teachers' professional identities.³ Pandemic-related online education has also accelerated the integration of digital technologies in the education of many current university students and early career teachers.⁴ These overlapping historical conditions make generation a potentially useful contextual lens for examining English teaching; however, they do not establish that people of similar ages share the same competencies, preferences, or professional identities.

This distinction matters because Generation Z is frequently described as "digitally native." A topic-modeling review of 1,886 publications found that digital-native discourse persists even though its foundational claims were not empirically validated and subsequent research has not supported generation-wide cognitive changes.⁵ Moreover, a survey of 5,164 university students showed that self-perceived digital competence varied significantly according to grade level, residential area, gender, and prior ICT training, suggesting that age or cohort membership alone are inadequate proxies for digital competence.⁶ More broadly, contemporary generational research has found little convincing evidence for discrete,

¹ Thomas Hon-tung Chan, Grace Ming-ming Leung, and Sheung Ping Wong, "Generative Artificial Intelligence Tools in University English Language Education: A Systematic Review," *JALTCALL Trends* 2, no. 1 (March 17, 2026): 103523, <https://doi.org/10.29140/jct.v2n1.103523>; Mary Anne C. Sedanza et al., "Teacher Beliefs and Practices in English Language Teaching: A Gen Z Perspective," *International Journal of Research Publications* 126, no. 1 (May 16, 2023), <https://doi.org/10.47119/IJRP1001261620224999>; Arianta Eka Kurniawati, Hamamah Hamamah, and Syariful Muttaqin, "Exploring Teacher–Student Talk in English for Young Learners (EYL) Led by a Gen Z Teacher: A FIACS-Based Case Study in Indonesia," *Language Literacy: Journal of Linguistics, Literature, and Language Teaching* 9, no. 1 (June 26, 2025): 204–15, <https://doi.org/10.30743/ll.v9i1.11027>.

² Belle Li et al., "Two Years of Innovation: A Systematic Review of Empirical Generative AI Research in Language Learning and Teaching," *Computers and Education: Artificial Intelligence* 9 (December 2025): 100445, <https://doi.org/10.1016/j.caeai.2025.100445>; Qianjun Luo and Feifei Chen, "Scientific Mapping of GenAI in English as a Foreign Language (EFL) Context," *International Journal of Technology and Human Interaction* 21, no. 1 (July 8, 2025): 1–23, <https://doi.org/10.4018/IJTHI.384377>.

³ Cecilia Ka Yuk Chan and Katherine K. W. Lee, "The AI Generation Gap: Are Gen Z Students More Interested in Adopting Generative AI Such as ChatGPT in Teaching and Learning than Their Gen X and Millennial Generation Teachers?," *Smart Learning Environments* 10, no. 1 (November 15, 2023): 60, <https://doi.org/10.1186/s40561-023-00269-3>; Farzaneh Dehghan, "How Generative AI May Influence the Nature and Future of the Teaching Career: A Case Study of Gen Z Foreign Language Teachers," *Cogent Education* 13, no. 1 (December 31, 2026), <https://doi.org/10.1080/2331186X.2026.2613501>; Phan Nhat Hao and Tran Quoc Hung, "'Beyond a Thesis': A Duo-Narrative Inquiry into Possible Selves of Generation-Z EFL Teachers in Graduate Education," *Applied Research on English Language* 14, no. 4 (November 1, 2025): 45–76, <https://doi.org/10.22108/ARE.2025.145699.2543>.

⁴ Yu Zhao et al., "Digital Competence in Higher Education: Students' Perception and Personal Factors," *Sustainability* 13, no. 21 (November 4, 2021): 12184, <https://doi.org/10.3390/su132112184>.

⁵ Pekka Mertala et al., "Digital Natives in the Scientific Literature: A Topic Modeling Approach," *Computers in Human Behavior* 152 (March 2024): 108076, <https://doi.org/10.1016/j.chb.2023.108076>.

⁶ Zhao et al., "Digital Competence in Higher Education: Students' Perception and Personal Factors."

generation-wide characteristics and cautioned that differences attributed to cohort membership may instead reflect age or historical-period effects.⁷ Treating Generation Z as a fixed learner or teacher type may therefore obscure within-cohort variation and encourage educational responses based on stereotypes rather than on context-sensitive evidence.

This concern is especially relevant when Generation Z is examined in relation to teaching because many participants in the emerging literature are student teachers, novice teachers, or early career professionals. The challenges observed among these teachers should not automatically be interpreted as cohort effects; they may also arise from career-stage demands, curriculum changes, institutional resources, and the availability or quality of mentoring.⁸ Contemporary scholarship conceptualizes teacher identity as dynamic, multifaceted, dialogical, and context-dependent, shaped by interactions among biography, emotion, agency, professional expectations, institutional conditions, and relationships with others.⁹ Teacher resilience is also understood as a process influenced by personal and job demands and personal and contextual resources, rather than as a stable individual disposition.¹⁰ Therefore, an account of Generation Z English teachers must remain connected to their career stage, professional development, mentoring, and working conditions.

Recent teacher-focused studies illustrate this emerging research trend. Studies involving small numbers of Generation Z EFL teachers have examined possible selves, professional positioning, and identity negotiation across past experiences, present practice, and future aspirations.¹¹ In the area of artificial intelligence, a narrative inquiry involving four Generation Z English teachers reported the perceived benefits of ChatGPT for creativity, efficiency, and student engagement, alongside technical difficulties, ethical concerns, and institutional policy constraints.¹² A separate case study explored Generation Z foreign-language teachers' use of GenAI and their concerns about its implications for their work and future teaching careers.¹³ These studies provide direct cohort-specific evidence; however,

⁷ David P. Costanza, Cort W. Rudolph, and Hannes Zacher, "Are Generations a Useful Concept?," *Acta Psychologica* 241 (November 2023): 104059, <https://doi.org/10.1016/j.actpsy.2023.104059>.

⁸ Priscila Menarin Cesário and Rosa Maria Moraes Anunciato, "Identification of Training Needs of Early Career Teachers in a Mentoring Program," *Educação e Pesquisa* 50 (2024), <https://doi.org/10.1590/s1678-4634202450273481en>; Junying Lu et al., "A Systematic Review of Teacher Resilience: A Perspective of the Job Demands and Resources Model," *Teaching and Teacher Education* 151 (December 2024): 104742, <https://doi.org/10.1016/j.tate.2024.104742>.

⁹ Reza Pishghadam, Jawad Golzar, and Mir Abdullah Miri, "A New Conceptual Framework for Teacher Identity Development," *Frontiers in Psychology* 13 (May 9, 2022), <https://doi.org/10.3389/fpsyg.2022.876395>; Khoa Dang Truong, Ngo Cong-Lem, and Bingqing Li, "The Interplay of Language Teachers' Identity, Cognition, Emotion, and Agency, and the Role of Context: A Scoping Review," *Teaching and Teacher Education* 158 (May 2025): 104967, <https://doi.org/10.1016/j.tate.2025.104967>.

¹⁰ Tina Hascher, Susan Beltman, and Caroline Mansfield, "Teacher Wellbeing and Resilience: Towards an Integrative Model," *Educational Research* 63, no. 4 (October 2, 2021): 416–39, <https://doi.org/10.1080/00131881.2021.1980416>; Lu et al., "A Systematic Review of Teacher Resilience: A Perspective of the Job Demands and Resources Model."

¹¹ Phan Nhat Hao, Truong Huy Hoang, and Truong Thai Thanh Tam, "View of Vietnamese Generation-Z Teachers' Professional Identity Development: A Positioning-Theoretical Collaborative Trio-Narrative Inquiry," *Jurnal Komunikasi Pendidikan* 10, no. 1 (2026): 39–51, <https://doi.org/10.32585/jurnalkomdik.v10i1.78>; Hao and Hung, "'Beyond a Thesis': A Duo-Narrative Inquiry into Possible Selves of Generation-Z EFL Teachers in Graduate Education."

¹² Nanda Safitri and Nur Sobah, "Exploring Gen Z English Teachers' Challenges on ChatGPT Integration in Language Learning: English," *LET: Linguistics, Literature and English Teaching Journal* 15, no. 2 (December 27, 2025): 333–55, <https://doi.org/10.18592/LET.V15I2.18697>.

¹³ Dehghan, "How Generative AI May Influence the Nature and Future of the Teaching Career: A Case Study of Gen Z Foreign Language Teachers."

their small, qualitative, and context-specific samples mean that their findings should be treated as exploratory rather than representative. Taken together, these indicate an emerging but still fragmented research agenda spanning teacher identity, professional development, digital competence, and generative artificial intelligence.

Digital technologies have particular affordances in language education because they can provide multimodal resources, opportunities for interaction, and access to authentic or immersive language environments.¹⁴ However, their educational value depends on teachers' ability to align tool use with learners' linguistic and educational needs, instructional design, classroom interaction, and assessment.¹⁵ Consequently, recent research conceptualizes foreign-language teachers' digital competence as more than technical operation; it also encompasses pedagogical decision-making, resource selection, assessment, ethical responsibility, learner support, and continuing professional development.¹⁶ In Gen AI-supported language education, such decisions are influenced by professional development, institutional policy, and contextual support.¹⁷ For English teachers, digital competence involves selecting an appropriate language task, managing interaction, evaluating learner production, and adapting feedback to learners' proficiency and instructional goals.

Generative artificial intelligence further increases the need for professional judgement in English language education. Chatbots can generate examples, explanations, texts, quizzes, feedback, and translations; however, their outputs may contain factual or linguistic inaccuracies, reproduce biases, or be misaligned with learners' proficiency levels, intended registers, and communicative purposes. Consequently, these outputs require critical evaluation before being incorporated into instruction. Kohnke et al. (2023) connect the affordances of ChatGPT in language education with the competencies required for its ethical and pedagogical use.¹⁸ More recently, Eedelouei's (2026) systematic review conceptualized language teachers' decisions about generative AI as practical-evaluative expressions of professional agency shaped by contextual conditions, institutional policies, and professional development opportunities.¹⁹ UNESCO's competency framework similarly integrates a human-centered mindset, the ethics of artificial intelligence, AI foundations and applications, AI pedagogy, and AI-supported professional learning, rather than treating tool operation as

¹⁴ Hong Lei and Zhanhao Jiang, "Assessing the Digital Competence and Its Influencing Factors among Foreign Language Teachers in Chinese Universities," *Humanities and Social Sciences Communications* 12, no. 1 (July 1, 2025): 966, <https://doi.org/10.1057/s41599-025-05394-7>.

¹⁵ Kevin M. Wong and Benjamin Luke Moorhouse, "Digital Competence and Online Language Teaching: Hong Kong Language Teacher Practices in Primary and Secondary Classrooms," *System* 103 (December 2021): 102653, <https://doi.org/10.1016/j.system.2021.102653>.

¹⁶ Lei and Jiang, "Assessing the Digital Competence and Its Influencing Factors among Foreign Language Teachers in Chinese Universities"; Wong and Moorhouse, "Digital Competence and Online Language Teaching: Hong Kong Language Teacher Practices in Primary and Secondary Classrooms."

¹⁷ Sima Eedelouei, "Factors Influencing Language Teachers' Judgements and Decision-Making about the Use of Generative AI Tools: A Systematic Review," *Teaching and Teacher Education* 171 (March 2026): 105333, <https://doi.org/10.1016/j.tate.2025.105333>.

¹⁸ Lucas Kohnke, Benjamin Luke Moorhouse, and Di Zou, "ChatGPT for Language Teaching and Learning," *RELC Journal* 54, no. 2 (August 3, 2023): 537–50, <https://doi.org/10.1177/00336882231162868>.

¹⁹ Eedelouei, "Factors Influencing Language Teachers' Judgements and Decision-Making about the Use of Generative AI Tools: A Systematic Review."

an isolated technical competence.²⁰ Collectively, these perspectives position teacher agency, critical evaluation, and human oversight at the center of AI-supported educational change.

The second strand of evidence concerns Generation Z learners. Within the contextual studies included in the present review, mobile learning, video, social media, gamification, flipped classrooms, project-based learning, and artificial intelligence were frequently associated with favorable perceptions, enjoyment, participation, or engagement. These findings may inform teachers' pedagogical decisions, but they do not constitute direct evidence about Generation Z teachers and should not be interpreted as evidence of improved language attainment. Contemporary language-learning research conceptualizes engagement as a multidimensional and context-sensitive construct that includes behavioural, affective or emotional, and cognitive components.²¹ Therefore, a favorable perception of a digital tool represents only one aspect of the learner's engagement. Moreover, a systematic review of null and negative findings in technology-enhanced language learning demonstrates that technology does not consistently produce positive learning outcomes and that its effects depend on learners, instructional conditions, pedagogical design, assessment, and teacher and student engagement.²² Therefore, it is important to distinguish between perceived usefulness, observable participation, multidimensional engagement, and measured language development.

The literature considered in this review consequently addresses two related but non-equivalent objects of study: Generation Z as a teacher cohort and as a learner population. Direct teacher studies provide evidence concerning professional identity, beliefs, competence, agency, and early career adaptation. In contrast, contextual learner studies describe the pedagogical, relational, and technological environments that Generation Z English teachers may encounter. Restricting the review to direct teacher studies would provide limited insight into this instructional environment. Conversely, combining the two strands without maintaining an analytical distinction could lead to learner characteristics being incorrectly attributed to the teachers. Therefore, this review adopts a stratified synthesis in which teacher- and learner-focused evidence is analyzed separately before their points of convergence are considered. This structure retains the contextual contribution of learner studies while keeping the populations, constructs, and outcomes analytically distinct.

This review synthesizes research on Generation Z English teachers and contextual research on English teaching and learning for Generation Z while maintaining separate core and contextual evidence strata by examining patterns across professional identity, pedagogy,

²⁰ Fengchun Miao and Mutlu Cukurova, *AI Competency Framework for Teachers*, *UNESDOC Digital Library* (UNESCO, 2024), <https://doi.org/10.54675/ZJTE2084>.

²¹ Phil Hiver et al., "Engagement in Language Learning: A Systematic Review of 20 Years of Research Methods and Definitions," *Language Teaching Research* 28, no. 1 (January 24, 2024): 201–30, <https://doi.org/10.1177/13621688211001289>; William S. Pearson, "Affective, Behavioural, and Cognitive Engagement with Written Feedback on Second Language Writing: A Systematic Methodological Review," *Frontiers in Education* 9 (January 31, 2024), <https://doi.org/10.3389/educ.2024.1285954>.

²² Ruofei Zhang, Di Zou, and Gary Cheng, "Technology-Enhanced Language Learning with Null and Negative Results since 2000: A Systematic Review Based on the Activity Theory," *Education and Information Technologies* 29, no. 4 (March 13, 2024): 5017–77, <https://doi.org/10.1007/s10639-023-11993-1>.

technology, learner experience, and implementation conditions, distinguished perception-based evidence from measured outcomes, and considered the relevance of the findings for teacher education and institutional policy across diverse educational contexts. The article's conceptual contribution is a stratified synthesis that keeps direct evidence about Generation Z teachers distinct from contextual evidence about Generation Z learners and interprets the generation through professional, pedagogical, and institutional conditions. Its practical contribution is an evidence-bounded four-part framework for ethical digital transformation and sustainable teacher capacity: professional identity and early career resilience, ELT-specific digital pedagogy, critical AI literacy with human oversight, and institutional support for equitable access, policies, mentoring, and professional learning. Equity is treated as a cross-cutting implementation condition, rather than as a separate framework component.

Research questions

- RQ1. What are the publication, geographical, participant, and methodological characteristics of research on Generation Z English teachers and English-language education for Generation Z?
- RQ2. How does the literature characterize the professional identities, beliefs, competencies, roles, challenges, and adaptive practices of Generation Z in-service and pre-service English teachers?
- RQ3. What pedagogical, relational, and digital practices are reported in relation to Generation Z English learners, and what constraints or risks accompany these practices?
- RQ4. What implications does this evidence have for English teacher education, continuing professional development, institutional policy, ethical digital transformation, and sustainable teacher capacity?

By addressing these questions, this review treats generation as a situated educational condition rather than a sufficient explanation of teaching or learning. This framing may support international comparisons because it directs attention to the mechanisms and institutional conditions through which generational experience becomes educationally relevant.

METHOD

1. Review design and analytical scope

This study was designed as a systematic integrative review of research on Generation Z English teachers and English language education for Generation Z learners. This review followed the identification, screening, eligibility, and reporting principles of PRISMA 2020.²³

²³ Matthew J Page et al., "The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews," *BMJ*, March 29, 2021, n71, <https://doi.org/10.1136/bmj.n71>.

An integrative design was selected because the available literature included qualitative, quantitative, mixed-methods, intervention, correlational, conceptual, and bibliometric studies.²⁴ Therefore, the purpose was to compare how the phenomenon was conceptualized and investigated across contexts, rather than estimating a single pooled intervention effect.

The review was organized around four questions concerning: (a) the publication, geographical, participant, and methodological characteristics of the literature; (b) the professional identities, beliefs, competencies, roles, challenges, and adaptive practices of Generation Z in-service and pre-service English teachers; (c) the pedagogical, relational, and digital practices reported in relation to Generation Z learners, including their constraints and risks; and (d) implications for English teacher education, continuing professional development, and equitable, ethical, and sustainable digital transformation.

Two evidence strata were maintained throughout this review. The core stratum comprised studies in which Generation Z in-service or pre-service English teachers were the principal population of interest. The contextual stratum comprised studies on English teaching or learning for Generation Z learners. This distinction reduced the risk of treating findings about Generation Z learners as direct evidence of teachers from the same generation. The evidence map retained both strata, whereas the thematic synthesis was restricted to records for which the full report was examined.

2.2. Eligibility criteria

A report was eligible for the core stratum when it examined Generation Z English, EFL, ESL, or broader foreign language teachers, and the findings were directly relevant to English-language education. Both in-service and pre-service teachers were eligible for the study. Studies that included several generations were retained only when the Generation Z subgroup was identifiable and contributed to interpretable evidence. A report was eligible for the contextual stratum when it explicitly examined English language teaching, learning, assessment, curriculum, or teacher-learner relations involving Generation Z learners.

Empirical qualitative, quantitative, mixed-methods, and intervention studies were included. Conceptual and bibliometric articles were also retained when their central concern was the teaching or learning of English in relation to Generation Z and when their full analytical procedures or arguments could be assessed. The review included English-language scholarly articles with a resolvable DOI and bibliographic metadata consistent across the DOI record and publisher or repository page. DOI accessibility was defined as a successful resolution to an authoritative bibliographic or publisher record; it did not, by itself, indicate that the full text was openly accessible.

Reports were excluded when Generation Z was only mentioned incidentally; when the educational context was unrelated to English, EFL, ESL, or ELT; when the publication was a thesis, dissertation, non-scholarly commentary, or duplicate version; when the DOI could not be resolved or the bibliographic record could not be verified; or when the report did not

²⁴ Robin Whittemore and Kathleen Knafl, "The Integrative Review: Updated Methodology," *Journal of Advanced Nursing* 52, no. 5 (December 2, 2005): 546–53, <https://doi.org/10.1111/j.1365-2648.2005.03621.x>.

provide sufficient information to establish relevance. General studies on educational technology or teacher competence were retained only when the connection to Generation Z English education was explicit or when a clearly defined Generation Z subgroup could be examined.

2.3. Information sources and search strategy

The search and full-text audits were completed on May 19, 2026. Dimensions and Google Scholar were the main discovery sources. The Dimensions export recorded 48 publications returned by the full-data query 'Gen Z English teachers AND teaching', restricted to publication years 2020-2026 and Sustainable Development Goal 4 (Quality Education). The Google Scholar search log contained 29 candidate links identified through iterative combinations of three concept groups: the generation ('Generation Z' OR 'Gen Z'), the educational domain ('English language teaching' OR ELT OR EFL OR ESL), and the population or practice ('English teacher', 'pre-service teacher', 'student teacher', learner, teaching, pedagogy, or classroom).

Supplementary searches were conducted in ERIC and GARUDA and through publisher websites, journal platforms, institutional repositories, and reference list checking. These searches contributed 12 additional reports that met the bibliographic, topical, publication type, and DOI eligibility criteria. However, the historical supplementary search records preserved only the eligible additions and did not retain the total number of search hits or record-level exclusion decisions. Therefore, the supplementary pathway could only be reported as the number of eligible reports added to the corpus and not as a complete database-level screening flow. Search-source roles, query variants, search dates, and retained reports are documented in the Supplementary search log and evidence matrix.

Crossref and DataCite were used to validate DOI metadata and were not treated as bibliographic-indexing databases. DOI records were checked against publisher pages, journal repositories, ERIC records, and full-text repository copies. The targeted supplementary search contributed 12 additional eligible contextual articles to the 29-record corpus. Search-source roles, query variants, dates, and retained records were documented in the supplementary search log and evidence matrix.

2.4. Study selection and construction of the review corpus

All candidate records were entered into the master evidence matrix. Duplicate records were identified first by DOI and then by the normalized title, author, and publication year. Titles and abstracts were screened against the eligibility criteria, after which potentially relevant records underwent DOI and full text verification. Borderline records were retained only when their relevance to one of the two evidence strata was explicitly stated. Exclusion decisions were based on topical relevance, publication type, DOI status, duplicate status, and the availability of information required for the intended synthesis level.

The resulting evidence map contained 41 articles: 12 core and 29 contextual studies. Twenty-nine articles were retained from the stored Dimensions and Google Scholar discovery files, and 12 eligible contextual articles were added through supplementary searches. Full

texts were sought for all 41 articles. Full reports were retrieved for 40 articles, whereas one contextual record (K-04)²⁵ was available only as a publisher's abstract at the time of the audit. The abstract-only record remained in the descriptive evidence map because its bibliographic identity, DOI, population, and topical relevance could be verified, but it was excluded from the methodological appraisal, coding, and thematic synthesis. The final full-text synthesis comprised 40 articles: 12 core and 28 contextual studies. Accordingly, the PRISMA flow diagram distinguishes inclusion in the 41-record evidence map from inclusion in the 40-record full-text synthesis process. Study selection was conducted by one reviewer using a structured eligibility form derived from predefined inclusion and exclusion criteria. The screening process was conducted in two stages. Titles and abstracts were first examined for population, English-language education relevance, publication type, and DOI status of the article. Records that appeared potentially eligible or could not be confidently classified were retained for full-text assessment. After retrieval, all candidate reports underwent a second eligibility check against the complete articles. The reviewer subsequently conducted a second-pass audit of the retained and excluded records, checking the bibliographic identity, evidence-stratum assignment, eligibility decisions, DOI resolution, and full-text status against the publisher or repository record. Ambiguous decisions were documented in the evidence matrix, rather than being reconstructed retrospectively.

2.5. Data extraction and management

A structured extraction form was applied at the study level for data extraction. The fields comprised record identifier, evidence stratum, bibliographic citation, year, title, country and educational context, research design, sample or documentary corpus, sampling procedure, data-generation instruments, analytical procedure, principal findings, methodological limitations, DOI, DOI URL, full-text source, discovery or validation source, access status, synthesis eligibility, and study-level analytic codes. The extracted information was stored in a spreadsheet that preserved a direct link to the DOI and the full text or publisher source for audit purposes.

The extraction unit was adapted to the type of evidence used. For empirical studies, the form captured participants, sampling, instruments, analyses, and findings. For conceptual or bibliometric studies, the participant fields were replaced by the documentary corpus, conceptual framework, search procedure, and mode of analysis. Information that was not reported was recorded as such, rather than being inferred. Abstract-only information was kept separate from the full-text extraction. A second-pass audit compared the newly extracted records with their DOI metadata and publisher or repository versions, and discrepancies were recorded in the limitations field. Data extraction was completed by one reviewer, followed by a record-level verification pass. During verification, each extraction entry was compared with the full text and DOI-linked publisher or repository records.

²⁵ Rio Laksamana Prastya, Rika Marlia, and Guntur Tri Indra Setiawan, "Exploring The Responses of Students Generation Z Toward Disciplined English Teacher in English Language Teaching (ELT)," *JELE (Journal of English Language and Education)* 10, no. 2 (May 19, 2025), <https://doi.org/10.26486/jele.v10i2.4609>.

Particular attention was given to the study population, educational context, research design, sampling, data-generation instruments, reported outcomes, methodological limitations, and evidence-stratum classification. Information that was absent or unclear in the source was recorded as not reported, rather than inferred. The completed extraction table was then reconciled with the 41-record evidence map and the 40 full-text synthesis corpus before the coding frequencies were calculated.

2.6. Methodological appraisal

Because the corpus combined several research designs and non-empirical contributions, a single numerical risk-of-bias score was not applied to all records. Instead, a structured methodological appraisal was integrated into the extraction and coding processes. Five document-level flags were used: (Q1) a small sample or very limited Generation Z subgroup; (Q2) insufficient reporting of sampling, participants, or recruitment; (Q3) inconsistent or insufficient reporting of design and analysis; (Q4) reliance primarily on self-report, perception, or reflection without direct observation of performance or behavior; and (Q5) peripheral or indirect evidence in which Generation Z or English-language education was not the principal sampling criterion.

The flags were not combined into an overall quality score and did not function as exclusion criteria. Instead, they were used to qualify the strength and transferability of the claims during the synthesis. For example, findings from a small interview study could contribute to an interpretation of teacher identity, but they were not treated as evidence of population prevalence in the systematic review. Similarly, positive perceptions of a digital tool were not interpreted as evidence of improved language attainment unless the study included a relevant performance measure and appropriate comparative design. The same reviewer conducted a methodological appraisal after completing the initial data extraction. Each flag was assigned by comparing the reported method and evidence with the operational definition recorded in the appraisal guide. A second-pass audit checked whether the flags were applied consistently across research designs and core and contextual strata. When available information was insufficient, the record was flagged for limited reporting rather than being assigned an assumed level of methodological quality. The flags were used to qualify the interpretation and were not treated as numerical quality scores or exclusion criteria.

2.7. Coding and synthesis

The synthesis used study-level, directed qualitative content analysis, with room for inductive refinement.²⁶ A study-level codebook was derived from the review questions and concepts recurring in the evidence matrix. It contained 23 substantive codes grouped into five domains: teacher professionalism, Generation Z-responsive pedagogy, the technology ecosystem, learner experience and outcomes, and implementation risks and conditions. The

²⁶ Hsiu-Fang Hsieh and Sarah E. Shannon, "Three Approaches to Qualitative Content Analysis," *Qualitative Health Research* 15, no. 9 (November 1, 2005): 1277–88, <https://doi.org/10.1177/1049732305276687>.

five methodological flags described above were maintained separately from substantive codes. Multiple substantive and quality codes can be assigned to the same article.

Full-text extraction served as the evidential basis for primary synthesis. The extracted findings were compared within each stratum before comparisons were made across the core and contextual strata. Coding emphasized convergent patterns, contextual variation, negative or cautionary evidence, and differences between perception-based claims and measured learning outcomes. Document frequencies were used only to describe how widely a theme appeared across the corpus; they were not interpreted as effect sizes or indicators of causal importance. A statistical meta-analysis was not performed because the studies differed substantially in terms of populations, designs, constructs, interventions, instruments, and reported outcomes.

One reviewer conducted coding using a study-level codebook derived from the review questions and refined during a close reading of the full texts. QualCoder was used to organize coded segments, retrieve supporting passages, compare evidence across studies and maintain an audit trail; interpretive coding decisions remained the responsibility of the reviewer. After the initial coding cycle, all 40 full-text records underwent a second-pass coding audit. During this audit, code applications were checked against their definitions and the extracted findings; overlapping codes were retained when conceptually justified, and inconsistently applied codes were revised. Particular attention was given to distinguishing teacher evidence from learner evidence, perception-based findings from measured outcomes, and technological affordances from the demonstrated educational effects. Each substantive domain was counted only once per article when relevant evidence was present, regardless of the number of passages coded. Negative, mixed, and context-dependent findings were retained to prevent the synthesis from representing only favorable patterns of findings. The coding process used the QualCoder support.

2.8. Ethics

This review analyzed published documents and did not collect new data from human participants; therefore, institutional ethics approval was not required for the review itself. The evidence matrix, extraction form, eligibility decisions, source URLs, codebook, and study-level coding table were maintained as audit materials and can be supplied as supplementary files or deposited in an accessible repository where the journal policy permits. These materials distinguish between DOI validation, abstract-level evidence, and full-text evidence.

RESULTS AND DISCUSSION

Results

1. Study selection and analytical corpus

The stored discovery files contained 77 source entries: 48 from Dimensions and 29 from Google Scholar search logs. These entries underwent a combined process of de-duplication and screening for topical relevance, publication type, DOI status, and bibliographic metadata consistency. Twenty-nine reports were retained, while 48 were excluded. The value of 48 represents the auditable difference between the 77 stored source entries and 29 retained

reports. As the historical search records did not document duplicate removal and exclusion decisions separately, these entries could not be retrospectively divided into duplicates, topically irrelevant records, ineligible publication types, or reports with unverifiable DOIs.

Supplementary searches of ERIC, GARUDA, publisher websites, journal platforms, institutional repositories, and reference lists yielded 12 additional eligible reports. The supplementary search records preserved the eligible additions but not the total number of search hits or the reasons for excluding other search results. Therefore, the 12 reports should be interpreted as eligible additions rather than the complete number of records identified through supplementary searching.

Combining the 29 reports retained from the stored discovery files with the 12 eligible supplementary reports produced an evidence map comprising 41 articles. Full texts were sought for all 41 reports. Forty full texts were retrieved and assessed, and none were excluded following the full-text assessment. One contextual article (K-04)²⁷ was available only as a publisher's abstract. It was retained in the descriptive evidence map because its bibliographic and topical eligibility could be verified, but it was excluded from the methodological appraisal, coding, and thematic synthesis.

The final evidence map comprised 41 articles: 12 core studies of Generation Z English teachers or teacher candidates and 29 contextual studies of English-language education for Generation Z learners. The primary analytical corpus comprised 40 full-text articles: 12 core and 28 contextual studies. Figure 1 distinguishes the inclusion of the 41-article descriptive evidence map from the inclusion of the 40-study full-text synthesis.

2. Characteristics of the evidence base (RQ1)

The evidence base was recent and geographically dispersed, although it was not evenly distributed. Publication years ranged from 2017 to 2026, and 35 of the 41 mapped articles (85.4%) were published between 2023 and 2026. The largest annual contributions occurred in 2025 ($n = 14$, 34.1%), followed by 2024 ($n = 8$, 19.5%) and 2026 ($n = 7$, 17.1%). No articles published in 2018 or 2022 were included.

Sixteen named national or regional settings were included. Indonesia contributed 13 articles (31.7%), followed by the Philippines ($n = 4$), Türkiye, Vietnam, and India ($n = 3$ each). The Czech Republic and Iran contributed two articles each, and nine other settings contributed one article each. Two reports addressed an international or non-country-specific literature review. The core stratum was similarly concentrated: five of the 12 core studies were conducted in Indonesia, three in Vietnam, and one each in Türkiye, Iran, the Philippines, and Egypt.

²⁷ Prastya, Marlia, and Indra Setiawan, "Exploring The Responses of Students Generation Z Toward Disciplined English Teacher in English Language Teaching (ELT)."

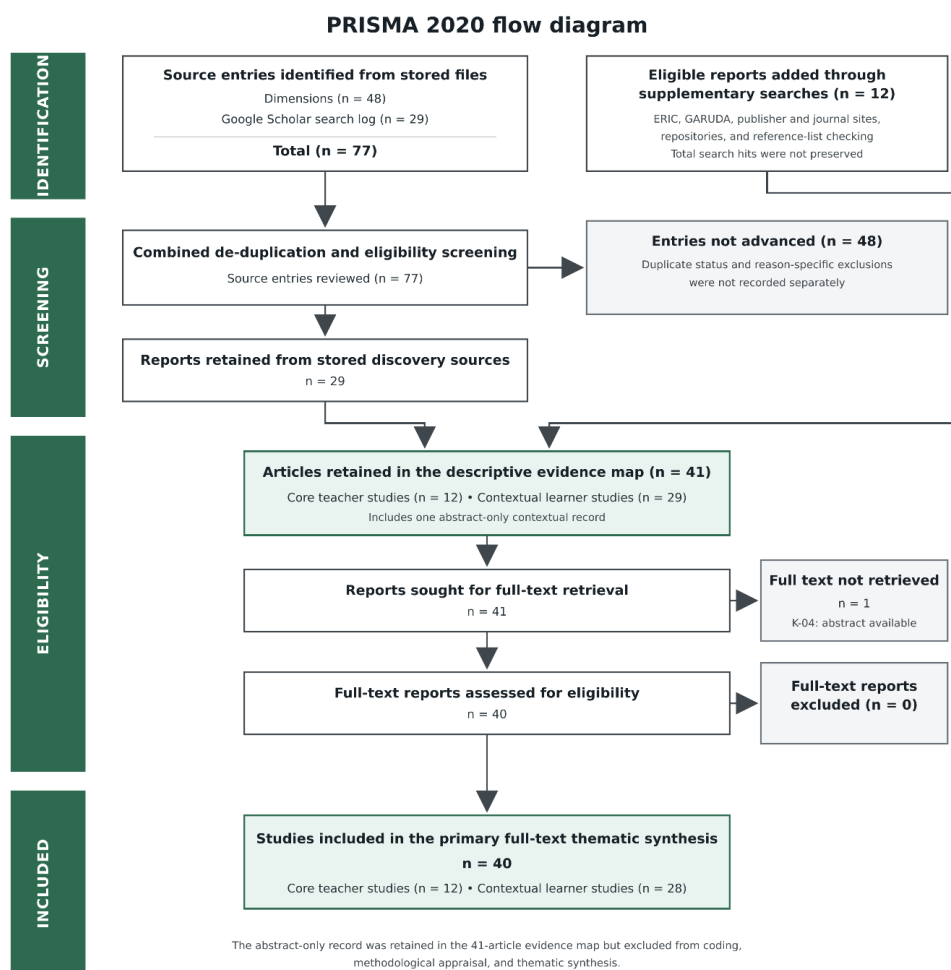


Figure 1. PRISMA 2020 flow diagram of study identification, screening, retrieval, and inclusion. *Note: The stored discovery files contained 77 source entries, of which 29 were retained after a combined process of deduplication and eligibility screening. As exclusion decisions were not recorded separately, the 48 entries that were not advanced could not be retrospectively divided into duplicates and reason-specific exclusions. Supplementary searches contributed 12 eligible reports, but their total search hits were not included. The evidence map therefore contained 41 articles, whereas the primary thematic synthesis included 40 articles for which full texts were available.*

Across the 41 mapped articles, quantitative designs were most frequent ($n = 15$, 36.6%), followed by qualitative or interpretive designs ($n = 13$, 31.7%), mixed-methods or mixed-evidence designs ($n = 11$, 26.8%), and conceptual or bibliometric contributions ($n = 2$, 4.9%). Within the core stratum, nine articles examined in-service teachers, and three examined pre-service teachers or student teachers. The contextual stratum was dominated by learner-focused studies, with smaller subsets incorporating teacher reports, cross-generational comparisons and documentary evidence.

Table 1. Characteristics of the 41-article evidence map

Characteristic	Category	n	%
Evidence stratum	Core: Gen Z English teachers/candidates	12	29.3
Evidence stratum	Contextual: English teaching/learning for Gen Z	29	70.7
Full-text status	Included in primary synthesis	40	97.6
Full-text status	Abstract only; evidence map only	1	2.4
Publication period	2017–2022	6	14.6
Publication period	2023	6	14.6
Publication period	2024	8	19.5
Publication period	2025	14	34.1
Publication period	2026	7	17.1
Design	Quantitative	15	36.6
Design	Qualitative/interpretive	13	31.7
Design	Mixed methods/mixed evidence	11	26.8
Design	Conceptual/bibliometric	2	4.9
Geography	Indonesia	13	31.7
Geography	Philippines	4	9.8
Geography	Türkiye, Vietnam, and India	9	22.0
Geography	Czech Republic and Iran	4	9.8
Geography	Nine other named settings	9	22.0
Geography	General/international	2	4.9

3. Professional identities, capacities, and early-career work (RQ2)

Teacher professionalism was identified in all 12 core studies and four of the 28 contextual full-text studies. Within the core stratum, professional identity and career orientation appeared in five studies, novice teacher development and resilience in five, digital competence and AI agency in four, and beliefs about effective teachers in three. These codes overlapped: identity orientation and novice development co-occurred in four articles, showing that present teaching conditions, imagined future selves, and access to institutional support were reported together in accounts of professional development.

Qualitative core studies portray professional identity as negotiated rather than generationally predetermined. Participants moved between hoped-for, expected, and feared professional selves while balancing authority, care, legitimacy, and emotional labor.²⁸ In rural or resource-constrained settings, adaptability involves classroom improvisation, reflective adjustment, and coping with limited infrastructure and learner motivation.²⁹ These patterns

²⁸ Hao, Hoang, and Tam, “View of Vietnamese Generation-Z Teachers’ Professional Identity Development: A Positioning-Theoretical Collaborative Trio-Narrative Inquiry”; Hao and Hung, “‘Beyond a Thesis’: A Duo-Narrative Inquiry into Possible Selves of Generation-Z EFL Teachers in Graduate Education”; Vu Tran-Thanh, “Teachers Are Also Human: Exploring Generation Z Language Teachers’ Perceptions of the Teaching Profession,” *Language Teacher Education Research* 4 (February 12, 2026): 1–21, <https://doi.org/10.32038/ltcr.2026.04.01>.

²⁹ Lia Amanda Ainiy and Hanif Maulaniam Sholah, “Navigating English Teaching: Challenges and Strategies of Generation Z Teachers in the Digital Age,” *International Journal on Advanced Science, Education, and Religion* 8, no. 3 (September 30, 2025): 470–79, <https://doi.org/10.33648/IJOASER.V8I3.1365>; Anatasia Keny and Paulus Kuswandono, “Teaching Through Hope and Growth: A Critical Incident Study of Gen Z Novice EFL Teachers in Rural Kalimantan Barat,” *Jambura Journal of English Teaching and Literature* 6, no. 2 (October 31, 2025): 73–86, <https://doi.org/10.37905/jetl.v6i2.34272>.

did not support a uniform profile of the Generation Z teacher; teachers of similar age reported different orientations according to their institutional position and teaching context.

Pre-service studies have placed greater emphasis on learner-centered teaching, interaction, empathy, collaboration, technology use, and flexible responses to learner needs.³⁰ One quasi-experimental study reported greater improvement in 21st-century skills and attitudes towards project-based learning in a hybrid collaborative project-based course than in a comparison condition, while the difference in academic attainment was smaller.³¹ Within the small pre-service subset, the evidence therefore concerned changes in pedagogical capability and disposition, rather than broad claims about teacher effectiveness.

Digital familiarity was not considered equivalent to pedagogical competence. Generation Z teachers used ICT, social media, gamification, and generative AI to prepare materials, generate ideas, personalize tasks, and support feedback; however, they also reported technical limitations, uncertain institutional policies, and the need to check AI output.³² Across these studies, teachers were more often positioned as selectors, mediators, and regulators of technology rather than as automatically proficient digital users.

4. Pedagogical, relational, and digital patterns (RQ3)

Learner experience and outcomes formed the most widely distributed substantive domain (31/40 studies), followed by the technology ecosystem (26/40), Generation Z-responsive pedagogy (19/40), teacher professionalism (16/40), and implementation risks or conditions (12/40). These document frequencies describe the distribution of themes and are not estimates of the effect size. Table 2 also shows that professionalism was concentrated in the core stratum, whereas learner outcomes and pedagogical responses were concentrated in the contextual strata.

Table 2. Document-level distribution of synthesis domains

Synthesis domain	Core n/12	Contextual n/28	Total n/40	% of 40
Teacher professionalism	12	4	16	40.0
Generation Z-responsive pedagogy	5	14	19	47.5
Technology ecosystem	8	18	26	65.0
Learner experience and outcomes	7	24	31	77.5
Implementation risks and conditions	4	8	12	30.0

³⁰ Mansyur Corresponding et al., "Shifting Perceptions of Effective EFL Teacher Characteristics: A Case Study of Gen Z Pre-Service Teachers at UNM," *ELT Worldwide: Journal of English Language Teaching* 12, no. 1 (June 4, 2025): 199–211, <https://doi.org/10.26858/ELTWW.V12I1.73715>; Berk İlhan, "Identifying Gen Z Student-Teachers' English Teaching Constructs through a Personal Construct Psychology Approach," *Kastamonu Eğitim Dergisi* 34, no. 1 (January 31, 2026): 137–51, <https://doi.org/10.24106/kefdergi.1878571>.

³¹ Samah Rizk R. Al-Refaey, "A Hybrid Collaborative Project- Based Course for Developing 21st Century Skills, Academic Achievement and Attitude towards PBL among Gen Z Junior English Major Student Teachers," *مجلة كلية التربية - جامعة طنطا* 89, no. 1 (January 1, 2023): 3151–4017, <https://doi.org/10.21608/mkmgmt.2023.249496.1666>.

³² Ainiy and Sholah, "Navigating English Teaching: Challenges and Strategies of Generation Z Teachers in the Digital Age"; Dehghan, "How Generative AI May Influence the Nature and Future of the Teaching Career: A Case Study of Gen Z Foreign Language Teachers"; Safitri and Sobah, "Exploring Gen Z English Teachers' Challenges on ChatGPT Integration in Language Learning: English."

4.1. Engagement was reported in relation to pedagogical configuration

Engagement, enjoyment, or motivation was coded in 18 of the 40 full-text studies (45.0%), making it the most frequent code. General ICT integration appeared in 15 studies (37.5%); language skills or proficiency outcomes in 12 (30.0%); relevance, personalization, or practical materials in nine (22.5%); and learner-centered or adaptive pedagogy in eight (20.0%). At the document level, ICT integration co-occurred with engagement in nine studies, learner-centered pedagogy with ICT in seven, learner-centered pedagogy with engagement in six, and mobile/video/social media use with engagement in six. This pattern suggests that technology was typically reported within a broader configuration of relevance, interaction, task design, and learner agency, rather than as a stand-alone pedagogical mechanism.

The studies also indicated that a digital format was not consistently sufficient to secure learner preferences. An eclectic combination of equitable, engaging, and effective practices was preferred to an exclusively digital approach,³³ while learners valued concise communication, co-creation, interaction, and authentic or practical content.³⁴ Mobile, video, and social media practices were reported in eight studies, but short and visually engaging formats were accompanied by concerns about distraction and superficial engagement.³⁵

4.2. Measured outcome evidence was limited and heterogeneous

Most positive claims concerned learner perceptions, while a smaller subset reported performance or comparative outcomes. A mobile and Kahoot-supported vocabulary intervention reported a mean post-test score of 87% compared with 69% in the control group.³⁶ A flipped Schoology course reported higher post-test means than the comparison condition (2.91 vs. 1.39) and evidence of deeper learning, collaboration, and feedback.³⁷ Cornell note-taking produced a larger improvement in EFL reading than the comparison strategy,³⁸ and a positive-psychology intervention produced large between-group effects for academic buoyancy (partial $\eta^2 = .77$) and psychological well-being (partial $\eta^2 = .71$).³⁹ In a

³³ Stella Indiongco et al., "Teaching English in a Gen Z Classroom through Traditional, Digital, and Eclectic Approaches in UST Education High School: A Comparative Analysis," *International Journal of Research and Innovation in Social Science* IX, no. IV (2025): 3417–35, <https://doi.org/10.47772/IJRISS.2025.90400248>.

³⁴ Gaby Bedetti, "Reinvigorating the Post-Covid Gen Z English Major," *Journal on Empowering Teaching Excellence* 8, no. 1 (May 16, 2024), <https://doi.org/10.59620/2644-2132.1123>; Khirjan Nahdi et al., "Teaching English to Gen Z English Learners: What Are Their Responses to General English Topics?," *IJE : Interdisciplinary Journal of Education* 2, no. 2 (July 15, 2024): 90–100, <https://doi.org/10.61277/ije.v2i2.88>.

³⁵ Agatha Fitri Qatrunnada, Eliasanti Agustina, and Rahmat Setiawan, "Gen Z's Preference for English Digital Learning Media," *International Journal of English Education and Linguistics (IJoEEL)* 7, no. 2 (August 31, 2025): 183–201, <https://doi.org/10.33650/ijoeel.v7i2.11901>.

³⁶ Petra Poláková and Blanka Klímová, "Mobile Technology and Generation Z in the English Language Classroom—A Preliminary Study," *Education Sciences* 9, no. 3 (July 31, 2019): 203, <https://doi.org/10.3390/educsci9030203>.

³⁷ Made Hery Santosa, "Learning Approaches of Indonesian EFL Gen Z Students in a Flipped Learning Context," *Journal on English as a Foreign Language* 7, no. 2 (September 30, 2017): 183, <https://doi.org/10.23971/jefl.v7i2.689>.

³⁸ Ji-Young Seo, "Cornell Note-Taking Strategy Instruction for Gen Z: Enhancing EFL Students' Reading Comprehension," *Asian-Pacific Journal of Second and Foreign Language Education* 10, no. 1 (August 22, 2025): 40, <https://doi.org/10.1186/s40862-025-00347-8>.

³⁹ Sadat Haj Mir Alikhani, Neda Fatehi Rad, and Hassan Shahabi, "MBSR-Based Instruction for Enhancing Psychological Well-Being and Academic Buoyancy among Generation Z EFL Learners in Iran," *International Journal of Body, Mind and Culture* 13, no. 3 (March 1, 2026): 129–44, <https://doi.org/10.61838/IJBM.C.V13I3.1285>.

vocabulary study, gamification and AI were positive predictors, but their interaction was not significant.⁴⁰ Because the interventions, outcomes, and designs differed substantially, these estimates were not combined in the meta-analysis.

4.3. *Generative AI was an emerging strand with reported benefits and constraints*

Generative AI or ChatGPT appeared in six studies (15.0%), compared with 15 studies addressing broader ICT integration and eight addressing mobile, video, or social-media practices. AI was used for idea generation, material development, writing support, correction, summarization, translation, and task personalization. Learners and teachers generally reported utility and time savings, but adoption varied by task and proficiency rather than being uniformly high.⁴¹ Generative AI co-occurred with concerns about dependence, accuracy, and human oversight in four of the six AI-related studies. Therefore, the corpus contained more evidence of perceived usefulness and emerging practice than of sustained improvement in English attainment.

4.4. *Relational expectations varied within and across generations*

Seven full-text studies identified mismatches in expectations between Generation Z learners and teachers, or between generational groups. Learners frequently preferred immediate and individualized feedback, mobile or video-supported learning, interaction, and reduced reliance on traditional homework.⁴² However, preferences were not homogeneous: students also valued teacher structure, face-to-face interaction, and credible language models, and did not automatically reject conventional practices.⁴³ Therefore, cross-generational differences were conditional and task-specific rather than evidence of a single Generation Z learning style.

5. *An evidence-bounded framework for teacher education and institutional support (RQ4)*

Four implementation conditions were identified across the evidence. Infrastructure, access, training, or institutional support appeared in seven studies (17.5%); dependence, accuracy, or human oversight in five (12.5%); ethics, academic integrity, or policy in two (5.0%); and technology anxiety in one (2.5%). The studies identified pedagogical and operational support needs, including aligning tools with language outcomes, managing

⁴⁰ Shella Gherina Saptiany et al., "Artificial Intelligence-Moderated Gamification Apps: Elevating Gen Z's English Vocabulary Mastery," *AL-ISHLAH: Jurnal Pendidikan* 16, no. 4 (December 16, 2024): 4969–83, <https://doi.org/10.35445/alishlah.v16i4.5957>.

⁴¹ Chan and Lee, "The AI Generation Gap: Are Gen Z Students More Interested in Adopting Generative AI Such as ChatGPT in Teaching and Learning than Their Gen X and Millennial Generation Teachers?"; Petra Ivenz and Petra Polakova, "Gen Z Students and Their Perceptions of Technology in the Process of Second Language Acquisition Based on the Language Proficiency Level," *Arab World English Journal* 15, no. 3 (September 24, 2024): 3–17, <https://doi.org/10.24093/awej/vol15no3.1>.

⁴² Bora Demir and Görsev Sönmez, "Generation Z Students' Expectations from English Language Instruction," *Dil ve Dili Bilimi Çalışmaları Dergisi* 17, no. 1 (March 25, 2021): 683–701, <https://doi.org/10.17263/jlls.903536>.

⁴³ Elina Banzina, "Students Smarter than Teachers? Gen Z EFL Student Perceptions of English Pronunciation Learning and Teaching," *EuroAmerican Journal of Applied Linguistics and Languages* 12, no. 2 (November 10, 2025): 58–75, <https://doi.org/10.21283/2376905X.1.12.2.3423>; Bedetti, "Reinvigorating the Post-Covid Gen Z English Major."

classroom interaction, evaluating AI output, and adapting practice when infrastructure or institutional guidance was limited.⁴⁴

When the findings from the core and contextual strata were integrated, they were organized into an evidence-bounded four-part framework for teacher education, professional development, and institutional policy. The first component, professional identity and early career resilience, encompassed identity negotiation, authority, care, emotional demands, career expectations, mentoring, and adaptation to challenging teaching conditions. The second component, ELT-specific digital pedagogy, connects technology use with language objectives, learner proficiency, interaction, feedback, assessment, and supervised practice with context-responsive tasks. The third component, critical AI literacy with human oversight, includes the verification of generated output, linguistic and cultural accuracy, appropriate register, ethical use, learner agency, and decisions to revise or reject automated responses. The fourth component, institutional support for equitable access, policy, mentoring, and professional learning, addressed infrastructure, time, technical assistance, assessment guidance, privacy safeguards, and opportunities for supported experimentation.

Equity was found to operate across all four components because teachers' opportunities to develop and exercise professional and digital competence were conditioned by access to infrastructure, mentoring, language resources, institutional recognition, and professional learning opportunities. Therefore, the framework represents a configuration of recurring evidence rather than four independent variables. It does not establish the effectiveness, relative importance, causal influence, or preferred sequence of its ingredients.

6. Methodological profile of the synthesis evidence

The methodological appraisal qualified the strength of the preceding findings. At least one quality flag was assigned to 32 of the 40 full-text studies (80.0%). Twenty-eight studies (70.0%) relied primarily on self-report, perception, interview, or reflection data without direct observation of behavior or performance data. Twelve studies (30.0%) used small samples or very limited Generation Z subgroups, nine (22.5%) provided insufficient detail about sampling or participants, seven (17.5%) offered peripheral or indirect evidence, and four (10.0%) showed inconsistencies in design, analysis, or reporting. The concentration of self-reports was greater in the core stratum, where 10 of the 12 studies were flagged.

Table 3. Methodological flags in the 40-study full-text synthesis

Methodological flag	Core n/12	Total n/40	% of 40
Self-report or perception evidence	10	28	70.0
Small or highly limited sample	9	12	30.0
Sampling/participants insufficiently reported	4	9	22.5
Peripheral or indirect evidence	2	7	17.5
Design/analysis/reporting inconsistency	2	4	10.0

⁴⁴ Ainiy and Sholah, "Navigating English Teaching: Challenges and Strategies of Generation Z Teachers in the Digital Age"; Gayuh Adi Prayoga and Y.G. Harto Pramono, "HIGH SCHOOL ENGLISH TEACHERS' ICT LITERACY IN TEACHING ENGLISH," *Magister Scientiae* 49, no. 2 (October 2021): 104–13, <https://doi.org/10.33508/mgs.v49i2.3322>; Safitri and Sobah, "Exploring Gen Z English Teachers' Challenges on ChatGPT Integration in Language Learning: English."

Accordingly, the synthesis was most informative for identifying recurring, professional, pedagogical, and institutional patterns. It is less suited to estimating prevalence beyond the included literature or attributing learner outcomes to a generational identity or a specific technology. Measured outcomes from comparative studies were retained as bounded findings, whereas perception-based findings were not interpreted as evidence of intervention efficacy.

Discussion

1. Principal interpretation of the findings

This review examined 41 articles and synthesized 40 full texts across two evidence strata. The distinction between the 12 core studies of Generation Z English teachers or teacher candidates and the 28 contextual studies of English education for Generation Z learners was analytically significant. Professional identity, early career development, and digital agency were concentrated in the core stratum, whereas learner engagement, language outcomes, and pedagogical preferences were concentrated in the contextual strata. Therefore, findings about learners cannot be directly transferred to teachers of the same generation.

Four interpretations follow from this synthesis. First, Generation Z English teachers were not a homogeneous group defined by their effortless digital competence. Their professional orientations varied across career stages, institutions, localities, available support, and previous experiences. Second, technology was most often reported alongside engagement when embedded in relevant, interactive, and learner-centered tasks. Third, teachers' use of digital and AI tools involves professional judgement, including selection, adaptation, verification, and boundary setting. Fourth, the evidence base contained substantially more perception and emerging-practice evidence than evidence supporting causal claims about teacher quality or English-language proficiency. Taken together, these findings support a situated account of generation rather than a deterministic one.

2. Generation as context rather than a causal explanation

The absence of a uniform digital profile is consistent with contemporary critiques of the digital native construct. A recent narrative review concluded that sustained exposure to digital technology should not be equated with digital literacy or the capacity to use technology effectively in academic and professional settings.⁴⁵ Similarly, a bibliometric and structural topic modeling analysis of 1,886 publications found that the digital-native construct remains conceptually contested and has been repeatedly redefined despite the lack of evidence for generation-wide cognitive or technological capacities.⁴⁶ The findings of the present review extend this caution to English teachers belonging to Generation Z. The routine use of mobile devices, social media, digital platforms, or generative AI was not, by itself, sufficient evidence

⁴⁵ Lisa Reid, Didy Button, and Mark Brommeyer, "Challenging the Myth of the Digital Native: A Narrative Review," *Nursing Reports* 13, no. 2 (April 4, 2023): 573–600, <https://doi.org/10.3390/nursrep13020052>.

⁴⁶ Mertala et al., "Digital Natives in the Scientific Literature: A Topic Modeling Approach."

of competence in designing language-learning tasks, assessing learner development, managing classroom interaction or critically evaluating automated output.

A related methodological problem is that generational labels can conflate birth cohorts with age, career stage, and historical period. Costanza et al. (2023) and Rudolph et al. (2021) explained that these effects are difficult to separate when studies compare generational categories without appropriate longitudinal, cross-temporal, or age–period–cohort designs.⁴⁷ This limitation is particularly relevant to the present corpus because many of the Generation Z teachers were simultaneously student teachers, novices, or early career professionals. Therefore, their uncertainty, professional identity negotiation, workload concerns, and need for mentoring may be associated with entry into the profession rather than generational membership alone. This interpretation is consistent with a systematic review showing that early career teachers' professional digital competence develops through mentoring, professional development opportunities, institutional culture, resource availability, governance, leadership, and professional identity formation.⁴⁸ In the present review, therefore, generation is more defensibly treated as a descriptive marker of historically situated experience than as an independent causal explanation of professional competence.

This reframing does not render the cohort location irrelevant. The studies reviewed were conducted during a period characterized by expanding educational platforms, pandemic-related disruption, and the rapid diffusion of generative AI. These developments formed part of the professional and technological environments encountered by the teachers and learners represented in our corpus. Nevertheless, the evidence indicates that the meaning of generational location is contingent on institutional resources, professional roles, prior language-learning experiences, access to professional development, and local educational norms. Therefore, future research should report the birth year criteria used to define Generation Z and distinguish them from sampling based solely on age or educational status. Depending on the research design, studies should also measure or document participants' age, teaching experience, career stage, educational level, previous technology use, access to mentoring, and institutional settings. Longitudinal and cross-cohort designs would provide stronger evidence than single-cohort perception studies to determine whether an observed pattern is associated with cohort membership, professional development, or the historical conditions under which the data were collected.

3. Professional identity, agency, and resilience

Core studies have represented professional identity as an ongoing negotiation among hoped-for, expected, and feared selves; authority and care; and personal aspiration and

⁴⁷ Cort W. Rudolph et al., "Generations and Generational Differences: Debunking Myths in Organizational Science and Practice and Paving New Paths Forward," *Journal of Business and Psychology* 36, no. 6 (December 4, 2021): 945–67, <https://doi.org/10.1007/s10869-020-09715-2>; Costanza, Rudolph, and Zacher, "Are Generations a Useful Concept?"

⁴⁸ Davoud Masoumi and Omid Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review," *European Journal of Teacher Education* 48, no. 3 (May 27, 2025): 644–66, <https://doi.org/10.1080/02619768.2023.2229006>.

institutional recognition.⁴⁹ This interpretation is consistent with a recent systematic review of 412 publications, which located teacher identity across narratives of professional life, becoming a teacher, institutional and community contexts, and experiences of change, transition and conflict.⁵⁰ Teacher identity in the present corpus was therefore neither a fixed collection of personal attributes nor a uniformly shared generational profile. Instead, it was constructed through teachers' interpretations of their experiences, relationships, professional roles, imagined futures, and recognition within specific institutions. Digital practice constituted one position within this broader process of professional becoming, rather than displacing concerns about legitimacy, learner relationships, emotional labor, authority, and career security.

The findings also connected professional identity to resilience. In a rural English teaching study, novice Generation Z teachers described adapting lessons, responding to resource constraints, managing learner motivation, reflecting on critical incidents, and regulating their emotions.⁵¹ These accounts are consistent with contemporary conceptualizations of teacher resilience as a dynamic relationship among job demands, job resources, personal demands and personal resources. A systematic review of 54 studies found that teacher-resilience research increasingly emphasizes the interaction of personal capacities with contextual resources, including leadership and institutional support, rather than treating resilience solely as an individual disposition.⁵² In the present synthesis, teachers' possible selves and reported capacity to adapt appeared more difficult to sustain in the absence or instability of mentoring, infrastructure, institutional recognition, or policy guidance. However, because most of these findings were based on small qualitative samples and self-reported experiences, they should be interpreted as evidence of recurring relational patterns rather than estimates of the prevalence or causal effects of institutional support.

For teacher education, these findings indicate the potential value of connecting digital competence with professional identity development. Pre-service programmes could combine technology-supported language task design with structured opportunities to reflect on teacher identity, classroom authority, emotional demands, learner relationships, and ethical responsibility. For early career teachers, mentoring can address both immediate instructional problems and the institutional conditions under which professional agency is exercised. This integrated approach is also consistent with evidence that early career teachers' professional digital competence develops through mentoring, professional development opportunities, institutional culture, leadership, resource availability, and identity formation.⁵³ Nevertheless,

⁴⁹ Hao, Hoang, and Tam, "View of Vietnamese Generation-Z Teachers' Professional Identity Development: A Positioning-Theoretical Collaborative Trio-Narrative Inquiry"; Hao and Hung, "'Beyond a Thesis': A Duo-Narrative Inquiry into Possible Selves of Generation-Z EFL Teachers in Graduate Education."

⁵⁰ Elizabeth A. C. Rushton et al., "Understanding Teacher Identity in Teachers' Professional Lives: A Systematic Review of the Literature," *Review of Education* 11, no. 2 (August 16, 2023), <https://doi.org/10.1002/rev3.3417>.

⁵¹ Keny and Kuswando, "Teaching Through Hope and Growth: A Critical Incident Study of Gen Z Novice EFL Teachers in Rural Kalimantan Barat."

⁵² Lu et al., "A Systematic Review of Teacher Resilience: A Perspective of the Job Demands and Resources Model."

⁵³ Masoumi and Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review."

these recommendations should be treated as design implications rather than evidence of the effectiveness of the intervention. The reviewed corpus did not compare alternative mentoring models, resilience programs, or identity-oriented teacher-education interventions and therefore cannot establish which program components are most effective, for whom, or under what institutional conditions.

4. From technology adoption to pedagogical orchestration

Technology was the second most widely distributed substantive domain in this corpus. At the document level, technology codes frequently co-occurred with engagement, learner-centered pedagogy, interaction, feedback, and practical relevance. These co-occurrences indicate that the studies commonly discussed technology in relation to pedagogical and contextual considerations; they did not establish that technology caused engagement or improved learning. This pattern is consistent with a recent systematic review of technological pedagogical content knowledge among EFL teachers, which emphasized the integration of technological, pedagogical, and language content knowledge rather than mastery of an application in isolation.⁵⁴ Research on online language teaching similarly shows that language teachers' digital competence involves strategic decisions about resources, instructional activities, classroom interaction, assessment, and support for learners' language development.⁵⁵ For the purposes of the present synthesis, the content dimension included the linguistic objective, target register, learner proficiency level, interactional demands, expected language production, and type of feedback required by a task.

The results provide limited support for the prescription of particular platforms or digital formats to Generation Z learners. Mobile applications, videos, social media, gamification, flipped learning, and collaborative projects were sometimes associated with positive perceptions, engagement, or measured language outcomes. However, these findings varied across tasks and contexts, and learners did not respond favorably to every digital approach. They also valued instructional structure, credible teacher input, face-to-face interaction, appropriate challenges, and practical task relevance. This caution is consistent with a systematic review of null and negative results in technology-enhanced language learning, which found that outcomes varied according to learning targets, learner characteristics, technologies, teacher and student engagement, implementation conditions, and pedagogical models.⁵⁶ Therefore, a more defensible unit of pedagogical analysis is the configuration of tool, language objective, learner group, task design, feedback, and participation structure, rather than the platform or generational label alone.

This interpretation also helps explain why access and professional learning remain relevant despite the widespread use of digital devices. A systematic review of technology

⁵⁴ Seyyedmohammad Seyyedkalan and Diyar Mazharpour, "A Systematic Review of Technological Pedagogical Content Knowledge (TPACK) of EFL Teachers," *Journal of Foreign Language Research* 14, no. 1 (May 21, 2024): 65–87, <https://doi.org/10.22059/JFLR.2024.372007.1097>.

⁵⁵ Wong and Moorhouse, "Digital Competence and Online Language Teaching: Hong Kong Language Teacher Practices in Primary and Secondary Classrooms."

⁵⁶ Zhang, Zou, and Cheng, "Technology-Enhanced Language Learning with Null and Negative Results since 2000: A Systematic Review Based on the Activity Theory."

integration in rural schools identified challenges at the macro, institutional, and classroom levels, demonstrating that infrastructure, policy, technical support, professional preparation, and local implementation conditions can interact.⁵⁷ Evidence from foreign-language teachers likewise indicates that digital competence extends beyond technical proficiency and is associated with targeted training, motivation to learn, policy support, resource availability, and opportunities to apply technology to instruction and assessment.⁵⁸ Similar variation was visible in the present corpus: inadequate connectivity, devices, or platform access constrained practice in some settings, whereas limited pedagogical preparation, technical support, assessment guidance, or institutional policy appeared more salient in others. This review did not compare the relative effects of these barriers across settings. Therefore, digital transformation in English-language education should be examined as an infrastructural, pedagogical, and professional process rather than the diffusion of tools alone.

5. Engagement should not be equated with language learning

Engagement, enjoyment, and motivation constituted the most frequent clusters of substantive codes across the reviewed corpus. This frequency indicates the prominence of these constructs in the literature and should not be interpreted as evidence of a large or consistent intervention effect. Moreover, much of the evidence is based on learners' self-reported perceptions. Contemporary language-learning research treats engagement as multidimensional, dynamic, and context-dependent, encompassing affective, behavioural, and cognitive involvement.⁵⁹ A positive attitude towards a tool or reported enjoyment of an activity, therefore, provides evidence of an affective response but does not by itself demonstrate sustained behavioural participation, cognitive investment, or language development. The synthesis distinguished among reported interest or preference, observable participation, language outcomes such as vocabulary and reading performance, psychosocial outcomes such as academic buoyancy and well-being, and outcomes reported in project-based learning contexts.

The smaller subset of intervention and correlational studies included positive between-group differences, changes over time, and statistical associations. However, these studies varied considerably in terms of educational level, language target, intervention duration, comparison condition, and outcome measure. Because the reported estimates were not sufficiently comparable, a pooled effect estimate was not performed. This caution is consistent with a recent systematic review showing that technology-enhanced language-learning studies can also produce null or negative findings depending on the learners,

⁵⁷ Faisal Mustafa, Hoa Thi Mai Nguyen, and Xuesong (Andy) Gao, "The Challenges and Solutions of Technology Integration in Rural Schools: A Systematic Literature Review," *International Journal of Educational Research* 126 (2024): 102380, <https://doi.org/10.1016/j.ijer.2024.102380>.

⁵⁸ Lei and Jiang, "Assessing the Digital Competence and Its Influencing Factors among Foreign Language Teachers in Chinese Universities."

⁵⁹ H Mulyono et al., "Exploring the Influence of EFL Teachers' Informal Digital Learning on Creative Classroom Instruction: A Cross-Sectional Study," *Discover Education* 3, no. 1 (2024), <https://doi.org/10.1007/s44217-024-00268-7>; Pearson, "Affective, Behavioural, and Cognitive Engagement with Written Feedback on Second Language Writing: A Systematic Methodological Review."

technologies, instructional conditions, engagement, pedagogical model, and outcome assessed.⁶⁰ The implication is not that digital or interactive practices are ineffective, but that each claim should remain aligned with the evidence collected: perception measures can support claims about acceptability or enjoyment, participation measures can support claims about behavioural engagement, and appropriately designed language assessments can support claims about specific learning gains. Future evaluations should combine multidimensional engagement measures with immediate language performance, delayed retention, transfer to new tasks, and potential unintended outcomes such as off-task behavior or shallow task processing.

6. Subject-specific and human-centred competence in generative AI use

Within this bounded corpus, generative AI represents an emerging rather than a numerically dominant strand. The reviewed studies reported its use for material preparation, idea generation, language correction, summarization, writing support, and personalization. These reported uses overlap with the affordances identified for ChatGPT in language teaching and learning, although their pedagogical value depends on teachers' and learners' capacity to evaluate the generated output and use it ethically.⁶¹ Within the corpus, codes related to AI use frequently co-occurred with concerns about linguistic accuracy, overdependence, academic integrity, unclear institutional policy, and the continuing need for human judgement. These co-occurrences demonstrate that such concerns were present in the literature; however, they do not establish how frequently inaccurate or unethical uses occurred in practice.

This interpretation is consistent with UNESCO's human-centered framework, which organizes teacher AI competence across five dimensions: a human-centered mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning.⁶² In light of this framework and the reviewed evidence, limiting teacher preparation to prompt construction addresses only a subset of the competencies associated with responsible AI use. AI-related professional learning in English-language education could therefore include evaluating linguistic and cultural accuracy, identifying unsuitable registers and potential bias, designing tasks that preserve learner production and interaction, documenting permitted forms of AI assistance, and deciding when generated output should be revised or rejected. Corresponding institutional measures may include transparent assessment policies, equitable access to infrastructure, privacy safeguards, and procedures for identifying and responding to erroneous output. Because the corpus did not compare alternative professional development or governance models, these elements should be interpreted as proposed design priorities rather than components whose effectiveness has already been demonstrated.

⁶⁰ Zhang, Zou, and Cheng, "Technology-Enhanced Language Learning with Null and Negative Results since 2000: A Systematic Review Based on the Activity Theory."

⁶¹ Kohnke, Moorhouse, and Zou, "ChatGPT for Language Teaching and Learning."

⁶² Miao and Cukurova, *AI Competency Framework for Teachers*.

This position also corresponds with UNESCO's recommendation for human-centered, age-appropriate, ethical, and pedagogically validated uses of generative AI, rather than its unregulated adoption.⁶³ The ELT-specific conceptual contribution of this review is to position human oversight as both an ethical safeguard and a pedagogical requirement. In language education, such oversight concerns not only factual accuracy but also meaning, audience, voice, register, feedback quality, learner authorship, and intercultural appropriateness. This framing should be regarded as an evidence-informed proposition rather than a causal model. Further classroom-based and longitudinal research is needed to examine how different forms of teacher oversight influence language learning, learner agency, and responsible AI use in the classroom. This need is consistent with a recent systematic review showing rapid growth in generative AI language research but continuing limitations in longitudinal evidence and representation beyond higher education and EFL settings.⁶⁴

7. Contribution to ethical digital transformation and sustainable teacher capacity

This review contributes most directly to debates on ethical digital transformation and sustainable educational development, with equity operating as a cross-cutting condition. This positioning is consistent with system-level frameworks that treat technological access, governance, teacher preparation, and human capacity as interdependent conditions for equitable digital education.⁶⁵ Its principal conceptual contribution is a two-stratum synthesis in which evidence about Generation Z teachers is analytically distinct from contextual evidence about Generation Z learners. Consequently, generation is interpreted through professional, pedagogical, and institutional conditions rather than as an independent explanation of competence or practice.

The review's principal practical contribution is an evidence-based four-part framework for ethical digital transformation and sustainable teacher capacity. The framework comprises: (a) professional identity and early career resilience, (b) ELT-specific digital pedagogy, (c) critical AI literacy with human oversight, and (d) institutional support for equitable access, policy, mentoring, and professional learning. Equity operates as a cross-cutting condition because access to resources, professional recognition, mentoring, and opportunities for experimentation influence all four components of the framework.

The first component positions digital competence within teachers' professional development rather than treating it as a generational attribute. The second connects technology with language objectives, task design, interaction, assessment and feedback. The third emphasizes teachers' responsibility for evaluating the linguistic, cultural, pedagogical, and ethical appropriateness of the generated output. The fourth recognizes that individual

⁶³ Fengchun Miao and Wayne Holmes, *Guidance for Generative AI in Education and Research*, UNESDOC Digital Library (UNESCO, 2023), <https://doi.org/10.54675/EWZM9535>.

⁶⁴ Li et al., "Two Years of Innovation: A Systematic Review of Empirical Generative AI Research in Language Learning and Teaching."

⁶⁵ Global Education Monitoring Report Team, *Global Education Monitoring Report 2023: Technology in Education: A Tool on Whose Terms?* (GEM Report UNESCO, 2023), <https://doi.org/10.54676/UZQV8501>; OECD, *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*, OECD Digital Education Outlook (Paris: OECD Publishing, 2023), <https://doi.org/10.1787/c74f03de-en>.

professional agency depends partly on infrastructure, policy, leadership, mentoring, time, and access to continuing professional learning (CPD). The framework organizes recurring evidence and identifies relationships that may guide teacher education and institutional planning. This should not be interpreted as a validated competency model, intervention package, or causal sequence. The reviewed studies did not compare the effectiveness or relative importance of these components.

These components correspond with research linking early career digital competence to identity, mentoring, workload, institutional culture, leadership, resource availability, and technical and pedagogical support,⁶⁶ as well as research showing that teacher well-being is shaped by interacting personal and contextual conditions.⁶⁷ The digital pedagogy and AI literacy components similarly reflect evidence that professional digital competence extends beyond functional tool use and must be connected to teachers' roles, subject domains, pedagogy, and intended beneficiaries.⁶⁸ The framework organizes recurring evidence and areas of convergence with recent scholarship; however, it does not test the effectiveness, relative importance, or preferred sequence of its components.

For teacher education, the framework suggests integrating technology-rich lesson design with reflection on professional identity, classroom authority, emotional demands, language-learning objectives, learner participation, and ethical responsibility.⁶⁹ Induction and continuing professional development can extend this work through mentoring, peer observation, collaborative lesson design, analysis of learner work, and evaluation of instructional outcomes. These activities are proposed implementation mechanisms rather than interventions whose effectiveness has been established by the reviewed corpus. In relation to generative AI, professional learning should preserve teacher agency and connect technical knowledge with ethical evaluation, pedagogical design, privacy, and human oversight.⁷⁰

At the institutional level, equitable implementation requires attention to unequal connectivity, relevant language resources, staff time, privacy safeguards, technical assistance, and opportunities for teachers to experiment safely.⁷¹ Providing platforms without sustained pedagogical support risks reducing digital integration to functional or tool-centered use, while imposing expectations for innovation without reliable access may individualize constraints

⁶⁶ Masoumi and Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review."

⁶⁷ Tina Hascher and Jennifer Waber, "Teacher Well-Being: A Systematic Review of the Research Literature from the Year 2000–2019," *Educational Research Review* 34 (November 2021): 100411, <https://doi.org/10.1016/j.edurev.2021.100411>.

⁶⁸ Kohnke, Moorhouse, and Zou, "ChatGPT for Language Teaching and Learning"; Bjørn Smestad et al., "Examining Dimensions of Teachers' Digital Competence: A Systematic Review Pre- and during COVID-19," *Heliyon* 9, no. 6 (June 2023): e16677, <https://doi.org/10.1016/j.heliyon.2023.e16677>.

⁶⁹ Miao and Cukurova, *AI Competency Framework for Teachers*; Masoumi and Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review."

⁷⁰ Kohnke, Moorhouse, and Zou, "ChatGPT for Language Teaching and Learning"; Miao and Holmes, *Guidance for Generative AI in Education and Research*.

⁷¹ Global Education Monitoring Report Team, *Global Education Monitoring Report 2023: Technology in Education: A Tool on Whose Terms?*; OECD, *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*.

that originate at the institutional or system level.⁷² Table 4 summarizes these implications, the evidence supporting them, and the boundaries within which they should be interpreted.

Table 4. Evidence-bounded framework and implications for English-language education

Framework component	Evidence represented in the corpus	Implication for practice or policy	Evidence boundary
Professional identity and early-career resilience	Identity negotiation, authority, care, emotional demands, adaptation, mentoring, and career expectations	Teacher education and induction may connect identity reflection, mentoring, emotional support, and contextual problem-solving	Evidence was predominantly qualitative and self-reported; alternative mentoring and resilience programmes were not compared
ELT-specific digital pedagogy	Technology was discussed alongside language objectives, engagement, interaction, task relevance, feedback, and learner-centred practice	Professional learning may connect tool use with language content, proficiency, interaction, assessment, feedback, and supervised lesson design	Direct competence measures and comparative classroom evidence were limited
Critical AI literacy with human oversight	AI supported preparation, feedback, correction, and personalisation but raised concerns about accuracy, dependence, integrity, bias, and policy	Preparation may include output verification, register and bias evaluation, ethical task design, documentation of permitted use, and preservation of learner agency	AI studies were recent, small, and predominantly perception-based
Institutional support for equitable implementation	Infrastructure, access, training, mentoring, policy, time, privacy, and technical support shaped reported practice	Institutions may coordinate infrastructure, professional learning, assessment guidance, privacy safeguards, mentoring, and opportunities for supported experimentation	Geographic concentration and limited institutional comparisons constrain transferability

8. International relevance and limits of transfer

The corpus encompassed 16 named national or regional settings, but its geographical distribution was not uniform. Indonesia accounted for approximately one-third of the 41-document evidence map, whereas several countries were represented by only one article. These figures describe the distribution of documents retrieved by the review and should not be interpreted as indicators of research quality, national research productivity, or the prevalence of Generation Z-related practices. Similar geographical and participant imbalances

⁷² Masoumi and Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review"; Smestad et al., "Examining Dimensions of Teachers' Digital Competence: A Systematic Review Pre- and during COVID-19."

have been documented in second-language research, where reliance on a narrow range of countries, educational settings, and learner populations constrains generalizability.⁷³ Therefore, the present findings have particular contextual relevance to Indonesia and the Asian EFL settings represented in the corpus, but they cannot be treated as representative of Asia as a whole or of regions that were absent or weakly represented.

The two evidence strata were also imbalanced in this study. Contextual studies of Generation Z learners outnumbered direct studies of Generation Z English teachers by 29 to 12, or approximately 2.4 to 1. Consequently, claims about teachers' identities, competencies, and professional experiences should be based primarily on the 12 teacher-focused studies included in this review. The 29 learner-focused studies can clarify the instructional environments teachers may encounter, but they do not provide direct evidence of teacher characteristics. This distinction is especially important given the wider concerns about overgeneralizing findings from uneven samples in language research.⁷⁴

The international value of the synthesis may therefore lie less in proposing a universal profile of Generation Z and more in identifying recurring relationships among professional identity, pedagogical design, technology use and institutional conditions. These relationships should be regarded as transferable questions or sensitizing propositions rather than universal mechanisms demonstrated across educational systems. This interpretation is consistent with critiques showing that generational categories can obscure variations associated with age, career stage, historical period, and social context.⁷⁵ The local expression of the identified relationships should consequently be examined in relation to teacher status, curriculum, language policy, infrastructure, workload, leadership, and access to professional and pedagogical support.⁷⁶ Future cross-national research should compare whether these relationships recur, under what conditions, and with which outcomes, rather than assuming that the Generation Z label carries the same professional or educational meaning across countries.

9. Limitations, and priorities for research

One methodological strength of this review was its deliberate separation of direct teacher evidence from contextual learner evidence. All 41 mapped records had resolvable DOIs, and full texts were retrieved and extracted from 40. The remaining abstract-only records were retained in the descriptive evidence map but excluded from coding and thematic synthesis. The analytical corpus comprised 40 full-text articles, although the

⁷³ Emanuel Bylund, Zainab Khafif, and Robyn Berghoff, "Linguistic and Geographic Diversity in Research on Second Language Acquisition and Multilingualism: An Analysis of Selected Journals," *Applied Linguistics* 45, no. 2 (June 25, 2024): 308–29, <https://doi.org/10.1093/applin/amad022>; Luke Plonsky, "Sampling and Generalizability in Lx Research: A Second-Order Synthesis," *Languages* 8, no. 1 (March 6, 2023): 75, <https://doi.org/10.3390/languages8010075>.

⁷⁴ Bylund, Khafif, and Berghoff, "Linguistic and Geographic Diversity in Research on Second Language Acquisition and Multilingualism: An Analysis of Selected Journals"; Plonsky, "Sampling and Generalizability in Lx Research: A Second-Order Synthesis."

⁷⁵ Rudolph et al., "Generations and Generational Differences: Debunking Myths in Organizational Science and Practice and Paving New Paths Forward."

⁷⁶ Masoumi and Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review"; OECD, *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*.

evidence map contained 41 records. The integrative design accommodated qualitative, quantitative, mixed-methods, intervention, conceptual, and bibliometric publications without forcing their findings into a common-effect metric. Study-level quality flags were used to calibrate the evidentiary weight, particularly by distinguishing self-reported perceptions from observed practices, measured language outcomes, and controlled comparisons. These flags facilitated cautious interpretation; they were neither numerical quality scores nor substitutes for design-specific risk of bias assessment.

This study has several limitations. Restricting eligibility to English-language journal articles with resolvable DOIs introduced potential language, publication, and indexing biases and may have excluded relevant research published in local and regional outlets. Abstract-only articles can contribute bibliographic information but not thematic evidence. Study selection, extraction, methodological appraisal, and coding were performed by a single reviewer. Although structured forms, explicit operational definitions, DOI and full-text verification, and second-pass audits were used to improve consistency, the absence of independent duplicate screening and coding may have increased the risk of selection and interpretative bias. Therefore, coding frequencies should be understood as transparent descriptive indicators of the reviewed corpus rather than independently replicated measurements. In addition, common appraisal flags cannot capture all design-specific risks across empirical, conceptual, and bibliometric publications. A meta-analysis was not performed because the studies differed substantially in terms of populations, designs, constructs, interventions, comparison conditions, and outcome measures. Consequently, the synthesis should be interpreted as configurative and time-bound rather than statistically representative of a single underlying effect. This temporal qualification is particularly important because generative AI research in language education expanded rapidly between 2023 and 2024 and continued to develop during 2025–2026⁷⁷. The screening flow could not be reconstructed at the level of separate duplicate removal and reason-specific exclusion counts because the stored discovery records preserved only the total source entries and retained reports. Similarly, the supplementary search records preserved the 12 eligible additions but not the total search hits or record-level exclusion decisions. The PRISMA flow reports these pathways according to the preserved audit trail and does not retrospectively invent unavailable screening counts.

Research priorities are based on these limitations. Studies should state and justify their birth-year criterion for Generation Z and distinguish cohort membership from chronological age, career stage, teaching experience, and historical period effects.⁷⁸ Longitudinal and comparative designs are needed to examine how professional identity, digital competence, well-being, and resilience develop across teacher education, induction, and the early career

⁷⁷ Li et al., “Two Years of Innovation: A Systematic Review of Empirical Generative AI Research in Language Learning and Teaching.”

⁷⁸ Costanza, Rudolph, and Zacher, “Are Generations a Useful Concept?”; Rudolph et al., “Generations and Generational Differences: Debunking Myths in Organizational Science and Practice and Paving New Paths Forward.”

period.⁷⁹ Perception surveys should be complemented by classroom observations, lesson and material artifacts, analyses of learner work, language-performance measures, and delayed assessments. Combining observation, experience sampling, and stimulated recall may also provide a more context-sensitive account of engagement than cross-sectional self-reports alone.⁸⁰

Research on generative AI should compare tasks and pedagogical designs rather than tools in isolation. Studies should report the tool and model version, date of access, task instructions, prompting and feedback procedures, extent of human review, permitted learner use and relevant institutional policy. Outcomes should include linguistic and cultural accuracy, bias, privacy, learner authorship and agency, interaction, and possible dependence on time.⁸¹ Finally, multi-country collaborations using shared definitions and comparable measures could test whether the relationships identified in this review recur under different conditions in the future. Greater representation of rural, low-resource, multilingual, and currently underrepresented contexts would improve transferability while reducing the geographical concentration commonly observed in language research.⁸²

CONCLUSION

This review mapped 41 articles and synthesized 40 full texts on Generation Z English teachers and English education for Generation Z learners. The evidence does not support a single profile of Generation Z English teachers or learners. Digital familiarity was common, while professional competence and learning outcomes were reported in relation to pedagogical knowledge, task relevance, interaction, feedback, institutional support and access. Across the core studies, Generation Z English teachers were described as developing professionals who negotiated their identity, authority, care, resilience, and technological change. Their reported contribution extends beyond the rapid adoption of tools to curating resources, adapting tasks, evaluating AI output, and sustaining human relationships in diverse teaching conditions. The findings support the connection between professional identity and resilience with English-specific digital pedagogy, AI literacy, ethical judgement, and supported classroom practice in teacher education and professional development.

The article's contribution is a stratified, evidence-bound synthesis that separates direct teacher evidence from contextual learner evidence and interprets generation through professional, pedagogical, and institutional conditions. It proposes a four-part framework

⁷⁹ Hascher and Waber, "Teacher Well-Being: A Systematic Review of the Research Literature from the Year 2000–2019"; Masoumi and Noroozi, "Developing Early Career Teachers' Professional Digital Competence: A Systematic Literature Review."

⁸⁰ Giulia Sulis, "Exploring the Dynamics of Engagement in the Language Classroom: A Critical Examination of Methodological Approaches," *Research Methods in Applied Linguistics* 3, no. 3 (December 2024): 100162, <https://doi.org/10.1016/j.rmal.2024.100162>.

⁸¹ Kohnke, Moorhouse, and Zou, "ChatGPT for Language Teaching and Learning"; Miao and Holmes, *Guidance for Generative AI in Education and Research*.

⁸² Bylund, Khafif, and Berghoff, "Linguistic and Geographic Diversity in Research on Second Language Acquisition and Multilingualism: An Analysis of Selected Journals"; Plonsky, "Sampling and Generalizability in Lx Research: A Second-Order Synthesis."

comprising professional identity and early career resilience, ELT-specific digital pedagogy, critical AI literacy with human oversight, and institutional support for equitable access, policy, mentoring, and professional learning to address these challenges. Equity operates across all these components. The framework links ethical digital transformation with sustainable teacher capacity but does not establish the effectiveness or preferred sequence of specific interventions. Within this corpus, generation functioned more usefully as a marker of historically situated experience than as an explanation of teaching quality or language learning.

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