

Virtual Professional Learning Communities (PLCs) in EFL Teacher Development: A Systematic Review

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KEYWORDS

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ABSTRACT

Virtual professional learning communities (PLCs) are an influential model of teacher professional development in the field of English as a Foreign Language (EFL), offering an alternative to traditional top-down training. Unlike conventional approaches, virtual PLCs leverage digital technologies to foster sustained collaboration, reflective practice, and the co-construction of pedagogy among teachers. In this systematic review, we synthesize evidence from 50 peer-reviewed studies to examine the impact of virtual PLCs on teacher development in EFL contexts. Following PRISMA guidelines, studies were screened for methodological quality using the Mixed Methods Appraisal Tool (MMAT) and thematically analyzed to identify patterns and outcomes. Our analysis indicates that virtual PLCs enhance teacher development in intercultural competence, digital literacy, reflective practice, and collaborative lesson planning. Digital platforms provide flexibility, opportunities for timely problem-solving, professional networking, and the advancement of innovative pedagogical practices. However, the review also highlights significant challenges to virtual PLC implementation, including the digital divide, uneven engagement within communities, and insufficient structural support from institutions, all of which affect effectiveness, equity, and sustainability. Overall, our findings illustrate the multidimensional opportunities afforded by virtual PLCs for supporting teacher learning. Future virtual PLC initiatives should address structural inequalities, integrate emerging technological tools, and consider longitudinal evidence of impact on both teachers and students to maximize the potential of these digital professional learning spaces. The review concludes by outlining concrete possibilities for designing effective, context-sensitive virtual PLCs for EFL teachers.

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Introduction

Over the last 10 years, Virtual Professional Learning Communities (VPLCs) have become a notable breakthrough in the professional development of EFL teachers. In contrast to conventional methods, which are generally based on separate workshops or the top-down structure of training, VPLCs are facilitated by online platforms that provide teachers with the opportunity to immerse themselves in extensive professional inquiry, reflective practice, as well as co-operative problem-solving, which can be done regardless of their physical location. These communities, which are available online and off, give educators the opportunity to share ideas, find immediate solutions to their classroom problems, and re-evaluate their professional identities (Shadlou & Kashef, 2025; Kianinezhad, 2024).

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A substantial body of empirical literature and systematic reviews demonstrates the multiple advantages of online PLCs and telecollaborative spaces for teachers. Further, studies reveal that online PLC participation enhances intercultural competence, digital literacy, and innovative pedagogical practices and offers emotional, collegial, and motivational support (Shadlou & Kashef, 2025; Talebi, 2025; Emir & Yangin-Eksi, 2024; Jin et al., 2023; Stavermann, 2025; Philipsen et al., 2019; García-Martínez et al., 2020; Li et al., 2024; Cao & Yu, 2023; Pawan et al., 2023; Jiang, 2025; Tabassum & Saad, 2024). Moreover, these communities go beyond mere knowledge sharing; they function as dynamic sites of practice where professional identity, resilience, and innovation are continuously negotiated and sustained.

Research further differentiates between institutionally sponsored and teacher-led networks, highlighting the necessity for the combined use of synchronous tools (e.g., video conferencing, live chat) and asynchronous platforms (e.g., repositories, forums) to secure the participation of all members and the adaptability of the networks in different teaching contexts (Lantz-Andersson et al., 2018; Vangrieken et al., 2017; Rizqi & Syafika, 2024; Lay, 2023). The role of institutional leadership and the support given are singled out as the main factors of success over and over again as they offer resources, guarantee continuity, and assist in integrating VPLCs into the wider professional growth plans.

The COVID-19 pandemic did not only speed up the adoption of VPLCs, but it also triggered their academic investigation. While these communities became the lifelines of professional networks during the months when schools were closed worldwide, the crisis was also a mirror reflecting the digital divide that still exists (Hennessy et al., 2022; Rizqi & Syafika, 2024). Recent studies emphasize that the duration and effect of VPLCs are contingent upon variables like the prominence of the institution, the support of the management, and the integration into the professional development framework over time (Tan & Yunus, 2023; Zamiri & Esmaeili, 2024). On the other hand, the use of virtual reality, artificial intelligence, and adaptive learning platforms for future collaborative opportunities has been welcomed by the education field; however, their value in education is still largely unknown (Wang & Li, 2024).

Despite their promise, VPLCs continue to face challenges. The digital divide, uneven participation, and lack of context-sensitive design frequently hinder their transformative potential (Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022). Under-resourced teachers risk marginalization, while insufficient scaffolding can reduce collaboration to superficial exchanges rather than meaningful professional growth. These challenges underscore the need for nuanced, contextually grounded approaches to designing and sustaining VPLCs.

Against this backdrop, the current review amalgamates recent empirical studies and systematic reviews to trace the effects of virtual professional learning communities (VPLCs) on English as a foreign language (EFL) teacher development. It seeks to familiarize with the latest research, delineate the unresolved issues, and provide well-grounded suggestions for utilizing the technology-enabled collaboration that not only taps into its possibilities but also takes care of its limitations.

Advancements in Information and Communication Technology (ICT) have opened new avenues for addressing these challenges. Technology-Enhanced Language Learning (TELL) and Technology-Enhanced Personalized Language Learning (TEPLL) hold the promise to revolutionize learner engagement in the learning process (Nosratinia et al., 2015). Learners can use authentic materials, engage in simulated speaking practice, and receive feedback with the aid of digital tools such as mobile apps, online platforms, and virtual classrooms (Ghayebi & Farrokh, 2020). However, incorporating technology into language education also presents challenges, shaped by learners'

attitudes, available resources, and the social and pedagogical setting (Taumuratov, 2023). Despite growing interest in TELL in Iran, few studies have systematically examined the impact of TEPLL on speaking skills, particularly through a theoretical lens that integrates learner choice and intrinsic motivation—representing a critical gap this study aims to fill. This study therefore aimed to analyze the effectiveness of TEPLL on the speaking skills of Iranian EFL learners through the Innovative Choice Learning Theory (ICLT), a new theory drawn up by the researchers. ICLT states that optimal language learning occurs when learners are granted meaningful choice, exposed to relevant and novel content, and supported in developing competence—principles operationalized here through the Speechling platform. The purpose of this study was to give an explanatory introduction of ICLT and examined the results of the study through this new lens.

Method

A systematic investigation was performed to find research on virtual professional learning communities (PLCs) that help develop English as a Foreign Language (EFL) teachers. The study utilized major academic databases, including Semantic Scholar and PubMed, as well as related repositories, to find theoretical and empirical research regarding virtual professional learning communities (PLCs). The search strategy implemented seven thematic query clusters to achieve both methodological rigor and thematic comprehensiveness, which included:

1. Theoretical underpinnings of professional learning communities
2. Context-specific considerations in EFL teacher professional development
3. Technological affordances and innovations in virtual and online platforms
4. Collaborative and telecollaborative practices
5. Barriers and constraints to effective implementation
6. Measures and indicators of teacher learning and developmental outcomes
7. Institutional and leadership support mechanisms

For this review, studies were included if they directly examined virtual professional learning communities (PLCs) in the professional development of EFL teachers, appeared as peer-reviewed journal articles or conference papers, provided empirical evidence or systematic review results, and were written in English. Excluded from the analysis were articles that discussed general online learning communities without explicitly mentioning EFL teacher development, were theoretical and non-empirical, were duplicates or inaccessible, or constituted grey literature (e.g., dissertations, reports, or unpublished papers). These requirements ensured that the review included only high-quality, relevant studies.

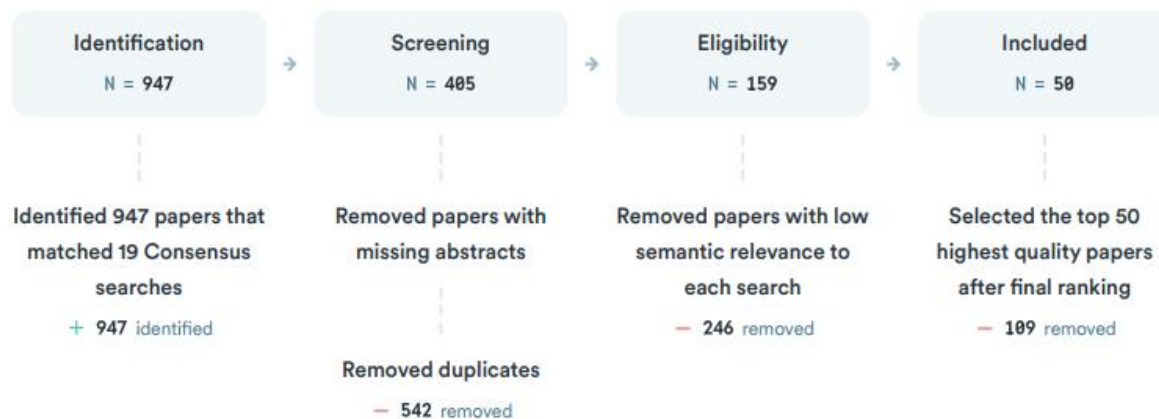
Accordingly, the initial pool of 947 records was obtained through this strategy. The removal of 542 duplicates and records without abstracts left 405 studies for initial screening. The examination of 159 articles then proceeded. After excluding 246 studies for insufficient semantic value. Additionally, the evaluation of methodological quality and thematic relevance led to the selection of 50 studies, which formed the final basis for synthesis and analysis. Moreover, Figure

1 shows the complete overview of identification through screening to eligibility assessment and inclusion, following the PRISMA framework.

The research studies were evaluated using the 2018 version of the Mixed Methods Appraisal Tool (MMAT), which allows researchers to assess studies employing qualitative, quantitative, and mixed-methods approaches. The evaluation system awarded each study scores on five specific aspects: research-question clarity, study-design suitability, data-collection adequacy, data-analysis rigor, and consideration of limitations and bias. The synthesis incorporated studies that fulfilled three or more of the five criteria to demonstrate moderate to high quality. The review established its conclusions through data which remained consistent and reliable during the whole evaluation process.

Figure 1

Flow diagram showing how studies were identified, screened, assessed for eligibility, and selected for inclusion in the review.



Results

This section presents a combined analysis of systematic review findings about virtual professional learning communities (PLCs) that focus on their influence on EFL teacher development. The analysis is based on 50 selected studies, which group findings into four main themes: (1) defining attributes of virtual PLCs, (2) their impact on teacher development, (3) technological affordances and challenges, and (4) barriers to sustainability and long-term effectiveness. The analysis framework offers a comprehensive evaluation of virtual PLC operations, along with their practical advantages for teachers and various success factors across multiple EFL settings, while Tables 1 and 2 present influential authors and representative studies to highlight key contributors and their research methodologies and finally, Table 3 systematically links each main claim of the review to the supporting evidence from the included studies, clearly showing how the conclusions are directly supported by empirical evidence.

Attributes of Virtual PLCs in EFL Contexts

The digital platforms in virtual PLCs provide users with opportunities for professional interaction, collaboration, and learning. Thus, the most commonly utilized platforms consist of discussion forums and learning management systems, as well as social media platforms and telecollaboration tools, which combine both real-time and delayed communication methods (Emir & Yangin-Eksi, 2024; Jin et al., 2023; Stavermann, 2025; Philipsen et al., 2019; García-Martínez et al., 2020; Li et al., 2024; Cao & Yu, 2023; Pawan et al., 2023; Jiang, 2025; Tabassum & Saad, 2024).

Additionally, the professional requirements of teachers are addressed through either institution-structured or teacher-initiated informal communities. Virtual PLCs thus maintain their core features of peer support, collaborative knowledge construction, reflective practice, and professional growth across various formats (Lantz-Andersson et al., 2018; Vangrieken et al., 2017; Lay, 2023; Pandian et al., 2022). Therefore, the structure allows educators to develop solutions together for classroom problems while sharing teaching methods and establishing enduring professional connections, which strengthen both personal and group teaching development. Moreover, Table 1 displays the key authors and journals that have advanced research in this domain by showing which researchers and publication outlets have made significant contributions to the understanding of virtual PLCs.

Table 1

Top Contributors

Type	Name	Papers
Author	M. Yunus	(Ramalingam et al., 2022; Tan & Yunus, 2023)
Author	Inmaculada García-Martínez	(García-Martínez et al., 2020; Fernández-Batanero et al., 2020)
Author	B. Philipsen	(Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020)
Journal	Teaching and Teacher Education	(Lantz-Andersson et al., 2018; Vangrieken et al., 2017; Jiang, 2025; Lefstein et al., 2020)
Journal	Sustainability	(Ramalingam et al., 2022; Tan et al., 2022; Tan & Yunus, 2023)
Journal	J. Comput. Assist. Learn.	(Jin et al., 2023; Wang & Li, 2024)

Impact on Teacher Development

The reviewed studies demonstrate that virtual PLCs serve to improve essential professional competencies in multiple ways. Various research studies show that teachers gain intercultural competence, digital literacy, reflective practice, and collaborative lesson planning (Emir & Yangin-Eksi, 2024; Jin et al., 2023; Stavermann, 2025; Philipsen et al., 2019; Li et al., 2024; Cao & Yu, 2023; Pawan et al., 2023; Jiang, 2025; Rizqi & Syafika, 2024; Tabassum & Saad, 2024).

Additionally, the process of participation enables individuals to develop self-assurance, along with flexibility and student-centered instructional methods. Virtual exchanges, combined with telecollaboration, serve as operational links that connect theory to practice, thus helping educators enhance their technical teaching skills while they try new teaching approaches (Emir & Yangin-Eksi, 2024; Mačičková & Kováčiková, 2024; Tabassum & Saad, 2024). Thus, the development of teachers' critical practice evaluation skills enables them to execute new pedagogical methods while they actively engage in professional learning communities for both personal growth and collective advancement. As a result, Table 2 presents a comparative analysis of fundamental research studies, including their research methods, participant groups, key findings, and technological tools used. The summary presents various methods and their outcomes from virtual PLC research to support the analysis of teacher development impact.

Table 2

Comparison of Key Studies on Virtual PLCs in EFL Teacher Development

Paper	Methodology	Focus/Population	Key Results	Technology/Tools
(Emir & Yangin-Eksi, 2024)	Systematic review	EFL teacher education (2013-2023)	Telecollaboration enhances intercultural, technological, and instructional skills.	Synchronous and asynchronous tools
(Jin et al., 2023)	Systematic review	Online PLCs (general)	Technology empowers bottom-up communities, supports collaboration, and rapid support.	Mixed digital platforms
(Lantz-Andersson et al., 2018)	Systematic review	Online teacher communities (2000-present)	Both formal/informal PLCs support collegiality and professional growth.	Varied online platforms

Paper	Methodology	Focus/Population	Key Results	Technology/Tools
(Philipsen et al., 2019)	Meta-aggregative review	Online/blended TPD (general)	Identifies key components for effective TPD in OBL.	LMS, forums, videos
(Hennessy et al., 2022)	Systematic review	TPD in LMICs	Technology-mediated TPD shows benefits, but evidence for sustainability is limited.	Virtual coaching, blended learning

Technological Affordances and Challenges

Virtual professional learning communities (PLCs) provide unique technological affordances that improve accessibility, collaboration, and professional learning. Engaging in various forms of social interaction allows for immediate peer access for guidance, broad networks of practice, and the option to participate based on convenience. Moreover, this flexibility allows teachers to participate on their schedules and according to their preferences (Jin et al., 2023; García-Martínez et al., 2020; Cao & Yu, 2023; Pawan et al., 2023; Jiang, 2025). Such sociocultural frameworks for engagement are important, for example, when teachers are members of teacher-led networks where they collaboratively contribute to the community by creating content, sharing resources, and working together to problem-solve.

However, several challenges can limit the overall benefits of virtual learning community experiences. Digital inequities, stunted participation, and the inability to effectively apply facilitators with effective technology (e.g., VR, AI, etc.) are all ongoing issues. Additionally, without leadership quality, trust among participants, and a shared sense of community among a group, the possibilities for effective exchange would mainly be a social gathering. In other words, having access to technology is only part of incorporating a meaningful professional learning experience for teachers (Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022; Tan & Yunus, 2023; Vangrieken et al., 2017; Rizqi & Syafika, 2024; Lay, 2023).

Barriers, Limitations, and Sustainability

Virtual professional learning communities (PLCs) encounter what Phillips et al. (2019) termed structural and operational constraints. Structural barriers often relate to technology infrastructure, teacher preparedness, and alignment with the wider educational context (Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022; Tan & Yunus, 2023). Placing emphasis on the wider context of educational policies, Phillipsen et al. (2019) highlighted that professionals are steadfastly held to policies pertaining to inclusion versus exclusion, even in cases where the original policies may be outdated. Considerations of sustainability are often hampered

by funding constraints, sporadic support from institutions, and lack of longitudinal data to assess long-term impact (Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022; Anghel et al., 2025; Zamiri & Esmaeili, 2024).

Moreover, the literature on virtual PLCs especially calls for educators to build context-sensitive implementation processes, engage in ongoing professional learning opportunities, and research and serve underserved teacher populations (Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022; Tan & Yunus, 2023). In conclusion, virtual PLCs are a promising avenue for professional learning, creativity, and collaboration in practice. Ultimately, their success may be linked to a match of technology, institutional support, quality of leadership, and active participation from the community, while ensuring outcomes are sustainable and accessible. Moreover, the researchers summarize the main claims emerging from the synthesis of reviewed studies, alongside the strength of supporting evidence (Table 3).

Table 3

Claims and Supporting Evidence from the Systematic Review of VPLCs

Claim	Evidence Strength	Reasoning	Representative Sources
Virtual PLCs enhance teachers' intercultural competence, digital literacy, and reflective practice.	Strong	Multiple systematic reviews and meta-analyses consistently show positive outcomes across varied contexts.	(Emir & Yangin-Eksi, 2024; Jin et al., 2023; Stavermann 2025; Philipsen et al., 2019; Li et al. 2024; Cao & Yu, 2023; Pawan et al., 2023; Jiang 2025; Rizqi & Syafika 2024; Tabassum & Saad, 2024)
Technology empowers teacher-driven communities and supports rapid, flexible collaboration.	Strong	Syntheses highlight technological affordances that facilitate collaboration, peer networking, and problem-solving.	(Lantz-Andersson et al., 2018; Jin et al., 2023; García-Martínez et al., 2020; Cao & Yu, 2023; Pawan et al. 2023; Jiang, 2025; Lay, 2023; Pandian et al., 2022)
Institutional support and leadership are critical for sustaining effective VPLCs.	Moderate	Reviews and empirical studies underline leadership, policy, and institutional scaffolding as	(Vangrieken et al., 2017; Rizqi & Syafika, 2024; Lay, 2023)

Claim	Evidence Strength	Reasoning	Representative Sources
		enablers of long-term engagement.	
Barriers such as digital inequity and lack of training constrain effectiveness.	Moderate	Several systematic reviews and empirical studies report persistent structural and skill-related barriers.	(Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022; Tan & Yunus, 2023)
Evidence for long-term sustainability and student outcomes remains limited.	Moderate	Few studies provide longitudinal or outcome-based data; most focus only on short-term teacher learning.	(Philipsen et al., 2019; Portillo-Berasaluce & De La Serna, 2020; Anghel et al., 2025; Hennessy et al., 2022; Zamiri & Esmaeili, 2024)
VPLCs are less effective in low-resource or marginalized contexts without targeted support.	Weak	Limited studies in LMICs show mixed results; equity gaps remain significant.	(Portillo-Berasaluce & De La Serna, 2020; Hennessy et al., 2022; Tan & Yunus, 2023)

Discussion

The literature on virtual professional learning communities (PLCs) in EFL teacher development has evolved exponentially. There is a considerable body of evidence demonstrating the positive impact of virtual PLCs on teacher learning, collaboration, and pedagogical innovation (Emir & Yangin-Eksi, 2024; Jin et al., 2023; Stavermann, 2025; Philipsen et al., 2019; Li et al., 2024; Cao & Yu, 2023; Pawan et al., 2023; Jiang, 2025; Rizqi & Syafika, 2024; Tabassum & Saad, 2024). Additionally, within and across various educational contexts, virtual PLCs enhance teacher digital literacy, intercultural competence, and reflective practices, indicating their multidimensional potential as professional development tools that extend beyond traditional in-person professional development.

A thorough analysis of existing research shows multiple intricate problems which affect how virtual PLCs support EFL teacher development and their influence on educational outcomes. Virtual PLCs function as more than information exchange platforms because they serve as spaces where educators construct their professional identity while developing innovative teaching

practices. Teachers who participate in these groups develop better reflective practices and intercultural abilities and flexible teaching methods, which help them transfer academic theories into practical classroom activities. Virtual PLCs operate through technological features, which include synchronous video discussions and asynchronous forums and digital information repositories that enable flexible teamwork and fast problem solving and support the use of new teaching methods. Virtual PLCs need institutions to maintain their long-term worth through strategic program development and operational backing. The success of professional development requires leaders who back the program and policies that match the objectives and teams that have the correct structure and size and proper facilitation. Virtual PLCs lose their value as professional development tools when structural and organizational supports are absent.

Systematic reviews show that virtual PLCs deliver major professional and educational advantages, which help teachers develop digital skills and reflective practices and intercultural competence. However, these benefits coexist with critical challenges. Teacher involvement tends to be uneven because some staff members choose to participate at a low level while others decide to leave completely, which creates doubts about fairness and acceptance. Weak IT systems and poor organizational backing create an environment which threatens the ability to maintain long-term success. The VPLC initiatives become less effective when teachers must participate in voluntary activities because this creates extra work, which leads to burnout.

In spite of the growing interest in emerging technologies, including virtual reality (VR) and artificial intelligence (AI), their integration into VPLCs has not yet yielded robust empirical evidence of impact. Therefore, there is a need for balanced, strategically guided implementation. VPLCs can expand opportunities for inclusive teacher development, but they face multiple systemic obstacles that must be addressed. Achieving sustainable equity requires organizations to implement strategic institutional plans, carefully designed programs, and iterative evidence-based evaluation.

Moreover, a synthesis of the literature on virtual PLCs offers several important insights. First, participation promotes core teaching competencies, reflective practice, intercultural competence, and digital literacy, consistent across previous systematic reviews and meta-analyses (Cao & Yu, 2023; Pawan et al., 2023). Second, the technology affordances of virtual PLCs support flexible, teacher-driven collaboration, rapid knowledge construction, and context-relevant problem solving. Next, institutional support (leadership and policy) and intentional program design (scope, size, facilitation, prompts, and use of technology) are critical for sustaining PLC engagement. Without these, engagement declines over time. Also, asynchronous virtual PLCs continue to face inequities related to the digital divide, technology access, and efficacy, limiting their effectiveness in low-resource or marginalized contexts. Educators and teacher education programs need to be mindful of these issues. Finally, while evidence on teacher outcomes from virtual PLC participation is strong, questions remain regarding sustainability, cost-effectiveness, and transfer of learning to student outcomes, representing the next phase of research in teacher professional development.

Moreover, the implications of these insights are both research- and practice-related. Virtual PLCs demonstrate considerable promise; however, their effectiveness depends on careful attention to context, equitable access, and alignment with institutional priorities. The potential of new technologies (e.g., VR and AI) in teacher professional learning remains largely unexplored, creating notable opportunities for innovation. Addressing these gaps is necessary not only to enhance teachers' practices but also to improve student outcomes.

Conclusion

For future research, we recommend three key areas of focus. First, longitudinal studies are needed to examine the sustainability of virtual PLC impacts on teacher practice and student learning outcomes. Such research would strengthen the evidence base for policy, funding, and program design, with lasting effects on professional development. Second, equitable implementation should be prioritized. Research should explore how PLCs can be adapted for lower-resource or marginalized contexts to ensure professional development opportunities are inclusive and accessible. Lastly, evaluation of innovative technologies (VR, AI, and adaptive technologies) is necessary to assess new avenues for collaboration and professional development, including pedagogical effectiveness and practical feasibility.

In summary, virtual PLCs represent a new paradigm for EFL teacher development, promoting collaboration, reflective practice, digital skills, and teaching innovations. Fully harnessing their potential requires addressing longstanding equity challenges, thoughtfully integrating emerging technologies, and generating evidence on impact, sustainability, and long-term outcomes. That is, by prioritizing these efforts, educators, researchers, and policymakers can ensure that virtual PLCs are sustainable, inclusive, and impactful, strengthening teacher quality and student learning outcomes.

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