

## The Reflective Crucible: Negotiating Professional Identity and Agency Through a Synergistic CRP Model

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 [10.22080/iselt.2026.30053.1124](https://doi.org/10.22080/iselt.2026.30053.1124)

### Received

September 13, 2025

### Accepted

June 5, 2026

### Available online

June 24, 2026

### Keywords:

Collaborative Reflective Practice (CRP), Professional Identity, Professional Agency, Sociocultural Theory.

### Abstract

This qualitative narrative inquiry probes into how engagement in a synergistic model of collaborative reflective practice (CRP), incorporating class-based, information and communication technology (ICT)-mediated, and artificial intelligence (AI)-driven reflection, influences the construction of professional identity and agency among novice and experienced English-as-a-foreign-language (EFL) teachers in Iran. Established in sociocultural theory, the study engaged 30 teachers in a 9-month professional development (PD) initiative. Data from life-story interviews, digital logs, reflective essays, and observations were thematically analyzed. Findings show that the multi-modal CRP model worked as a transformative crucible for professional development. For novice teachers, the model offered critical scaffolding, diminishing initial anxiety and facilitating a shift from a fragile, survival-focused identity towards greater confidence, competence, and agentive decision-making. For experienced teachers, the process was remarkably generative; collaboration with peers and engagement with AI stimulated critical questioning of ingrained practices, propelling them towards the roles considered by transformative leadership and mentorship. The study concludes that technology-mediated CRP is basically a relational, context-dependent space where teacher identity is constantly constructed, highlighting the significance of designing integrated professional learning ecosystems that leverage the synergistic potential of human community and digital tools to support teachers' identity and agency across the career span.

## 1. INTRODUCTION

Collaborative reflective practice (CRP) has emerged as a transformative alternative to traditional, top-down professional development (PD) initiatives. CRP places teachers not as passive recipients of externally produced knowledge but as co-constructors of PD within collaborative, inquiry-based learning communities (Farrell, 2015; Mann & Walsh, 2017; Salmani Ghasemzadegan et al., 2025). Grounded in sociocultural theory (Vygotsky, 1978), CRP underscores the fundamentally collective

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nature of teacher learning, where identity development and PD are enabled by means of collaboration, mutual meaning-making, and mutual problem-solving. Typically, CRP has been enacted within physical spaces, workshops, staff rooms, and classrooms, where collegiality, trust, and direct communications cultivate the openness needed for significant reflection (Kelly & Cherkowski, 2015). Nevertheless, in the digital age, these reflective spaces have extended. Information and communication technology (ICT) tools have significantly reduced geographical and temporal limitations, allowing asynchronous and continuous professional conversation across institutional and even national settings (Trust et al., 2016). More recently, the growth of artificial intelligence (AI), mainly generative tools like ChatGPT, has introduced a novel aspect into this reflective environment (Ratten & Jones, 2023). Such tools provide not only immediate, personalized feedback but also act as catalytic partners in reflection, encouraging teachers to probe their instructional practices, beliefs, and assumptions with unique immediacy and depth (Kohnke et al., 2023).

In spite of developing scholarly attention to class-based CRP, ICT-mediated reflection, and AI-facilitated professional learning, much of this work inspects these modalities in isolation. An important gap remains in understanding their synergistic combination, that is, how deliberate collaboration between face-to-face, ICT-based, and AI-driven modes of reflection may nurture richer and more transformative PD. This study extends this line of inquiry by examining these modalities in combination and exploring their integration into a synergistic CRP model that utilizes the unique affordances of each modality to create a more continuous, multi-layered, and powerful reflective space. This integrated model posits that the entire reflective practice becomes greater than the sum of its parts when these modalities are strategically combined. When these modalities are incorporated into an integrated reflective framework, they make distinctive affordances that reform the process of PD. Engagement with this multi-modal reflective environment influences not only how teachers reflect but also how they build their professional identities and exercise agency in their practice (Petsilas et al., 2020). In this sense, identity can be perceived as the evolving narrative that teachers construct about who they are, what they value, and how they enact their roles within particular sociocultural settings (Solari & Martín Ortega, 2022). Agency refers to teachers' capacity to act persistently and thoughtfully on those identities in order to shape their pedagogical practices and professional trajectories (Priestley et al., 2015). Identity and agency are interdependent constructs: Identity forms the basis for agentive action, while acts of agency associate, reconfigure, or challenge professional identity (Utami, 2025).

This study addresses these perceived gaps by exploring the following research question: How does engagement in a synergistic CRP model integrating class-based, ICT-mediated, and AI-driven reflection shape the construction and negotiation of professional identity and agency among novice and experienced English-as-a-foreign-language (EFL) teachers in Iran? By grounding the inquiry in the under-researched Iranian milieu, this study re-conceptualizes CRP not merely as a collection of techniques or strategies. As an alternative, it approaches synergistic CRP as a sociocultural space, a crucible where tools, professional communities, and personal profiles intersect to shape the identities teachers construct about themselves and the ways those narratives are enacted in practice. This study intends to provide a comprehensive understanding of how technology can be used not as a substitute for human beings but as an ancillary equipment to help them. In doing so, the research underlines how an empowered, resilient, and adaptive teaching profession can be promoted to address the challenges and complexities of contemporary language education.

## 2. LITERATURE REVIEW

### Professional Identity and Agency in EFL Teaching

Teacher professional identity is increasingly understood not as a fixed attribute but as a flexible, socially constructed narrative that develops through collaboration, experience, and constant reflection (Furlong & Gorman, 2025). In EFL teaching, identity formation is extremely complex. Teachers must navigate the tension between globally prevalent English teaching methodologies, often rooted in Western teaching traditions, and the local cultural, linguistic, and institutional realities in which they work (Pennycook, 2017). This negotiation requires teachers to continually renegotiate their professional roles and identities, striking a balance between external expectations and beliefs and their own values about teaching and learning.

For novice EFL teachers, the process of identity formation is vitally important. Many enter the profession with idealized conceptions of instruction and identities principally shaped by teacher education programs and their own past experiences as learners (Shahri, 2018). Nevertheless, these ideal identities are often challenged or destabilized by the complex realities of classroom teaching, including following exam-driven curricula, teaching large classes, managing disruptive students, and meeting diverse student needs (Alshakhi & Le Ha, 2020). This dissonance can lead to what scholars term an identity crisis, a period of struggle in which novice teachers attempt to reconcile their instructional ideals with institutional constraints. At this stage, their professional agency tends to weaken because much of their energy is spent on survival strategies such as classroom management and basic curriculum implementation, leaving insufficient capacity for novelty or critical reflection (Farrugia, 2021).

By contrast, experienced EFL teachers often exhibit identities that are more stable, routinized, and grounded in experiential wisdom (Mehdizadeh et al., 2024). Over time, they cultivate a set of strategies that empower them to explore institutional demands with relative ease, thereby offering them greater opportunity to exercise professional judgment. Nonetheless, such stability is not without risks. Kelchtermans (2009) warns against professional inertia, a state in which teachers become resistant to instructional creativity or reform. Under such circumstances, agency may be regarded as preserving the status quo instead of embracing transformative action.

Agency, thus, should be assumed as more than the capacity to act within certain structures, emphasizing the ability to act innovatively, question established assumptions, change conventional routines, and readjust pedagogical practice in response to emerging beliefs, values, and contextual demands (Bridwell-Mitchell, 2015). Such a perspective underlines the reciprocal relationship between identity and agency. Identity offers an interpretive framework through which teachers improve their professional world, while agentic acts function as opportunities to confirm, challenge, or adjust one's professional self (Lord, 2023). In EFL settings, where teachers constantly explore the intersection of global discourses of English and the local realities of classrooms, this iterative cycle of identity and agency becomes central to both PD and instructional innovation.

### Collaborative Reflective Practice as a Site for Identity and Agency

Reflective practice has long been recognized as a foundational element of professional learning and a chief driver of the continuous development of teacher identity (Gul et al., 2025). Conventionally considered an individual's introspective engagement with their own experiences, reflection has increasingly incorporated more collaborative approaches (Arefian & Esfandiari, 2024). CRP situates this process within a community of practice (CoP) (Wenger, 1998), where identity is not only an individual construct but also a relational one, constantly constructed through

contribution, reflection, collaboration, and mutual meaning-making. Significantly, CRP also nurtures teacher agency by positioning practitioners not as passive recipients of knowledge but as active contributors to professional discourse and practice. Through CRP, teachers negotiate their capacity to act with intention and influence both their own instructional practices and the collective norms of their professional community (Ehren & Hwa, 2025).

Within CRP, teachers participate in shared inquiry through activities such as exchanging narratives of success and failure, investigating classroom interactions, and providing constructive feedback (Wang et al., 2025). These practices nurture a collective investigation of what counts as “good teaching” in a given environment, while also helping individual teachers to externalize internal problems and express tacit beliefs (Arefian, 2026). Through this process, teachers receive validation from their peers; they are also encouraged to question their assumptions and explore new perspectives. In this case, CRP is both supportive and threatening, creating a strong tension that affects identity negotiation and development (Sherman & Teemant, 2025).

For novice teachers, CRP often works as a vital scaffold. Novice teachers regularly enter the profession with uncertain identities and inadequate instructional repertoires, and they benefit from opportunities to move from peripheral participation, primarily observing, listening, and slowly contributing, to more active and continuous engagement within a professional community (Johnson & Golombek, 2016). CRP alleviates the sense of isolation many novice teachers experience, supporting them in linking the theoretical knowledge acquired through teacher education programs to the real-world, situated knowledge essential for classroom practice (Korucu-Kış, 2021). This combination helps them experience the shift from being student teachers to experienced teachers. In this way, CRP promotes novice teachers’ agency by offering them planned opportunities to progressively take initiatives, make instructional choices, and test new approaches within a supportive setting (Burhan-Horasanlı & Hart, 2024).

For experienced teachers, CRP provides a diverse range of critical functions. Over time, many practitioners foster routinized practices that, while effective, can become automatic and resistant to adjustment (Arefian, 2026). CRP changes this habit by generating a space for what Farrell (2015) terms critical incident analysis, moments when taken-for-granted practices are probed, reframed, and possibly reimaged. Through CRP, experienced teachers can re-engage with the moral and relational aspects of their work, renewing their professional purpose and bringing their practice into closer alignment with shared values and collective goals (Morgan, 2019). For experienced teachers, CRP regenerates professional agency by enabling them to exercise greater autonomy in their practices, challenge institutional restrictions, and engage as co-constructors of shared educational futures. Thus, CRP functions not only as a forum for methodological problem-solving but also as a place for deeper identity work, supporting teachers’ motivation and professional vitality across diverse career phases (Soh, 2025).

### **The Technological Mediation of Reflection, Identity, and Agency**

The integration of technology into professional learning has added new layers of complexity to reflective practice and teacher identity. ICT-supported CRP, through applications such as Telegram, WhatsApp, or Skype, fosters CoP beyond the physical limitations of schools and training sessions. These digital spaces facilitate continuous, informal, and often asynchronous conversations, enabling teachers to collaborate on, share, and refine challenges, resources, and perceptions in real time (Trust et al., 2016). Such a sustained interaction fosters relational connections and a sense of belonging, a vital component of professional identity development (Wenger, 1998). In addition to identity formation, these digital interactions develop teachers’ professional agency by offering flexible opportunities to initiate a dialogue, exchange ideas, and

exert influence within communities that are not constrained by institutional hierarchies or geographical boundaries (Roumbanis Viberg et al., 2023).

The advent of AI tools represents an even more profound paradigm shift in how reflection and identity are facilitated. Conversational agents such as ChatGPT are not constrained by time or availability and can function as ever-accessible, non-judgmental reflective partners (Wang et al., 2024). AI tools, unlike human beings, can instantaneously generate alternative perspectives, prompt metacognitive questioning, and offer data-informed insights into instructional decisions (Arefian, 2026). These collaborations are not just transactional; they are basically relational and identity-laden. When teachers use AI to help assess a lesson plan, expect possible student responses, or produce teaching strategies, they are engaging in a form of conversation that strongly shapes their professional thinking and their sense of self as educators. These engagements also reinforce agency by equipping teachers with direct access to various perspectives, supporting them in making more informed teaching choices and taking ownership of their instructional decisions.

At the same time, AI-mediated reflection presents major challenges. The risk of over-reliance on algorithmic guidance can undermine teachers' critical autonomy, resulting in uncritical implementation of recommendations that may not be contextually appropriate (Nopas, 2025). Furthermore, the decontextualized nature of AI feedback, often detached from the nuanced realities of specific classrooms, cultures, or learner groups, can create tensions between teachers' theoretically acquired knowledge and their practical suggestions. Selwyn (2019) emphasizes the need to develop critical AI literacy: the capacity to probe, adjust, and selectively incorporate AI-produced understandings into practice in agentive rather than compliant ways. In this sense, the promotion of agency becomes central: Teachers are placed not simply as users of AI tools but as critical agents who dynamically assess, adjust, and incorporate technological insights into their own professional repertoires. AI-fostered reflection does not reduce the prominence of human agency but rather increases the need for teachers to exercise discernment, professional judgment, and reflexivity. Technology-mediated CRP, whether through ICT platforms or AI tools, reshapes not only the mechanics of reflection but also the interpersonal dynamics of professional identity (Ghiasvand & Seyri, 2025). Not only do teachers' contribution in these places contributes to innovative forms of belonging, innovative modes of self-expression, and novel opportunities for agency (Jiang et al., 2022), but it also presents novel ethical and instructional questions about autonomy, authenticity, and the developing role of human and non-human agents in professional learning.

L2 scholars suspect whether AI-mediated reflection may fundamentally alter or diminish the human, relational core of teacher learning. Critics maintain that when researchers use AI tools as conversational partners in reflective practice, they risk substituting authentic, vulnerable human dialogue with algorithmically generated feedback that lacks genuine empathy, shared experience, and contextual attunement (Erbay-Çetinkaya, 2025). From this perspective, embedding AI into collaborative reflective practice is not a neutral tool but a potentially transformative technological breakthrough that reconfigures teacher professional learning as a human-machine hybrid activity, where the unpredictability, messiness, and emotional depth of peer-led reflection may be replaced by efficient, decontextualized responses (Erbay-Çetinkaya, 2025). Such scholars argue that even when teachers apply AI agentively, the very structure of AI-mediated reflection may gradually erode the mutual vulnerability, trust, and relational care that support meaningful professional identity work in communities of practice (Arefian et al., 2026; Luo, 2024; Lyu et al., 2025). Endorsing AI-mediated reflection, thus, must include a more nuanced understanding of whether and when AI should be introduced into reflective spaces, rather than assuming that its incorporation into teacher education programs is primarily a progressive and forward-looking policy.

## Theoretical Framework of the Study

This study is grounded in sociocultural theory (Vygotsky, 1978), which states that human learning and development are basically social and cultural processes, mediated by physical and psychological tools. The framework encompasses three major principles that are vital for knowing the construction of professional identity and agency within a synergistic CRP model. Firstly, the principle of mediation posits that higher-order psychological functions, including professional reflection and identity formation, are facilitated through cultural tools and signs. In this study, these tools are not only the traditional forms of discussion but also ICT platforms and AI, which function as advanced mediators that scaffold and extend teachers' reflective capacities. Secondly, the social origin of higher mental functions highlights that learning and development first happen on an interpersonal plane through collaboration within a community before being internalized on an intrapersonal plane. This explains the study's focus on CoPs, where knowledge, identity, and a sense of agency are co-constructed through collaboration with peers, mentors, and facilitators.

The third principle is the zone of proximal development (ZPD), the gap between what a person can achieve individually and what he or she can accomplish with support from more knowledgeable others or collaboration with skilled peers. Within the synergistic CRP model, ZPD is extended for all participants: Novice teachers benefit from AI and experienced peers who help link the distance between their present abilities and their potential competence and confidence, while experienced teachers use AI and interactions with novices that contribute to critical reflection and challenge recognized practices, opening pathways for leadership and innovation. Through this lens, sociocultural theory underlines how the interplay between human communities and technological tools nurtures a dynamic, evolving ecosystem for teacher development.

## Gaps in the Literature and This Study's Contributions

Although the existing literature highlights the centrality of professional identity, agency, and CRP in teacher development, and has started to examine the role of technology, much of this work remains fragmented (Thambinathan et al., 2025). Previous studies have examined face-to-face, ICT-mediated, and AI-supported reflection in isolation, considering each as a discrete modality with its own affordances and challenges (Kim, 2024). As a result, there is an inadequate understanding of how these modalities might be purposefully incorporated into a synergistic system of reflection. The absence of such a perspective limits the potential of multi-modal CRP to generate richer, more dynamic spaces for professional learning (Pan et al., 2025). Furthermore, existing research often overlooks how reflective practices influence teachers differently at different stages of their careers. Although novice and experienced teachers exchange shared challenges, their identity trajectories, expressions of agency, and reflective needs differ considerably (Groenewald & Arnold, 2025).

An additional gap lies in the limited exploration of how sociocultural contexts, where institutional structures, cultural expectations, and technological infrastructures intensely form teachers' engagement with reflection. In contexts like Iran, where centralized curricula, exam-oriented systems, and conventional top-down professional development models prevail, teachers' opportunities for meaningful, collaborative identity work are often constrained (Askaribigdeli, 2021). Moreover, technology adoption in those contexts is mediated not only by infrastructure but also by wider cultural and institutional attitudes towards autonomy, authority, and innovation. This makes Iran a particularly compelling case for exploring how synergistic CRP can function as a counterbalance, offering teachers alternative spaces for agency and PD.

This study tries to address these gaps by exploring how a deliberately integrated CRP model, incorporating class-based, ICT-mediated, and AI-driven reflection, works as a crucible for the simultaneous development of practice, identity, and agency. This study aims to address these gaps by proposing and evaluating a synergistic CRP framework, grounded in the assumption that a multi-modal approach can more efficiently support the complex process of identity negotiation and agentic action across different career stages. By examining how novice and experienced EFL teachers in Iran engage in this multi-modal reflective ecosystem, the study provides a broader account of teacher development in the digital age. Its value lies not only in identifying the unique affordances of each modality but also in theorizing their communication as a sociocultural atmosphere where tools, communities, and biographies converge. In doing so, this research highlights how technology can foster, rather than dilute, human connection and professional empowerment, although it also foregrounds the contextual specificities that shape these processes.

### 3. METHODOLOGY AND DESIGN

#### Research design

This study used a qualitative narrative inquiry, a methodology mainly well-suited to exploring the lived experiences, meaning-making processes, and identity work essential in professional practice (Clandinin & Connelly, 2000). Narrative inquiry relies on the idea that humans understand and shape their lives through stories; therefore, examining how teachers narrate their experiences within a synergistic CRP model offers valuable insights into the development of their professional identities and the agentic choices they implement in practice.

Implementing a narrative approach allowed the researchers to understand the richness and complexity of teachers' experiences in ways that other methodologies, such as surveys or experimental designs, cannot. It focused on the temporal, social, and spatial features of identity construction and agency, supported by a sociocultural perspective. The temporal element placed the teachers' narratives within their career trajectories, helping the researchers observe how identity and agency changed over time. The social aspect highlighted the relational environments of learning, concentrating on interactions within the CoP, encompassing both human peers and technologically mediated agents. The spatial or place-based aspect underlined the importance of the Iranian educational setting—with its centralized curricula, exam-oriented structures, and specific sociocultural norms—in influencing teachers' professional experiences (Clandinin, 2013).

Instead of aiming for generalizable or universal truths, narrative inquiry focuses on depth, contextualized understanding, and the identification of resonant themes that reveal wider patterns across individual stories. By probing the intersections of identity, agency, and multi-modal CRP within these storied experiences, this study offers a nuanced account of how PD unfolds in complex, technology-mediated learning atmospheres.

#### Participants and setting

A purposive sampling strategy (Campbell et al., 2020) was used to select 30 EFL teachers from public junior high schools across various districts of Tehran, Iran. The sample was purposefully selected to confirm maximum variation, including 15 novice teachers with less than five years of teaching experience and 15 experienced teachers with more than ten years of professional practice (Gottfried et al., 2025; Yang, 2022). The participants ranged in age from 24 to 52 and included both male (n = 14) and female (n = 16) teachers, representing a range of linguistic backgrounds, such as Farsi, Turkish, and Kurdish. Teachers were selected based on their willingness to participate in a long-term, technology-embedded PD initiative and their varying levels of ICT

familiarity, ranging from limited to innovative use. Such diverse familiarity enabled the researchers to capture different experiences and perspectives on the incorporation of class-based, ICT-mediated, and AI-supported reflective practices.

The research was implemented over 9 months to allow the researchers sufficient time to observe developmental trajectories and examine how CRP processes became embedded within the participants' professional routines. The Iranian educational context is mainly significant for this study. Centralized curricula, pronounced resource disparities between schools, and culturally mediated norms around authority, collaboration, and professional autonomy generate a unique backdrop against which teachers negotiate identity and exercise agency. Placing the study in this setting allows for an in-depth awareness of how teachers navigate structural constraints while engaging in reflective practices that leverage both human and technological resources.

### **The Synergistic CRP Intervention**

The intervention was planned as a joint, multi-modal model of CRP, merging class-based, ICT-mediated, and AI-supported reflection to generate a dynamic and continuous professional learning ecosystem. The three modalities were sequenced and incorporated to create a continuous reflective cycle: AI-driven reflection often functioned as an initial, private catalyst for ideas; next, these ideas were shared and developed through asynchronous ICT-mediated discussion; and finally, the ideas were deepened, contextualized, and translated into action during class-based meetings. Three mixed-experience CoPs were formed (as explained below), each including five novice and five experienced teachers. This structure allowed for peer learning across different career stages while nurturing mentorship, conversation, and collective inquiry.

#### ***Class-Based CRP***

The face-to-face modality included bi-weekly meetings in which the teachers planned collaborative activities supported by ALACT (Action, Looking back on the action, Awareness of essential aspects, Creating alternative methods of action, and Trial) model (Korthagen & Nuijten, 2022). The five stages of ALACT offered a space for reflective engagement: The teachers applied lessons (Action), shared mutual experiences and outcomes with peers (looking back), identified challenges and critical issues (awareness), brainstormed various strategies (creating alternatives), and experimented with revised approaches in subsequent lessons (trial). Activities encompassed peer observations, mentoring circles, collective lesson planning, and group discussions, all designed to support both reflective depth and practical problem-solving. This modality foregrounded the relational and social aspects of reflection, allowing the teachers to externalize internal dilemmas, receive feedback, and co-construct their understandings of effective practice.

#### ***ICT-oriented CRP***

Each CoP sustained a dedicated WhatsApp group to support asynchronous communication and continuous collaboration. These groups played different roles: sharing lesson plans and teaching resources, posting reflections on classroom experiences, gaining instant advice on fostering challenges, and running face-to-face meetings. The ICT-mediated space offered a low-stakes, flexible, and constant channel for dialogue, extending the reflective community beyond the temporal and spatial restrictions of the school context. Teachers were able to engage in iterative, peer-supported reflection, which protected relational bonds, reinforced a sense of professional belonging, and provided just-in-time problem-solving support.

### *AI-driven CRP*

The teachers were trained to include ChatGPT as a reflective and instructional support tool. AI collaborations involved producing reflective prompts (e.g., “Analyze the assumptions behind your selected activity today”), offering feedback on lesson plans, simulating potential student responses, and probing different teaching strategies. These collaborations were intended to supplement, rather than replace, human collaboration, working as a cognitive and reflective partner that could stimulate metacognitive questioning, develop perspective taking, and encourage professional conversation. AI-mediated reflection encouraged teachers to engage analytically with their own practice, explore assumptions, and experiment with advanced approaches in a safe, non-judgmental setting.

By integrating these three modalities, the intervention produced a synergistic reflective environment in which the teachers could engage in individual, peer-mediated, and technologically supported reflection. The combined approach was designed not only to foster instructional practice but also to cultivate the iterative development of professional identity and agency across career stages, leveraging both human and technological resources in a cohesive, jointly situated learning milieu.

### **Data Collection Methods**

Data were collected over the 9-month intervention to capture the development of teachers’ professional identities and agentic practices across the synergistic CRP model. The study used various data sources to ensure triangulation, depth, and richness, allowing for a broad understanding of teachers’ lived experiences and meaning-making processes. Life-story interviews served as the main data source, conducted with all 30 participants at the beginning and end of the study. These in-depth, semi-structured interviews, each lasting between 60 and 90 minutes, provided an opportunity for teachers to narrate their professional journeys, share their beliefs about instruction, and reflect on their initial identities. Interviews also explored the participants’ initial experiences with the CRP model, capturing anticipations, expectations, and observed challenges. At the final stage, interviews were conducted to explore these narratives in order to identify changes, development trajectories, and emergent themes in both identity and agency, emphasizing the longitudinal influence of engagement in multi-modal reflective practices. The semi-structured interview protocol was developed based on the study’s conceptual framework and piloted with two non-participant teachers. It contained core questions (e.g., ‘Can you describe a pivotal moment in your PD during this program?’) with follow-up sessions to probe individual narratives profoundly.

All interviews were conducted in Persian by the first author, audio-recorded, and transcribed verbatim. A professional translator, then, performed a blind back-translation of a 20% sample to confirm the accuracy of the English transcripts used for analysis. This back-translation process was mainly used to verify semantic and conceptual equivalence between the Persian interviews and the English translation, rather than achieving word-for-word, literal correspondence. In a few cases where discrepancies were found (e.g., nuanced differences in expressions of teacher anxiety or agency), the first author and the translator discussed the contested segments until consensus was reached.

Digital artifacts from ICT and AI-mediated interactions formed a second rich layer of data. WhatsApp group chat messages, containing shared resources, peer feedback, reflective posts, and discussion threads, were collected and anonymized to preserve confidentiality. Logs of teachers’ collaborations with ChatGPT, including reflective prompts, lesson plan analyses, simulated student responses, and instructional explorations, were systematically archived. The WhatsApp

data (approximately 1,500 text messages and shared files) was exported as text files. All the participant names and identifying details were replaced with pseudonyms at the point of extraction. ChatGPT interaction logs were gathered monthly through screenshots and text copies provided by participants, resulting in over 200 distinct reflective exchanges. These were collected into a single dataset with metadata including the teacher, date, and reflective modality (e.g., ‘lesson plan feedback,’ ‘simulated dialogue’). Together, these digital records offered a continuous, real-time account of both collaborative sense-making and individual engagement with technology, capturing the rhythms, patterns, and intensity of reflection that extended beyond face-to-face encounters.

Reflective essays provided the third lens through which the teachers’ developing understandings could be probed. The participants were instructed to write essays at the beginning, mid-point, and end of the study, focusing on their perceptions of PD, challenges encountered in implementing novel strategies, and shifts in their self-concept as educators. Essays were supported by particular prompts (e.g., ‘reflect on a time when feedback from the AI tool or a peer changed your approach to a classroom challenge.’) with a recommended length of 500-800 words. The essays were submitted digitally and saved electronically for reflective depth over time. These narratives helped teachers exchange internal reflections that might not surface in interactive contexts, offering useful insights into personal meaning making and identity negotiation.

Finally, comprehensive field notes were taken throughout all class-based CRP meetings. Observational records included group dynamics, patterns of contribution, mentoring exchanges, and prominent discussion points. Notes also took moments of critical incident analysis, emotional responses, and unprompted problem-solving, offering contextualized ideas into how face-to-face CRP shaped both practice and professional self-understanding.

By connecting interviews, digital artifacts, reflective essays, and field notes, the study generated a rich dataset that enabled the tracing of narrative development over time, the triangulation of findings across modalities, and the recognition of themes fostered by teachers’ collaborations with peers, technology, and their own reflective processes. This multi-modal approach guaranteed that the complexities of identity construction and agentic action in the setting of synergistic CRP were captured in depth and nuance.

## Data Analysis

Prior to data analysis, all data types (interview transcripts, digital logs, essays, and field notes) were organized in a qualitative data analysis software program (NVivo 12) to facilitate systematic coding, while the coding process itself was conducted manually to ensure deep immersion in the data.

Data analysis followed a systematic, multi-phase thematic approach informed by narrative-inquiry principles (Braun & Clarke, 2006). To ensure a rigorous and manageable process, the researchers manually coded all the data, including interview transcripts, digital logs from ICT- and AI-mediated collaborations, reflective essays, and field notes. This approach confirmed deep engagement with the data types and enhanced the iterative development of themes embedded directly in the dataset.

The analytic process was mainly inductive, generating patterns to develop from the data without imposing pre-existing theoretical constructs. The first stage involved narrative coding, which entailed careful and repeated reading of the data to identify participants’ stories, reflections, and experiences that revealed the processes of identity construction and agentic action. This stage emphasized the temporal, social, and contextual aspects of participants’ narratives, capturing how they made sense of their PD within the synergistic CRP model.

Following narrative coding, thematic coding was applied across the dataset. Initial codes were created to capture persistent ideas, actions, and reflections. These codes were then reviewed, refined, and consolidated into broader themes through an iterative process, ensuring alignment with the data while preserving the complexity and depth of participants' experiences. Themes were continuously checked against both the coded extracts and the full dataset to confirm their representativeness and validity. The analysis also focused on identifying patterns and divergences between novice and experienced teachers, allowing for nuanced understanding of how professional identity and agency evolve across different career stages. A summary of the analytic stages and the procedures used at each stage is presented in [Table 1](#), which summarizes the analytic phases used in the study (from narrative coding to final interpretation), the associated procedures, and validation strategies employed to ensure trustworthiness.

**Table 1: Stages of Data Analysis Procedures**

Stage of Data Analysis	Procedure / Description
<b>1. Data Familiarization &amp; Narrative Logging</b>	<p>A. All data types (interviews, digital logs, essays, and notes) were compiled in NVivo 12 for analysis.</p> <p>B. The first author conducted repeated, active reading of the full dataset, creating narrative logs for each participant to capture key stories and contextual factors.</p>
<b>2. Initial Code Generation</b>	<p>A. Using a manual, inductive approach, the first author systematically coded semantically meaningful segments across the entire dataset.</p> <p>B. Codes were descriptive (e.g., 'resisting exam culture,' 'WhatsApp for just-in-time support'). This created an initial codebook of 150+ codes.</p> <p><b>C. Coding Reliability:</b> An independent researcher coded a 15% sample (3 interviews, 2 WhatsApp logs). Inter-coder agreement was calculated (Cohen's Kappa = 0.82). Disagreements were discussed until consensus was reached, refining code definitions for clarity.</p>
<b>3. Theme Development</b>	<p>A. The first author collated all data extracts for each code and used NVivo 12 to examine code co-occurrence and frequency.</p> <p>B. Codes were iteratively sorted, compared, and grouped into potential candidate themes (e.g., 'Negotiating Structural Constraints,' 'The AI as a Catalytic Tool').</p> <p>C. Theme viability was checked against the entire dataset in a recursive process: Did the theme capture a meaningful pattern? Was there sufficient data to support it?</p> <p>Candidate themes were reviewed and refined in collaboration with the second author (supervisor). This stage involved the following steps:</p>
<b>4. Theme Review &amp; Refinement</b>	<ol style="list-style-type: none"> <li>1. Checking if themes worked in relation to the coded extracts,</li> <li>2. Checking if themes accurately represented the <i>broader</i> dataset,</li> <li>3. Generating clear definitions and names for each theme, and</li> <li>4. Distinguishing overarching themes from sub-themes.</li> </ol>
<b>5. Final Interpretation &amp; Naming</b>	<p>A. The essence of each theme was finalized, and a compelling narrative was constructed to link the analysis back to the research questions on identity and agency.</p> <p>B. The audit trail in NVivo and reflexive memos documented all iterations of the codebook and thematic map.</p>

Trustworthiness was ensured through numerous strategies. Credibility was supported through triangulation across multiple data sources, while member checking enabled participants to review and refine the interpretations of their narratives ([Birt et al., 2016](#)). Peer debriefing with colleagues

and academic supervisors added external scrutiny, and a thorough audit trail documented analytic decisions, coding iterations, and theme development to guarantee transparency and methodological rigor (Ali & Shaban, 2025). Through this process, the data were systematically interpreted to help the researchers construct a clear, richly textured account of how engagement in a synergistic CRP model influenced the development of professional identity and agency, while also capturing the dynamic and contextually positioned nature of teachers' experiences.

### Researcher Positionality and Reflexivity

As a narrative inquiry concerned with co-constructed meaning, the researchers' positionalities are essential to data interpretation. The first author, who implemented all the stages of data collection and main analysis, is an Iranian language educator with extensive experience in the national EFL context. This insider status fostered deep rapport and a nuanced understanding of the sociocultural and institutional nuances in the participants' stories. Nevertheless, it also required ongoing reflexivity to ensure that shared assumptions did not go unchallenged. To address this, the first author maintained reflective memos throughout the intervention process, documenting how his own experiences, beliefs about teacher agency, and interactions might influence data generation and interpretation.

These memos and analytic decisions were scrutinized through two key reflexive practices. Firstly, during peer debriefing sessions with doctoral colleagues (as noted in Table 1), the first author's interpretations were questioned by an external expert, and necessary modifications were subsequently made. Secondly, the second author (the research supervisor), who provided methodological information, reviewed the coding framework and thematic development to challenge insider biases and enhance analytical rigor. The third author contributed an editorial review concentrated on clarity and coherence. This layered, collaborative approach to reflexivity—combining insider depth with structured external scrutiny—was central to developing a credible analysis of the teachers' identity and agency work.

### Ethical Considerations

This study included human participants, personal narratives, and the collection of digital communication data; thus, strict ethical protocols were followed. Before commencing the research, the study design, procedures, and instruments received full approval from the Institutional Review Board (IRB) at Imam Khomeini International University.

Informed consent was collected from all the participants. A detailed consent form was presented to the participants in Persian. The form outlined the study's purpose, the nature of participation (including submission of reflective essays, life-story interviews, and the archiving of digital interactions from WhatsApp and ChatGPT), the expected duration, and potential benefits and risks. The form explicitly specified that participation was voluntary, that participants could withdraw from the study at any time without penalty, and that all the information related to their identity was kept confidential. Heavy emphasis was placed on the use of their digital data: participants consented to the anonymized collection and analysis of their WhatsApp group messages and ChatGPT interaction logs for research purposes. They were informed that all identifying information (e.g., names, schools, and specific locations) would be removed and replaced with pseudonyms in all forms of stored data and subsequent publications.

To protect participant confidentiality, the researchers saved all forms of data types—transcripts, digital logs, audio recordings, and essays—on a password-protected computer, with identifying information separated from the main research data. During analysis and reporting, all

the participants were assigned pseudonyms. The WhatsApp groups created for the study were used solely for professional discussion related to the intervention, and the data were collected only after obtaining explicit informed consent from participants. Concerning AI interactions, the participants were instructed to avoid sharing any personal or student information in their prompts to ChatGPT, further minimizing privacy risks.

#### 4. FINDINGS

The inductive thematic analysis revealed that the synergistic CRP model became a transformative space in which EFL teachers frequently transferred and reformed their professional identities while exercising agency. Across class-based, ICT-mediated, and AI-supported modalities, teachers' narratives showed how their engagement with the CRP model both challenged and fostered their sense of agency as professionals. The themes in this section reflect patterns that appeared from close, iterative reading of the data, demonstrating both common and divergent experiences between novice and experienced teachers. It is important to note that while these themes point to the perceived shifts in identity and agency, the study's data mainly capture moments of reflection and reported change within the CRP cycle. Thus the analysis traces emerging pathways and subjective experiences of transformation, rather than measuring sustained, longitudinal change in practice outside the CRP context. [Table 2](#) summarizes the main themes, the CRP modalities, and the effects on the teachers' professional identity and agency, explicitly differentiating between novice and experienced teachers.

**Table 2: Themes, CRP Modalities, and Effects on Teacher Identity and Agency by Career Stage**

Theme	Career Stage	CRP Modality	Observed Effects on Identity & Agency
Scaffolding Identity	Novice	Novice	Reduced anxiety, shared experience, beginning agentive practice
		Class-based	
		ICT-mediated	Ongoing peer support, reassurance, problem-solving
Disturbing Identity	Expert	AI-mediated	Practice partner for skill rehearsal, confidence boost
		Class-based	Cognitive challenge to routines, stimulated experimentation
Negotiating Pressures	Novice	ICT & AI	Collective interpretation, mentorship opportunities
	Experienced	ICT & AI	Balance institutional constraints with innovation; strategic use of tools

#### Theme 1: Scaffolding Novice Identity: From Anxiety to Agentive Practice

Novice teachers entered into the CRP with delicate professional identities established by anxiety, uncertainty, and feelings of inadequacy. Many novice teachers regarded the early stages of their careers as an overwhelming attempt, as narrated by Novice Teacher 2 in one of the interviews:

On the first day, I kept thinking I wasn't ready. I felt like my students would understand I was acting. Every mistake felt like proof that I didn't belong in front of the classroom. I even thought about leaving more than once.

This sense of isolation was gradually moderated through the CRP's cooperative spaces. During class-based sessions, novice teachers recognized that their anxieties were not unique but shared, as one of the teachers stated: "Once I heard others talking about the same anxiety, it was like a load lifting off my shoulders. I perceived that I wasn't failing; I was just beginning. That changed the way I looked at myself" (Novice 03, Interview). This excerpt demonstrates a crucial first step in identity work: the normalization of struggle and the reduction of isolation through mutual experience. Although this supportive moment is foundational, it signifies a shift in affect (from isolated anxiety to shared vulnerability) more than it directly evidences a restructured professional identity.

ICT-mediated reflection prolonged this supportive environment beyond the classroom. WhatsApp groups became the core of reassurance and quick problem-solving. Teachers regularly texted each other throughout instructional hours, asking for recommendations or simply sharing obstacles. One novice teacher expressed such a concern this way: "I sent a voice note late at night about my lesson plan, and after an hour, unexpectedly, two colleagues had answered with thoughtful understandings. I felt I wasn't alone in this profession" (Novice 06, Reflective Essays).

AI-mediated reflection also played a significant role in lowering fear and boosting confidence. Some novice teachers viewed ChatGPT as a *practice partner*. Novice teacher 2, for example, expressed confidence as follows:

I was too nervous to ask my supervisor fundamental questions, so I asked ChatGPT instead. It gave me the courage to walk into class prepared, and the next day, I could really exchange my ideas in the CRP group without feeling small. (Reflective Essay)

The CRP model scaffolded novice teachers' fragile identities via a mixture of human solidarity, digital peer support, and AI-empowered rehearsal. These modalities helped them to move from reactive survival to more agentive and reflective instructional practices. Collectively, these modalities offered a scaffold that reduced immediate anxiety and created conditions conducive to agentive practice. The data show novice teachers may begin to experiment and reflect within the protected space of the CRP. However, whether this led to a consolidated, durable shift in their professional identity or mainly provided temporary support and rehearsal would need observation of their independent classroom practice over time.

## Theme 2: Disturbing Expert Identity: From Stability to Transformative Leadership

Experienced teachers enter the CRP with robust professional identities entrenched in years of practice. However, their narratives showed that steadiness often evolved into routine and satisfaction. One of the experienced teachers explains his experimentation with GPT as follows:

This narrative shows AI working as a disruptive tool that triggered cognitive dissonance and a break from routine. The emotional response—embarrassment mixed with excitement—signals a potential inflection point for identity, where previous expertise is unsettled. The single successful experiment, yet, is an example of adaptation; its lasting influence on the teacher's core sense of self as an 'expert' remains an open question from this data point alone.

I have taught the present perfect tense the same way for fifteen years. I could do it in my sleep. My students learned, but I recognize that I teach mechanically. When AI recommended a role-play, I laughed initially... but then I implemented it, and it performed so well. I was embarrassed that I had not thought of it myself, and at the same time, I felt excited again. (Experienced 02, Interview)

AI-produced recommendations often disturbed deep-rooted habits, generating cognitive dissonance. In the beginning, this was met with struggle, as one of the teachers reflected:

I assumed I didn't need a machine to tell me how to teach. However, when I gave it a chance, I saw students more involved than ever before. It was humbling. It prompted me that learning never stops—even for teachers. (Experienced 04, Reflective Essay)

Class-based CRP sessions were vital for interpreting and contextualizing these problems. Teachers cooperatively tried out AI-inspired strategies, adjusting them to local settings. In doing so, experienced teachers often assumed mentorship roles, supporting novices through reflective conversations, as commented by one of the experienced teachers: “AI offered me novel insights, but the group provided me the courage to test them. I wanted to indicate to the younger teachers that even with experience, you can still be a learner” (Experienced 01, Interview).

For experienced teachers, the CRP model transformed agency from sustaining expertise towards embracing experimentation and leadership. Their role shifted from individual mastery to cooperative mentorship, modeling how stability and creativity could co-occur, as noted by one of the experienced teachers: “I used to concentrate on improving my own lessons, but now I find myself implementing novel approaches together with my colleagues, directing them while learning myself” (Experienced 01, Reflective Essay).

For experienced teachers, the CRP model created a forum where agency could be reoriented towards experimentation and mutual leadership. The data showcase how expert teachers engage in new mentoring behaviors and express a renewed learner identity within the CRP. These works exemplify a meaningful expansion of their professional repertoire and self-concept in this context, though the depth and permanence of this shift are not fully measurable here.

### **Theme 3: Negotiating Pressures: Institutional Identity vs. Innovator Identity**

A common thread among both novice and experienced teachers was the negotiation between institutional constraints and the practices supported by CRP. Teachers spoke regularly about curricular rigidity, administrative expectations, and pressure to follow. One participant pointed out that “our syllabus is like a wall. Even when I want to try something novel, the wall is there, prompting me to finish the book by week ten. Occasionally I feel more like a worker than a teacher” (Novice 08, Interview).

At the same time, CRP fostered an innovator identity that motivated teachers to experiment. ICT platforms functioned as safe spaces to exchange strategies for balancing compliance with creativity. One experienced teacher described how AI gave her leverage:

Occasionally, when I wanted to persuade my mentor to try a different activity, I explained to them that it came from AI. That gave my recommendation more weight, as if it wasn't just my crazy idea. I used AI as a supporter to push back against tradition. (Experienced teacher 01, Reflective Essay)

Teachers vigorously explored institutional demands and their developing sense of agency. Instead of being constrained by limitations, they used ICT and AI as both reflective tools and as strategic resources for supporting adaptation, highlighting the constant negotiation between conformity and novelty in identity construction. As one teacher noted, “I did my best to incorporate AI to restructure my lesson plan, but I needed to modify it to meet the school's guidelines. It made me reconsider how I can transform within the rules” (Experienced Teacher 04, digital logs). This continuous negotiation shows that identity work is iterative and contested, not linearly transformative. The ‘innovator identity’ nurtured by CRP was at odds with the ‘institutional identity,’ and teachers’ agency was exercised exactly within this tension. The findings demonstrate strategic adaptation and cognitive reframing, rather than a wholesale rejection of one identity for another.

#### Theme 4: The Relational Crucible: Integrating Human and Technological Mediation

The transformative potential of the CRP model focused on the incorporation of its modalities. Teachers' stories described cyclical processes where AI-generated experimentation, ICT sustained conversation, and class-based sessions fostered collective learning. One novice teacher described this cycle as follows:

I used an idea from AI, and I exchanged it in the WhatsApp group. Friends provided me feedback, and we deliberated it in class. I refined it again. It felt like a circle of support where my instruction kept developing with every turn (Novice Teacher 07, Reflective Essay).

Teachers explained that human relationships offered emotional grounding and interpretive guidance, whereas AI contributed novelty and disruption. The interplay prohibited collective conformity while encouraging adaptive thinking. One of the experienced teachers summarized it neatly as follows: "It wasn't AI or the WhatsApp or the class alone; it was the way they associated. Each part fed the other. Together, they made me understand myself from different perspectives as a teacher" (Experienced Teacher 03, Interview).

The proportional incorporation of human and technological mediation appears to have generated a resilient ecosystem for supporting reflective practice and collaborative experimentation—key processes in identity development. The cyclical interplay described by the participants helped the ideas be tested and refined socially. As one teacher noted, "Implementing AI beside my colleagues helped me understand various methods ..." (Novice Teacher 06, Digital logs). This implies the model's synergy lies in fostering a social process of trial and reflection, which teachers experienced as positively shaping their professional selves.

Whereas the thematic analysis discovered dominant patterns structured by the novice-experienced dichotomy, it is significant to acknowledge that the outcomes were not uniform within these groups. The data included contradictory cases and variations that underline the complexity of professional identity development. For example, not all novice teachers experienced a smooth transition from anxiety to agentic practice; novice teachers, for example, consistently struggled with comparing themselves with their peers in the CRP sessions, as seen in this excerpt, "Seeing others adjust rapidly made me feel even more behind. I started to avoid sharing in the group" (Novice Teacher 05, Reflective Essay). Likewise, among experienced teachers, resistance to AI-mediated disruption was evident. One experienced teacher took a skeptical stance during the sessions, commenting that, "These tools are a distraction from the basics of teaching. My routine works, and my students' results prove it. I didn't come here to have a machine question my methods" (Experienced 05, Interview). This participant's engagement never moved beyond superficial engagement, and experienced teachers mainly used the CRP's class-based modality to support current practices rather than to experiment. These exceptions highlight that the CRP model worked as a potential transformative space, but individual agency, predetermined beliefs, and contextual factors mediated its influence. Admitting this complexity prevents overgeneralization of the themes and presents a more nuanced picture of the professional identity negotiations at play.

## 5. DISCUSSION

This study set out to explore how engagement in a synergistic model of CRP, incorporating class-based, ICT-mediated, and AI-driven reflection, influences the construction and negotiation of professional identity and agency among novice and experienced EFL teachers in Iran. The findings indicate that this multi-modal ecosystem worked as a powerful crucible for PD, albeit in distinct yet complementary ways for teachers at different career stages. In this section, we interpret these findings through the lens of sociocultural theory, arguing that the integrated model generated a

unique relational and technological space where tools, community, and individual biographies interacted to facilitate profound identity work and agentive action.

For novice teachers, the synergistic CRP model provided critical scaffolding that facilitated the transition from a fragile, survival-oriented professional identity towards a more confident and agentive identity. Their initial experiences, considered self-doubt and classroom anxiety, support previous research on culture shock and identity crisis often encountered by early-career teachers (Farrugia, 2021; Shahri, 2018). The tripartite model addressed this vulnerability holistically. Class-based CoPs fostered a psychologically safe space where attempts were normalized and validated, directly countering the isolation usually experienced by novice teachers (Johnson & Golombek, 2016). Strengthening this community through ICT-mediated communications offered via WhatsApp provided continuous, just-in-time support, turning moments of crisis into opportunities for collaborative problem-solving and fostering a sense of belonging (Trust et al., 2016). More specifically, the AI-driven component functioned as a unique “confidence-building gym,” a low-stakes space for rehearsal and experimentation (Shi et al., 2026). This result confirms the findings of Kohnke et al. (2023) by representing that AI’s value for novice teachers lies not just in offering answers but in building the reflective and instructional confidence needed to transition from peripheral contribution to active, agentive contribution in the human community (Lave & Wenger, 1991). The synergy between the modalities was crucial: AI-prepared novice teachers entered face-to-face discussions with greater confidence, and peer support from those discussions enabled them to use AI more critically and in more innovative ways, facilitating a virtuous cycle of development.

By contrast, for experienced teachers, the CRP process was largely disruptive, serving as a catalyst for transformative leadership after a period of professional inertia (Kelchtermans, 2009). While teachers entered with stable, routinized identities, the AI tool, in particular, worked as a major source of cognitive dissonance by producing alternative perspectives and challenging long-held assumptions. This initial disruption, often coded as ‘resistance’ or ‘challenge,’ was vital for triggering deep reflection. However, disruption alone was inadequate; it was the integration with the human elements of the model that transformed this dissonance into development. The class-based CoPs offered an essential interpretive community where experienced teachers could contextualize AI recommendations, experiment with peers, and ultimately leverage their extensive knowledge to mentor novices. Thus, their agency moved from sustaining personal expertise to nurturing collective knowledge within the community, a shift towards what can be termed transformative leadership (Morgan, 2019). This finding implies that for experts, technology is not a replacement for their expertise but a partner that can re-engage them with the moral and relational essence of their work, stimulating their professional purpose (MacGregor, 2025).

It is, however, important to recognize that the disruption that AI presents is not integrally positive. The analysis here focuses on the disruption experienced by the teachers’ routines and identity, not on evaluating the instructional merit of the AI’s suggestions. The AI-produced role-play, or strategy, that sparked excitement and experimentation may have been serendipitously effective, and superficially engaging, or misaligned with more profound learning objectives. Celebrating disruption without this critical lens risks recommending change for its own sake. The transformative potential lies not in the AI’s output per se, but in how it functioned as a catalyst for experienced teachers to break from routine, engage in collaborative interpretation within the CRP, and consciously re-evaluate their practices—a process in which their professional judgment remained eventually central.

A key, overarching finding was the detailed negotiation of tension between an institutional identity, reinforced by a centralized, exam-oriented system, and an innovator identity, cultivated within the CRP crucible. Both novice and experienced teachers strategically incorporated the multi-modal ecosystem to practice agency within significant structural limitations. They used the

ICT ‘backstage’ to exchange strategies for circumventing or adjusting rigid curricular demands and used AI-produced rationales to justify instructional innovations to administrators, a practice coded as ‘AI as justification.’ This strategic integration of AI-produced justifications reflects a form of ‘tactical agency’, where teachers incorporate tools within a system to create spaces for novelty without directly confronting its power structure (Mishra et al., 2025). This demonstrates a sophisticated form of what Priestley et al. (2015) term ecological agency: Teachers not only reflected on their instant classroom environment but also explored wider institutional structures. The CRP model offered the tools and the collective solidarity necessary to engage in this strategic negotiation, representing that professional agency in limited settings is not about complete confrontation but about finding innovative, context-sensitive pathways for reform (Bridwell-Mitchell, 2015).

Nevertheless, interpreting this tactical agency through a critical sociocultural lens requires a more problematic reading. While strategically effective, the practice of ‘AI as justification’ presents a double bind. On the one hand, it signifies a savvy form of ecological agency, enabling the teachers to explore structural limitations. On the other hand, it risks supporting the very authority structures it seeks to circumvent. By leveraging AI-produced rationales to satisfy administrative demands, the teachers may inadvertently reinforce the system’s preference for externally sourced, technocratic evidence over their own professional judgment grounded in contextual experience. This tactic could, paradoxically, additionally embed their subordination, shifting the source of authority from human administrators to algorithmic outputs, a phenomenon described as ‘algorithmic governance’. Thus, whereas the CRP model enhanced tactical space, it also created a tension: Does this form of agency empower the teachers as innovative change-makers, or does it eventually discipline them into seeking algorithmic validation for their praxis? This ambiguity is a key limitation of the study’s findings, suggesting that the path from tactical to transformative agency requires not just strategic tool use, but a collective critical consciousness of the systems of authority teachers are negotiating.

The most important contribution of this study is, possibly, its illustration of the model’s ‘relational synergy.’ The transformative potential did not exist in any distinct modality but in their careful incorporation. It is depicted as a cyclical process: AI functioned as a catalyst for novel ideas, ICT platforms boosted the iterative modification of those ideas with peers, and class-based meetings strengthened them through collective sense-making and planning for application. This cycle produced a resilient learning ecosystem where each modality compensated for the limitations of the others. Human peers provided the emotional support, contextual wisdom, and ethical judgment that AI lacked (Selwyn, 2019), while AI offered immediacy, limitless brainstorming capacity, and a non-judgmental environment for rehearsal that the teachers could not always offer.

This synergy, yet, is not ideologically neutral. The sociocultural concept of mediation must be critically extended to account for the political economy of the tools themselves. AI, as a non-human agent, is not a transparent mediator; it exemplifies the biases, values, and commercial interests of its designers (Selwyn, 2019). Its ‘non-judgmental’ setting and ‘limitless brainstorming capacity’ come with the hidden curriculum of platform dependency and the potential normalization of corporate-driven instructional logic. Thus, although the ecosystem was synergistic, its mediation was asymmetrical. Human peers offered ethical judgment, but the study did not investigate if teachers developed a parallel critical algorithmic literacy to interrogate the AI’s suggestions and the systemic imperatives behind its design. Without this, the ‘ecological synergistic mediation’ risks becoming a sophisticated form of assimilation, where teachers are allowed within a paradigm progressively shaped by opaque, external technological systems.

This finding implies an extension of the sociocultural concept of mediation, pointing to ecologically synergistic mediation, where digital and human agents interact in a dynamic system to co-generate developmental outcomes as emergent properties of the system. This synergy confirms the sociocultural principle that learning is mediated by tools, while its value is perceived through social collaboration and mutual meaning-making (Vygotsky, 1978).

## 6. CONCLUSION

This study investigated the complex interaction between a multi-modal reflective practice model and the development of professional identity and agency among EFL teachers in Iran. The findings offer persuasive evidence that a synergistic approach to CRP—one that considerably incorporates class-based, ICT-mediated, and AI-driven modalities—generates an exclusively influential crucible for professional change. The findings illustrate a dynamic ecosystem where tools, community, and individual narratives interact to catalyze professional development.

However, this synergistic model is not without significant practical and ethical challenges. The very intensity of sustaining three reflective modalities raises concerns about its long-term labor sustainability beyond a research context. Moreover, the incorporation of AI-driven reflection, while being catalytic, presents risks of fostering dependency on non-transparent systems and may unintentionally exacerbate existing inequalities, including those rooted in varying levels of digital literacy among participants—a concern noted by some teachers in this study.

The fundamental theoretical contribution of this work rests on its elaboration of a relational synergy within professional learning. It suggests that identity and agency are not created merely through human collaboration or technological engagement alone, but through the continuous, cyclical conversation between them. AI-generated ideas, ICT platforms allow for iterative co-reflection and refinement, and face-to-face communities provide emotional and contextual grounding for final sense-making and enactment. This process confirms the sociocultural principle that while tools mediate learning, it is through social interaction that they gain their meaning and transformative power.

This study is not without limitations. The particular sociocultural setting of Iran, with its exclusive institutional constraints, means the findings may not be directly transferable to other contexts. Furthermore, the study's intensive, long-term model was applied in a single setting, restricting the generalizability of the findings to other educational contexts. This study did not evaluate the long-term effects on student learning outcomes, leaving questions about the sustainability and impact of the approach. Methodologically, the study's design lacked a control or comparison group, making it difficult to isolate the particular effects of the multi-modal model from other influences. The reliance on self-reported data, gathered within a supportive intervention, also produces the potential for social desirability bias. Therefore, the observed professional changes, though promising, must be considered preliminary and possibly influenced by the short-term, intensive nature of the 9-month intervention itself. Future research should explore best design principles for joint AI-human facilitation settings and investigate how AI prompts can be structured to support particular types of reflective thinking.

More fundamentally, the study's design and findings are limited by their primary emphasis on the emancipatory potential of the model. Though we acknowledged strategic negotiations of limitation (e.g., "AI as justification"), we did not adequately critically examine the potential risks and unintended consequences of embedding AI-driven reflection within a hierarchical institutional setting. The study leaves unanswered whether the observed agency tactics eventually challenge or subtly strengthen teachers' subordination to external—and now partially algorithmic—authority. Moreover, the model's reliance on specific ICT and AI tools raises critical, unexplored questions

about digital equity, data privacy, and long-term sustainability beyond a research intervention. These unresolved issues highlight a central tension: whether the agency developed through such a technologically mediated model ultimately empowers teachers to be autonomous professionals or delicately reconfigures their subordination to a new blend of institutional and algorithmic authority.

The future of meaningful PD, as the findings showed, relies on designs that are both incorporated and responsive. Effective PD must address the unique needs of teachers across career stages, implementing technology not as a replacement for human connection but as a means to develop and sustain it. By developing purposeful, synergistic environments that harness the potential of AI while honoring the unique wisdom of human communities, teachers can promote resilient professional identities and exercise the agency required to explore the complexities of modern education.

### Acknowledgements

We would like to thank the two anonymous reviewers who provided constructive feedback to help us to improve the quality of the paper. The remaining issues and the views expressed in the paper are solely those of the authors.

### References

- Ali, S. I., & Shaban, M. (2025). Nursing academic reviewers' perspectives on AI-assisted peer review: Ethical challenges and acceptance. *International Nursing Review*, 72(3), Article e70100. <https://doi.org/10.1111/inr.70100>
- Alshakhi, A., & Le Ha, P. (2020). Emotion labor and affect in transnational encounters: Insights from western-trained TESOL professionals in Saudi Arabia. *Research in Comparative and International Education*, 15(3), 305-326. <https://doi.org/10.1177/1745499920946203>
- Arefian, M. H. (2026). Motivating teachers to reflect in a professional community of practice through collaborative action research. *International Journal of Educational Reform*, 35(3), 725-745. <https://doi.org/10.1177/10567879231217457>
- Arefian, M. H., & Esfandiari, R. (2024). E-learning-oriented assessment and collaborative reflection for situated learning in language teacher education. *Language Testing in Asia*, 14(1), 1-21. <https://doi.org/10.1186/s40468-024-00305-0>
- Arefian, M. H., Çomoğlu, I., & Dikilitaş, K. (2026). Understanding EFL teachers' experiences of ChatGPT-driven collaborative reflective practice through a community of practice lens. *Innovation in Language Learning and Teaching*, 20(2), 318-333. <https://doi.org/10.1080/17501229.2024.2412769>
- Askaribigdeli, R. (2021). *A sociocultural approach to language teacher identity: Iranian public school and private language institute EFL teachers* [Unpublished doctoral dissertation]. University of Otago.
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation?. *Qualitative Health Research*, 26(13), 1802-1811. <https://doi.org/10.1177/1049732316654870>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1080/14780887.2020.1769238>

- Bridwell-Mitchell, E. N. (2015). Theorizing teacher agency and reform: How institutionalized instructional practices change and persist. *Sociology of Education*, 88(2), 140-159. <https://doi.org/10.1177/0038040715575559>
- Burhan-Horasanlı, E., & Hart, D. O. (2024). Conceptualizing reflection-for-action: Empowering teachers as agents of collaborative and collective transformation. *Teaching and Teacher Education*, 152, 35-48, Article e104802. <https://doi.org/10.1016/j.tate.2024.104802>
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., ... & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652-661. <https://doi.org/10.1177/1744987120927206>
- Clandinin, D. J. (2013). *Engaging in narrative inquiry*. Left Coast Press.
- Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experience and story in qualitative research*. Jossey-Bass.
- Ehren, M., & Hwa, Y. Y. (2025). The multilevel context of teacher accountability: Findings from low- and high-performing schools in South Africa. *Teaching and Teacher Education*, 163, 2-11, Article e105076. <https://doi.org/10.1016/j.tate.2025.105076>
- Farrell, T. S. (2015). *Promoting teacher reflection in second language education: A framework for TESOL professionals*. Routledge.
- Farrugia, M. (2021). *Teacher agency in professional learning and development: Teachers leading their own professional growth* [Unpublished doctoral dissertation]. University College London.
- Furlong, C., & Gorman, A. (2025). Exploring how the experiential narratives of cooperating teachers impact their role in supporting student teachers on school placement. *Teaching Education*, 36(4), 1-17. <https://doi.org/10.1080/10476210.2025.2525166>
- Ghiasvand, F., & Seyri, H. (2025). A collaborative reflection on the synergy of Artificial Intelligence (AI) and language teacher identity reconstruction. *Teaching and Teacher Education*, 160, Article e105022. <https://doi.org/10.1016/j.tate.2025.105022>
- Gottfried, M., Little, M., & Ansari, A. (2025). Novice teachers and student attendance in early elementary school. *Educational Policy*, 39(3), 607-639. <https://doi.org/10.1177/08959048241231952>
- Groenewald, E., & Arnold, L. (2025). Teacher professional identity: Agentic actions of a novice teacher in a challenging school context. *Teachers and Teaching*, 31(3), 451 -470. <https://doi.org/10.1080/13540602.2024.2308890>
- Gul, T., Criswell, B., & Demir, K. (2025). Impacts of teacher-driven professional development on teacher leadership identity. *International Journal of Leadership in Education*, 28(4), 875-902. <https://doi.org/10.1080/13603124.2022.2052754>
- Erbay-Çetinkaya, Ş. (2025). A triadic support framework for reflective teacher identity: Peer, AI, and faculty collaboration within a community of practice. *Teaching and Teacher Education*, 168, 105239. <https://doi.org/10.1016/j.tate.2025.105239>
- Jiang, L., Yu, S., & Zhao, Y. (2022). Incorporating digital multimodal composing through collaborative action research: Challenges and coping strategies. *Technology, Pedagogy and Education*, 31(1), 45-61. <https://doi.org/10.1080/1475939X.2021.1978534>
- Johnson, K. E., & Golombek, P. R. (2016). *Mindful L2 teacher education: A sociocultural perspective on cultivating teachers' professional development*. Routledge.
- Kelchtermans, G. (2009). Who I am in how I teach is the message: Self-understanding, vulnerability and reflection. *Teachers and Teaching: theory and practice*, 15(2), 257-272. <https://doi.org/10.1080/13540600902875332>

- Kelly, J., & Cherkowski, S. (2015). Collaboration, collegiality, and collective reflection: A case study of professional development for teachers. *Canadian Journal of Educational Administration and Policy*, 169, 1-27. <https://journalhosting.ucalgary.ca/index.php/cjeap/article/view/42876>
- Kim, J. (2024). Leading teachers' perspective on teacher-AI collaboration in education. *Education and Information Technologies*, 29(7), 8693-8724. <https://doi.org/10.1007/s10639-023-12109-5>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal*, 54(2), 537-550. <https://doi.org/10.1177/00336882231162868>
- Korthagen, F., & Nuijten, E. (2022). *The power of reflection in teacher education and professional development: Strategies for in-depth teacher learning*. Routledge. <https://doi.org/10.4324/9781003221470>
- Korucu-Kıř, S. (2021). Preparing student teachers for real classrooms through virtual vicarious experiences of critical incidents during remote practicum: A meaningful-experiential learning perspective. *Education and Information Technologies*, 26(6), 6949-6971. <https://doi.org/10.1007/s10639-021-10555-7>
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge university press.
- Lord, J. (2023). Exploring teacher professional identity and agency in local, national and global policy contexts. In D. Mifsud & S. P. Day (Eds.), *Teacher education as an ongoing professional trajectory: Implications for policy and practice* (pp. 119-141). Springer. [https://doi.org/10.1007/978-3-031-28620-9\\_6](https://doi.org/10.1007/978-3-031-28620-9_6)
- Luo, J. (2024). How does GenAI affect trust in teacher-student relationships? Insights from students' assessment experiences. *Teaching in Higher Education*, 29(4), 991-1006. <https://doi.org/10.1080/13562517.2024.2341005>
- Lyu, W., Zhang, S., Chung, T., Sun, Y., & Zhang, Y. (2025). Understanding the practices, perceptions, and (dis)trust of generative AI among instructors: A mixed-methods study in the U.S. higher education. *Computers and Education: Artificial Intelligence*, 8, Article e100383. <https://doi.org/10.1016/j.caeai.2025.100383>
- MacGregor, E. H. (2025). Evaluating collaborative action ethnography as a means of co-constructing 'pedagogies of vulnerability' in the post-pandemic music classroom. *Qualitative Research*. Advance online publication. <https://doi.org/10.1177/14687941251350887>
- Mann, S., & Walsh, S. (2017). *Reflective practice in English language teaching: Research-based principles and practices*. Routledge.
- Mehdizadeh, M., Pourhaji, M., & Derakhshan, A. (2024). Evolution of communities of practice, realignment of possible selves, and repositionings in EFL teacher professional identity development: A longitudinal case study. *The Language Learning Journal*, 52(3), 336-348. <https://doi.org/10.1080/09571736.2022.2163685>
- Mishra, P., Henriksen, D., Woo, L. J., & Oster, N. (2025). Control vs. agency: Exploring the history of AI in education. *TechTrends*, 69, 247-253. <https://doi.org/10.1007/s11528-025-01064-2>
- Morgan, A. (2019). Cultivating critical reflection: educators making sense and meaning of professional identity and relational dynamics in complex practice. In M. Mills, K. Riele, G. McGregor, & A. Baroutsis (Eds.), *Teaching in Alternative and Flexible Education Settings* (pp. 41-55). Routledge.

- Nopas, D. S. (2025). *Algorithmic learning or learner autonomy? Rethinking AI's role in digital education*. *Qualitative Research Journal*. Advance online publication. <https://doi.org/10.1108/QRJ-11-2024-0282>
- Pan, X., Li, X., Li, Q., Hu, Z., & Bao, J. (2025). Evolving to multi-modal knowledge graphs for engineering design: State-of-the-art and future challenges. *Journal of Engineering Design*, 36(7-9), 1156-1195. <https://doi.org/10.1080/09544828.2023.2301230>
- Pennycook, A. (2017). *The cultural politics of English as an international language*. Routledge.
- Petsilas, P., Leigh, J., Brown, N., & Blackburn, C. (2020). Creative and embodied methods to teach reflections and support students' learning. *Research in Distance Education*, 20(1), 19-35. <https://doi.org/10.1080/14647893.2019.1572733>
- Priestley, M., Biesta, G., & Robinson, S. (2015). *Teacher agency: An ecological approach*. Bloomsbury Publishing.
- Ratten, V., & Jones, P. (2023). Generative artificial intelligence (ChatGPT): Implications for management educators. *The International Journal of Management Education*, 21(3), 1-7, Article e100857. <https://doi.org/10.1016/j.ijme.2023.100857>
- Roumbanis Viberg, A., Forslund Frykedal, K., & Sofkova Hashemi, S. (2023). The teacher educator's perceptions of professional agency—a paradox of enabling and hindering digital professional development in higher education. *Education Inquiry*, 14(2), 213-230. <https://doi.org/10.1080/20004508.2021.1984075>
- Salmani Ghasemzadegan, R., Xodabande, I., Koleini, N., & Lotfi Gaskaree, B. (2025). Exploring the role of autonomy support and thwarting in the well-being of Iranian early career language teachers. *Discover Psychology*, 5(1), 36. <https://doi.org/10.1007/s44202-025-00368-x>
- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. John Wiley & Sons.
- Shahri, M. N. N. (2018). The development of teacher identity, emotions and practice: Before and after graduation from an MA TESOL program. *System*, 78, 91-103. <https://doi.org/10.1016/j.system.2018.08.003>
- Sherman, B. J., & Teemant, A. (2025). Pedagogical coaching as identity work: Cultivating and negotiating ESL teacher narrative identities. *Journal of Language, Identity & Education*, 24(4), 886-901. <https://doi.org/10.1080/15348458.2023.2224000>
- Shi, S. J., Cao, Y. B., Shi, Z. L., Li, J. W., & Zhang, R. (2026). Application of multi-agent systems in legal education: The impact of multi-agent mock trial exercises on student satisfaction, core skill enhancement, and cognitive development. *Interactive Learning Environments*, 34(4), 2201-2222. <https://doi.org/10.1080/10494820.2025.2542892>
- Soh, S. B. (2025). Collective learning in pre-service teacher education: Exploring challenges, negotiations, and co-constructed solutions towards continuing professional learning and development. *Professional Development in Education*, 51(8), 1744-1765. <https://doi.org/10.1080/19415257.2024.2399047>
- Solari, M., & Martín Ortega, E. (2022). Teachers' professional identity construction: A sociocultural approach to its definition and research. *Journal of Constructivist Psychology*, 35(2), 626-655. <https://doi.org/10.1080/10720537.2020.1852987>
- Thambinathan, V., Wylie, L., & Kinsella, E. A. (2025). Architectures of counter remembrance: Co-constructing memory box autobiographies with second-generation Tamil refugees. *Qualitative Research in Psychology*, 22(4) 727-774. <https://doi.org/10.1080/14780887.2025.2457063>

- Trust, T., Krutka, D. G., & Carpenter, J. P. (2016). Together we are better: Professional learning networks for teachers. *Computers & Education, 102*, 15-34. <https://doi.org/10.1016/j.compedu.2016.06.007>
- Utami, A. D. (2025). Beyond the binary: Exploring gendered role negotiation and teacher mediation in playworld pedagogy. *Learning, Culture and Social Interaction, 54*, Article e100937. <https://doi.org/10.1016/j.lcsi.2025.100937>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.
- Wang, M., Chen, Z., Xu, Y., Maheshi, B., & Gašević, D. (2025). Intelligent teaching analytics for collaborative reflection: Investigating pre-service teachers' perceptions, experiences and shared regulation processes. *International Journal of Educational Technology in Higher Education, 22*(1), 1-25. <https://doi.org/10.1186/s41239-025-00538-w>
- Wang, P., Yue, Y., Ouyang, M., Yin, L., Yin, Y., & Li, B. (2024). Do narcissistic people exhibit more authentic self-disclosure to generative AI? The roles of short-form video addiction, loneliness, and usage intention. *Social Science Computer Review, 43*(6), 11159-11180. <https://doi.org/10.1177/0894439324130>
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge university press.
- Yang, L. (2022). Experienced teachers' professional development: Needs and paths. In M. A. Peters (Ed.), *Encyclopedia of teacher education* (pp. 695-699). Singapore. [https://doi.org/10.1007/978-981-16-8679-5\\_127](https://doi.org/10.1007/978-981-16-8679-5_127)