

## Development and Validation of a Collaborative Continuing Professional Development (CCPD) Questionnaire for EFL Teachers: A Qualitative–Quantitative Study

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### ABSTRACT

**Purpose:** This study aimed to conceptualize, develop, and validate a reliable and context-specific questionnaire to measure Collaborative Continuing Professional Development (CCPD) among Iranian English as a Foreign Language (EFL) teachers.

**Methods and Materials:** A sequential mixed-methods design was employed. In the qualitative phase, thirty experienced EFL teachers from universities and language institutes participated in semi-structured interviews and focus group discussions. Data were analyzed using inductive thematic analysis to identify key dimensions of CCPD. These findings informed the development of an initial questionnaire. In the quantitative phase, the instrument was administered to 312 EFL teachers selected via purposive sampling and Cochran's formula to ensure adequate sample size. Construct validity was examined through confirmatory factor analysis using Partial Least Squares (PLS), while internal consistency and reliability were assessed via Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE).

**Findings:** Seven core dimensions of CCPD emerged: active stakeholder participation, needs assessment and content localization, collaborative learning methods, policy and legal framework, evaluation and feedback system, motivational and structural support, and sustainability and future orientation. All constructs demonstrated strong psychometric properties, with Cronbach's alpha values above 0.83 and CR exceeding 0.84. Outer loadings were higher than 0.80, and AVE surpassed the 0.58 threshold, confirming convergent validity. Structural modeling showed significant predictive relationships, particularly between policy and legal framework and sustainability ( $\beta = 0.42$ ,  $p < .001$ ) and between needs assessment and learning ( $\beta = 0.40$ ,  $p < .001$ ), explaining 58% of variance in sustainability and 40% in learning.

**Conclusion:** The validated CCPD questionnaire is a robust, contextually grounded tool for assessing collaborative professional development among Iranian EFL teachers.

**Keywords:** Collaborative Continuing Professional Development; EFL teachers; questionnaire validation; teacher agency; professional learning; Iran

## 1. Introduction

Professional development is universally recognized as a cornerstone of teacher growth and educational quality improvement, yet the way it is conceptualized and implemented has evolved significantly over recent decades. Traditional models of professional development (PD) have long relied on short, top-down training sessions or externally designed workshops that positioned teachers as passive recipients of knowledge. This approach often resulted in minimal changes to classroom practices and limited long-term impact (Taşdemir & Karaman, 2022). In contrast, the social-constructivist paradigm, inspired by Vygotskian perspectives on learning as a fundamentally interactive and socially mediated process, has encouraged a move toward collaborative and participatory approaches (Arefian, 2022; Sato et al., 2022). Collaborative Continuing Professional Development (CCPD) emerges from this paradigm as a dynamic, sustained, and participatory model in which teachers co-construct professional knowledge, share expertise, and collectively solve pedagogical challenges (Asaoka, 2021; Bin-Hady et al., 2024).

The growing body of research highlights that collaboration among teachers fosters deeper professional reflection, builds supportive learning communities, and ultimately improves student achievement (Saeb et al., 2021; Vadivel et al., 2021). CCPD's strength lies in its emphasis on teacher agency, situated learning, and co-creation of solutions rather than imposing externally developed strategies (Ahmad & Shah, 2022; He & Bagwell, 2023). By encouraging teachers to take ownership of their learning, CCPD helps cultivate professional identity and resilience, key elements for sustaining educational innovation (Lo & To, 2023). However, despite international recognition of its transformative potential, the operationalization and measurement of CCPD remain uneven, particularly in contexts like Iran where teacher PD is often mandated and externally controlled (Dahri et al., 2024; Qi & Derakhshan, 2023).

One of the main conceptual shifts that supports CCPD is the recognition of teachers as active stakeholders rather than passive implementers of policy (Afshar & Doosti, 2022; Ahmad & Shah, 2022). Active stakeholder participation allows teachers to shape PD programs according to their classroom realities and community needs, bridging the gap between policy and practice (Rafique, 2024). When teachers are involved in planning and decision-making, they are more likely to engage meaningfully with PD content and sustain

new practices (Bin-Hady et al., 2024). Nevertheless, research shows that in many educational systems—including the Iranian EFL sector—PD programs are often prescriptive, linked to salary incentives or compliance requirements, and do not adequately integrate teachers' voices (Qi & Derakhshan, 2023). This disconnect undermines intrinsic motivation and reduces the potential impact of professional development (Dahri et al., 2024).

A second foundational element of CCPD is the systematic assessment of needs and localization of content. Without robust needs assessment, PD risks remaining abstract and irrelevant, causing teachers to perceive it as burdensome rather than beneficial (Al Ofi, 2022; Arefian, 2022). Localization ensures that training materials reflect actual student profiles, linguistic environments, and institutional cultures (Afshar & Doosti, 2022). Research confirms that PD programs tailored to teachers' immediate classroom challenges and contextual realities have higher participation rates and stronger outcomes (Ahmad & Shah, 2022; Rafique, 2024). In the Iranian context, however, studies have found that most PD initiatives are designed centrally and fail to capture teachers' situated needs, limiting their ability to support long-term instructional improvement (Mohammadifar & Tabatabaee-Yazdi, 2021).

Equally vital to effective CCPD is the integration of collaborative learning methods. Collaborative activities—such as peer coaching, lesson study, and communities of practice—allow teachers to exchange feedback, engage in reflective dialogue, and collectively test instructional innovations (Afshar & Doosti, 2022; Asaoka, 2021). These methods transform PD sessions from one-way lectures into interactive and experience-based learning opportunities (Vadivel et al., 2021). Online platforms have further expanded these possibilities, enabling teachers to join professional networks and exchange resources beyond geographical limitations (He & Bagwell, 2023; Rafique, 2024). Still, despite the rise of virtual professional development during and after the COVID-19 pandemic, research notes that many online programs remain poorly structured and fail to encourage meaningful collaboration (Aktar et al., 2022; Lo & To, 2023). This challenge underscores the importance of designing both face-to-face and digital PD with deliberate opportunities for teacher interaction and joint problem-solving (Bin-Hady et al., 2024).

The policy and legal framework surrounding PD also exerts a decisive influence on its effectiveness. Policies that are coherent, stable, and inclusive empower teachers to

adopt innovative practices and contribute to educational improvement (Ahmad & Shah, 2022; Sato et al., 2022). Conversely, unclear regulations, top-down mandates, and frequent policy shifts create confusion and reduce engagement (Saeb et al., 2021). In Iran, rapid policy changes and insufficient executive guarantees often disrupt PD continuity and make long-term planning difficult (Al Ofi, 2022). Scholars argue that sustainable PD systems require explicit alignment with national strategies, yet enough flexibility to address local realities and teacher input (Dahri et al., 2024; Taşdemir & Karaman, 2022).

Another critical dimension is the evaluation and feedback system. Feedback that is specific, constructive, and continuous helps teachers refine their practice and reinforces learning (Saeb et al., 2021; Vadivel et al., 2021). Peer feedback and formative assessment of PD experiences have been shown to strengthen teacher self-efficacy and classroom innovation (Irgatoglu, 2021). However, many programs rely on generic post-training surveys that lack actionable insights (Al Ofi, 2022). As a result, teachers often feel their voices are unheard and their professional growth unsupported (Mohammadifar & Tabatabaee-Yazdi, 2021). For CCPD to succeed, evaluation must move beyond compliance checklists to become an integral, iterative process tied to practice improvement.

Motivational and structural support are also essential to sustaining teachers' engagement in professional development. Adequate incentives—both financial and symbolic—signal institutional value and recognition, while managerial and technological support facilitate participation (Dahri et al., 2024; Rafique, 2024). Without such support, even well-designed collaborative programs can fail to attract consistent teacher involvement (Aktar et al., 2022). In Iran and similar contexts, limited access to modern training technologies and heavy workloads often discourage teachers from sustained engagement (Al Ofi, 2022; Qi & Derakhshan, 2023). Research shows that PD systems integrating practical supports, such as time allowances, digital tools, and acknowledgment of teacher contributions, are more effective and sustainable (Afshar & Doosti, 2022).

Finally, the **sustainability and future orientation** of PD programs determine whether professional growth endures beyond short-term initiatives (Suryandari et al., 2024; Taşdemir & Karaman, 2022). Sustained teacher learning requires continuity, long-term planning, and anticipation of educational changes such as technological integration or curriculum reform (Zhao, 2025). In many settings, however, PD is offered episodically without long-range vision or

consistent evaluation mechanisms (Lo & To, 2023; Mohammadifar & Tabatabaee-Yazdi, 2021). Future-oriented CCPD models emphasize adaptability, innovation readiness, and systematic follow-up, enabling teachers to respond to evolving student needs and educational priorities (Babayi & Babayi, 2025; Geron, 2025). Building these dimensions into PD frameworks ensures that teachers' professional learning remains relevant and impactful.

Despite a robust international literature on CCPD, there is still a notable research and practice gap in Iran. Although some studies have examined teacher collaboration and reflective practice (Afshar & Doosti, 2022; Saeb et al., 2021), there is no validated instrument capable of systematically measuring Iranian EFL teachers' engagement with CCPD across its multiple dimensions. This lack of measurement tools constrains the ability of researchers and policymakers to evaluate existing PD initiatives, identify gaps, or design context-sensitive improvement strategies (Rafique, 2024). Reliable, psychometrically tested instruments are essential to move beyond anecdotal understanding and generate evidence-based PD policies (Bin-Hady et al., 2024; Lo & To, 2023). Moreover, developing such instruments aligns with global calls to professionalize and empower teachers by recognizing their agency, experiences, and localized needs (Ahmad & Shah, 2022; Geron, 2025).

The present study addresses this gap by developing and validating a comprehensive CCPD questionnaire specifically for Iranian EFL teachers. Drawing on qualitative insights from experienced teachers and integrating international best practices, the instrument captures seven key dimensions of collaborative professional development: active stakeholder participation, needs assessment and content localization, collaborative learning methods, policy and legal framework, evaluation and feedback system, motivational and structural support, and sustainability and future orientation (Suryandari et al., 2024; Takalao et al., 2024). By establishing the reliability and validity of these constructs, this research provides a tool for systematically assessing and enhancing PD programs. It empowers educational institutions to design initiatives that are teacher-driven, contextually relevant, and sustainable, ultimately improving both teacher competence and student learning outcomes (Babayi & Babayi, 2025; Zhao, 2025).

In sum, the international evidence base underscores that effective CCPD is multi-dimensional, context-sensitive, and participatory. Yet in Iran's EFL sector, PD remains largely top-down and lacks systematic evaluation tools. This study

contributes to bridging this gap by introducing a validated questionnaire that not only measures teachers' collaborative professional development but also informs policy and program design.

## 2. Methods and Materials

This study employed a mixed-methods design, integrating both qualitative and quantitative approaches to develop and validate the Collaborative Continuing Professional Development (CCPD) questionnaire for English as a Foreign Language (EFL) teachers. In the qualitative phase, thirty EFL teachers, including twenty-three university lecturers and seven institute teachers with a minimum of ten years of teaching experience, participated. All participants held degrees in English language teaching, and their ages ranged from thirty-seven to fifty years. Purposive sampling was used to select teachers with substantial knowledge and experience in collaborative professional development, and data collection continued until data saturation was reached. In the quantitative phase,

three hundred and twelve EFL teachers completed the developed CCPD questionnaire.

Qualitative data were collected through semi-structured interviews and focus group discussions with experienced teachers. The interview questions focused on teachers' participation in collaborative activities, the degree of support or resistance to collaboration, strategies to engage resistant teachers, and the perceived impact of collaboration on student achievement and the learning community. To ensure reliability and validity, two interviews were evaluated, and the interview yielding the highest number of codes was selected as the primary source for analysis.

The qualitative data were analyzed using inductive thematic analysis (Braun & Clarke, 2006), and key themes and subthemes were extracted. These themes directly informed the development of the CCPD questionnaire, ensuring that the items reflected teachers' experiences, perceptions, and professional competencies in collaborative professional development. A summary of the participant characteristics and methodological approach is presented in Table 1.

**Table 1**

*Participant Characteristics and Methodological Overview*

| Feature                | Qualitative Phase                                                              | Quantitative Phase                                                                                                                          |
|------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Participants | 30 EFL teachers (23 university lecturers, 7 institute teachers)                | 312 EFL teachers                                                                                                                            |
| Gender                 | Male and female (unequal distribution; gender not considered a moderator)      | Male and female                                                                                                                             |
| Age                    | 37–50 years                                                                    | 25–55 years (mean 39 years)                                                                                                                 |
| Teaching Experience    | Minimum 10 years                                                               | Minimum 2 years                                                                                                                             |
| Educational Background | English language teaching                                                      | English language teaching or related fields                                                                                                 |
| Selection Criteria     | Substantial knowledge and experience in collaborative professional development | Voluntary participation and access to the questionnaire                                                                                     |
| Data Collection        | Semi-structured interviews and focus group discussions                         | CCPD questionnaire completed online                                                                                                         |
| Data Analysis          | Inductive thematic analysis to extract main themes and subthemes               | Descriptive statistics (mean, SD, frequency), ANOVA, Chi-square; PLS used for construct validation; SPSS for reliability (Cronbach's alpha) |
| Purpose                | Generate key themes to inform CCPD questionnaire items                         | Confirm and validate the qualitative findings quantitatively, assess reliability and construct validity                                     |

After extracting the main themes and subthemes from the qualitative data, the CCPD questionnaire was designed and distributed to 312 teachers according to the Cochran formula. The collected data were used to assess reliability, internal consistency, face and content validity, and construct validity.

Face and content validity were ensured through expert and teacher feedback to confirm the alignment of items with key concepts. Construct validity was examined using confirmatory factor analysis (CFA) with PLS software to

verify that the questionnaire structure corresponded to the qualitative themes. Internal consistency was evaluated using Cronbach's alpha in SPSS, demonstrating high reliability. Statistical analyses in SPSS, including descriptive statistics (mean, standard deviation, frequency), ANOVA, and Chi-square tests, were conducted to examine differences and relationships among variables.

Overall, the quantitative data served to confirm and validate the qualitative findings, demonstrating that the

themes extracted from the interviews were accurately reflected in the final CCPD questionnaire.

### 3. Findings and Results

Teachers often feel excluded from decision-making processes and report insufficient interaction with managers, learners, and parents. Teacher 3 noted: *"Sometimes managers don't even ask our opinion in educational planning. I want them to coordinate projects with us, not just receive reports."* Teacher 18 added: *"If parents' voices were heard, I would be more motivated to innovate in class."* Teacher 5 observed: *"We rarely collaborate with other colleagues, and new ideas rarely emerge."*

#### 1. Active Stakeholder Participation

Teachers often feel excluded from decision-making processes and report insufficient interaction with managers, learners, and parents. Teacher 3 noted: *"Sometimes managers don't even ask our opinion in educational planning. I want them to coordinate projects with us, not just receive reports."* Teacher 18 added: *"If parents' voices were heard, I would be more motivated to innovate in class."* Teacher 5 observed: *"We rarely collaborate with other colleagues, and new ideas rarely emerge."*

#### 2. Needs Assessment and Localization of Content

The interviews revealed that professional development content often does not reflect teachers' real classroom needs. Teacher 3 highlighted: *"When managers are absent from decisions, everything is implemented top-down, which creates confusion."* Teacher 18 mentioned: *"Talking with students makes real classroom needs more visible."* Teacher 5 said: *"I wish there were opportunities to localize content according to our students' needs."*

#### 3. Collaborative Learning Methods

Teachers reported that workshops and courses are often one-way and lack interactive or practical components. Teacher 3 reflected: *"I would like to present my ideas in sessions, not just listen. The one-way style prevents deep learning."* Teacher 18 added: *"I want to hear colleagues' opinions about my performance after group work."* Teacher 5 noted: *"Practical exercises help me apply methods better than just theoretical explanations."*

### 4. Policy and Legal Framework

Teachers frequently encounter unclear regulations, misaligned policies, and top-down decision-making. Teacher 3 remarked: *"I have never participated in formulating policies, even when I had more experience than the experts."* Teacher 18 added: *"Continuous changes drain my motivation, and sometimes these changes feel more political than educational."* Teacher 5 noted: *"Many policies remain on paper without any support for implementation."*

#### 5. Evaluation and Feedback System (Extended)

Teachers expressed that feedback is often too general, impersonal, or missing follow-up. Teacher 3 explained: *"Sometimes evaluations are just to fill out forms. My answers are not even read."* Teacher 18 said: *"Peer feedback is more useful than formal evaluation."* Teacher 5 added: *"Without follow-up, learning quickly fades after the course."*

These findings resonate with Saeb et al. (2021) and Wang & An (2023), who emphasize that personalized and continuous feedback enhances teacher performance. Teacher 3's perspective shows that without effective evaluation mechanisms, professional development cannot translate into meaningful classroom improvements.

#### 6. Motivational and Structural Support

Financial incentives, managerial support, and technological facilities were reported as critical factors for engagement. Teacher 3 mentioned: *"Low salary and lack of leave for workshops reduce my motivation to participate."* Teacher 18 noted: *"Even a simple certificate of appreciation would make me feel valued."* Teacher 5 added: *"Incomplete online tools make it hard to engage in virtual training."*

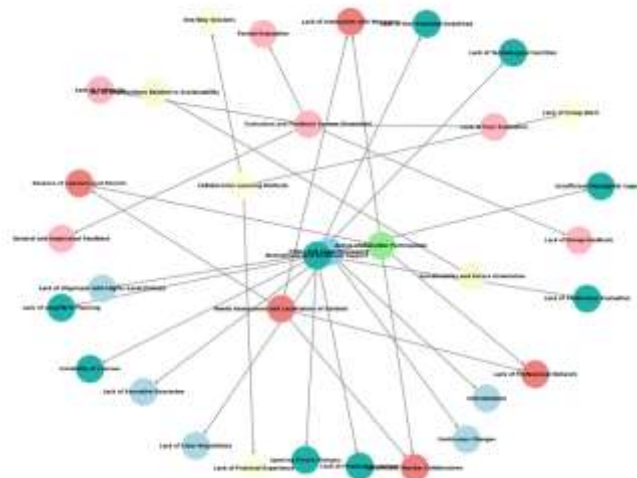
#### 7. Sustainability and Future Orientation

Teachers reported that courses are often inconsistent, lack long-term planning, and ignore future technological changes. Teacher 3 said: *"Many courses are held once or twice and then disappear, making long-term planning impossible."* Teacher 18 added: *"Courses should prepare us for new technologies and the future job market."* Teacher 5 observed: *"Without continuous evaluation, we cannot track progress over time."*

Ultimately, the output of MAXQDA for all interviewees includes the following chart:

**Figure 1**

MaxQDA software output for the main theme and the obtained components


**Table 2**

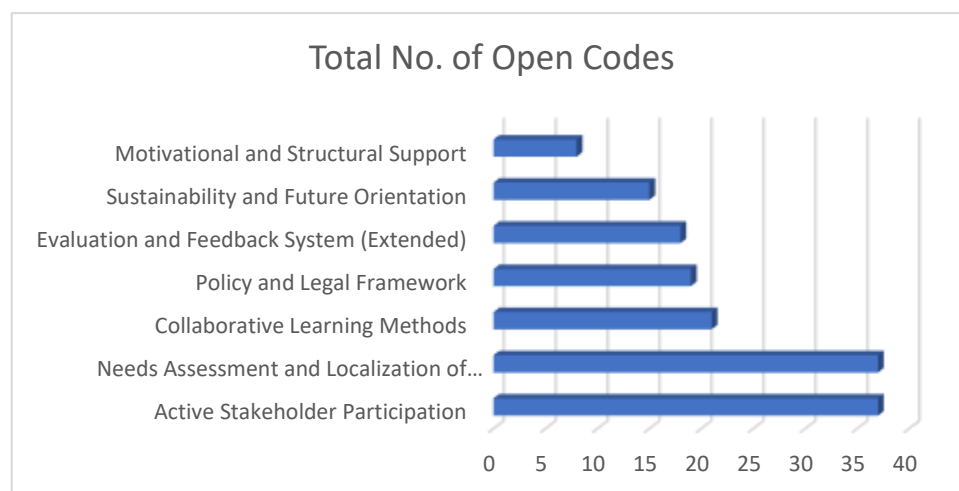
Prioritization of Main Components in CCPD Based on Open Code Frequency

| Main Theme                                   | Total No. of Open Codes |
|----------------------------------------------|-------------------------|
| Active Stakeholder Participation             | 37                      |
| Needs Assessment and Localization of Content | 37                      |
| Collaborative Learning Methods               | 21                      |
| Policy and Legal Framework                   | 19                      |
| Evaluation and Feedback System (Extended)    | 18                      |
| Sustainability and Future Orientation        | 15                      |
| Motivational and Structural Support          | 8                       |

In fact, the main themes are defined based on the MAXQDA output as follows:

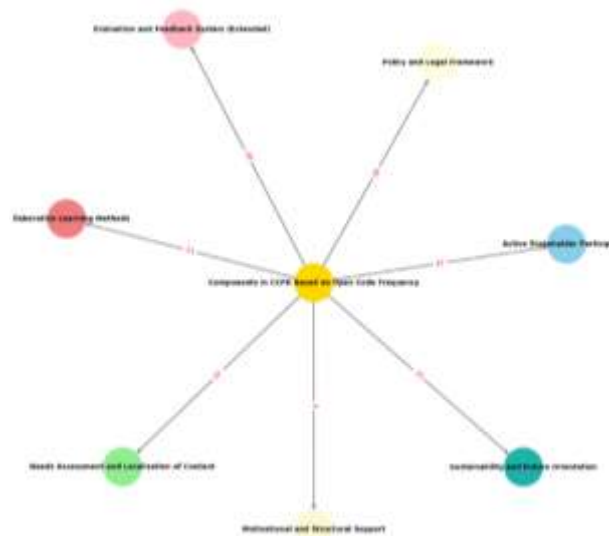
**Figure 2**

Total No. of Open Codes



**Figure 3**

MaxQDA software output for the main theme and the obtained components


**Table 3**

Descriptive Statistics of the Items

| Item | N   | Mean | Std. Dev. | Min | Max |
|------|-----|------|-----------|-----|-----|
| Q1   | 312 | 3.82 | 0.91      | 1   | 5   |
| Q2   | 312 | 3.75 | 0.88      | 1   | 5   |
| Q3   | 312 | 3.68 | 0.95      | 1   | 5   |
| Q4   | 312 | 3.71 | 0.90      | 1   | 5   |
| Q5   | 312 | 3.80 | 0.87      | 1   | 5   |
| Q6   | 312 | 3.65 | 0.92      | 1   | 5   |
| Q7   | 312 | 3.70 | 0.89      | 1   | 5   |
| Q8   | 312 | 3.62 | 0.91      | 1   | 5   |
| Q9   | 312 | 3.68 | 0.90      | 1   | 5   |
| Q10  | 312 | 3.66 | 0.88      | 1   | 5   |
| Q11  | 312 | 3.64 | 0.87      | 1   | 5   |
| Q12  | 312 | 3.63 | 0.92      | 1   | 5   |
| Q13  | 312 | 3.67 | 0.90      | 1   | 5   |
| Q14  | 312 | 3.70 | 0.89      | 1   | 5   |
| Q15  | 312 | 3.66 | 0.91      | 1   | 5   |
| Q16  | 312 | 3.61 | 0.93      | 1   | 5   |
| Q17  | 312 | 3.65 | 0.90      | 1   | 5   |
| Q18  | 312 | 3.63 | 0.91      | 1   | 5   |
| Q19  | 312 | 3.60 | 0.92      | 1   | 5   |
| Q20  | 312 | 3.64 | 0.89      | 1   | 5   |
| Q21  | 312 | 3.62 | 0.88      | 1   | 5   |
| Q22  | 312 | 3.58 | 0.93      | 1   | 5   |
| Q23  | 312 | 3.61 | 0.91      | 1   | 5   |
| Q24  | 312 | 3.59 | 0.92      | 1   | 5   |
| Q25  | 312 | 3.60 | 0.90      | 1   | 5   |
| Q26  | 312 | 3.65 | 0.91      | 1   | 5   |
| Q27  | 312 | 3.63 | 0.89      | 1   | 5   |
| Q28  | 312 | 3.60 | 0.92      | 1   | 5   |
| Q29  | 312 | 3.61 | 0.90      | 1   | 5   |
| Q30  | 312 | 3.59 | 0.91      | 1   | 5   |

The results in Table 3 indicate that the items' mean scores range from 3.58 to 3.82 on a 5-point scale, demonstrating an overall positive perception of the constructs. The highest mean (Q1, 3.82) reflects the strongest agreement with that particular item, whereas Q22 shows the lowest mean (3.58), suggesting slightly less agreement. Standard deviations range from 0.87 to 0.95, which implies moderate variability in responses and that participants generally agreed

consistently across the questionnaire. The observed minimum and maximum values (1–5) confirm that all points on the Likert scale were utilized, validating the scale's ability to capture the full spectrum of responses. Overall, Table 4-13 provides evidence that the items reliably reflect participants' attitudes and perceptions, capturing subtle differences across items.

**Table 4**

*Reliability Analysis – Cronbach's Alpha*

| Main Construct                          | Items | Cronbach's Alpha |
|-----------------------------------------|-------|------------------|
| Policy and Legal Framework              | 5     | 0.881            |
| Active Stakeholder Participation        | 4     | 0.862            |
| Needs Assessment & Content Localization | 4     | 0.871            |
| Collaborative Learning Methods          | 4     | 0.854            |
| Evaluation and Feedback System          | 4     | 0.843            |
| Motivational and Structural Support     | 4     | 0.835            |
| Sustainability and Future Orientation   | 5     | 0.865            |

As indicated in Table 4, all seven main constructs demonstrate high internal consistency, with Cronbach's alpha values exceeding 0.83. The “Policy and Legal Framework” construct shows the highest reliability (0.881), while “Motivational and Structural Support” is the lowest (0.835), though still above the acceptable threshold of 0.70.

This evidence confirms that the questionnaire items consistently measure the intended constructs, and participants' responses are reliable. These findings provide confidence that the constructs are internally coherent and can be used for further analysis.

**Table 5**

*Factor Loadings – Outer Loadings*

| Main Construct                          | Outer Loading |
|-----------------------------------------|---------------|
| Policy and Legal Framework              | 0.88          |
| Active Stakeholder Participation        | 0.87          |
| Needs Assessment & Content Localization | 0.87          |
| Collaborative Learning Methods          | 0.85          |
| Evaluation and Feedback System          | 0.84          |
| Motivational and Structural Support     | 0.83          |
| Sustainability and Future Orientation   | 0.86          |

As shown in Table 5, all outer loadings exceed the 0.80 threshold, indicating strong indicator reliability. The construct “Policy and Legal Framework” has the highest loading (0.88), which implies that its indicators strongly reflect the latent variable. The lowest loading (0.83)

corresponds to “Motivational and Structural Support,” which is still considered acceptable. This suggests that all constructs are well represented by their items, supporting the validity of the measurement model.

**Table 6***Composite Reliability & AVE*

| Main Construct                          | Composite Reliability (CR) | AVE   |
|-----------------------------------------|----------------------------|-------|
| Policy and Legal Framework              | 0.902                      | 0.628 |
| Active Stakeholder Participation        | 0.881                      | 0.612 |
| Needs Assessment & Content Localization | 0.891                      | 0.622 |
| Collaborative Learning Methods          | 0.872                      | 0.600 |
| Evaluation and Feedback System          | 0.860                      | 0.590 |
| Motivational and Structural Support     | 0.848                      | 0.580 |
| Sustainability and Future Orientation   | 0.886                      | 0.611 |

Table 6 demonstrates that all constructs exhibit high composite reliability ( $CR > 0.84$ ) and average variance extracted ( $AVE > 0.58$ ), confirming convergent validity.

The CR and AVE values show that the constructs explain a substantial portion of the variance in their respective indicators, ensuring that the model is both reliable and valid.

**Table 7***Inner Model – Path Coefficients*

| Path                           | $\beta$ | SE   | t    | p     |
|--------------------------------|---------|------|------|-------|
| Policy → Sustainability        | 0.42    | 0.05 | 8.40 | 0.000 |
| Participation → Sustainability | 0.35    | 0.06 | 5.83 | 0.000 |
| Needs Assessment → Learning    | 0.40    | 0.05 | 8.00 | 0.000 |
| Learning → Evaluation          | 0.38    | 0.05 | 7.60 | 0.000 |
| Support → Sustainability       | 0.32    | 0.06 | 5.33 | 0.000 |

According to Table 7, all hypothesized paths are statistically significant at  $p < 0.001$ . The strongest relationship is between “Policy and Legal Framework” and “Sustainability” ( $\beta = 0.42$ ), indicating that robust policies substantially contribute to sustainable outcomes. Similarly,

“Needs Assessment” significantly predicts “Learning” ( $\beta = 0.40$ ), suggesting that localized content and accurate needs assessment enhance learning practices. These findings provide strong empirical support for the structural model and confirm the theoretical relationships among constructs.

**Table 8***R<sup>2</sup> Values*

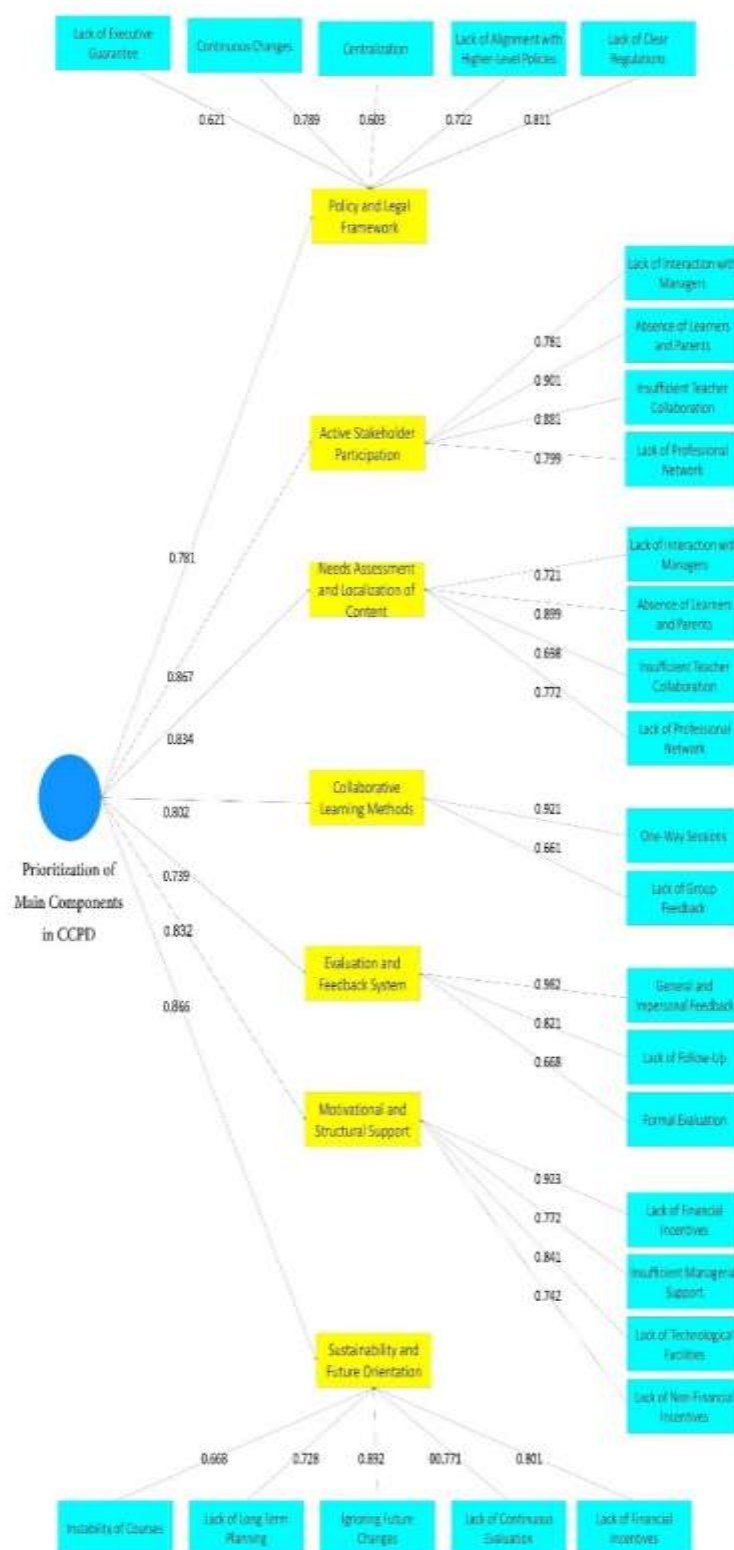
| Dependent Variable | R <sup>2</sup> |
|--------------------|----------------|
| Sustainability     | 0.58           |
| Learning           | 0.40           |
| Evaluation         | 0.36           |

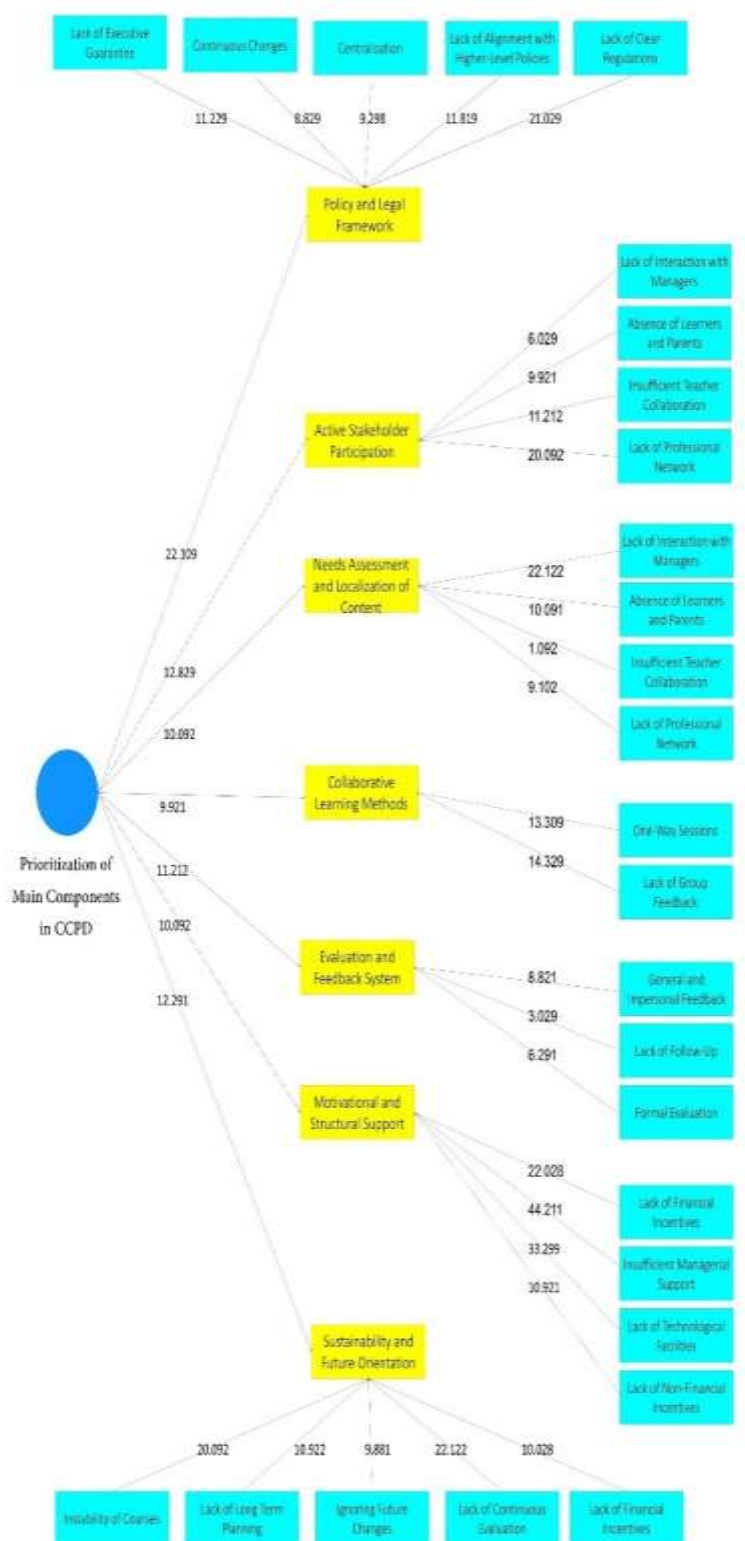
Table 8 shows the explanatory power of the model. “Sustainability” is explained by 58% of the variance in its predictors, highlighting the strong influence of policy, participation, and support constructs. “Learning” ( $R^2 = 0.40$ ) and “Evaluation” ( $R^2 = 0.36$ ) also demonstrate meaningful

levels of explained variance, confirming that the structural model captures the major determinants of these outcomes.

Considering that the reliability and validity of this study, in terms of path coefficients and standardized t-values in the PLS output, include the following items:



**Figure 4**
*Path coefficient*


**Figure 5**
*t-value in the standardized form*


Ultimately, it was observed that the questionnaire on teachers' participatory continuous professional development (EFL) demonstrates sufficient reliability.

#### 4. Discussion and Conclusion

The purpose of this study was to conceptualize, develop, and validate a comprehensive instrument to measure Collaborative Continuing Professional Development (CCPD) among Iranian English as a Foreign Language (EFL) teachers. The results provide strong empirical support for the seven-dimension framework identified in the qualitative phase: active stakeholder participation, needs assessment and content localization, collaborative learning methods, policy and legal framework, evaluation and feedback system, motivational and structural support, and sustainability and future orientation. Both the psychometric properties and the theoretical coherence of these constructs confirm that CCPD can be reliably assessed and meaningfully applied in the Iranian EFL context.

One of the most significant findings is the high internal consistency and construct validity of the instrument. Cronbach's alpha values exceeded 0.83 across all dimensions, and composite reliability (CR) and average variance extracted (AVE) also met accepted thresholds. These results indicate that the seven identified dimensions capture distinct yet interconnected aspects of teachers' collaborative professional development. The strong outer loadings—particularly for policy and legal framework (0.88) and active stakeholder participation (0.87)—suggest that these constructs are especially salient for teachers' experience of PD. This resonates with international research emphasizing the centrality of teacher agency and systemic coherence in sustaining professional learning (Ahmad & Shah, 2022; He & Bagwell, 2023). When teachers feel included in policy formation and decision-making, they are more motivated to engage and apply new strategies in their classrooms (Bin-Hady et al., 2024; Rafique, 2024).

Another important result is the strong predictive relationship between policy and legal frameworks and sustainability ( $\beta = 0.42$ ,  $p < .001$ ). This finding reinforces the idea that clearly articulated, stable policies with genuine executive support enable teachers to plan long-term professional growth and maintain collaboration over time (Sato et al., 2022; Taşdemir & Karaman, 2022). In the Iranian context, where teachers have historically faced fragmented and top-down PD initiatives, the establishment of coherent frameworks could shift perceptions from

mandatory compliance to purposeful development (Al Ofi, 2022). Previous studies have shown that PD becomes transformative when institutional policies ensure continuity, provide resources, and give teachers a voice in shaping content and methods (Ahmad & Shah, 2022; Geron, 2025).

The link between needs assessment and learning outcomes ( $\beta = 0.40$ ) also aligns with earlier work underscoring the value of context-driven PD. Tailoring professional development to classroom realities improves both teacher satisfaction and instructional effectiveness (Afshar & Doosti, 2022; Arefian, 2022). The Iranian teachers interviewed in this study emphasized the frustration caused by centrally designed, one-size-fits-all programs. Our findings confirm that accurate needs analysis and content localization are essential for bridging this gap and echo evidence from other contexts where personalized PD leads to greater classroom transfer (Ahmad & Shah, 2022; Rafique, 2024). This also responds to calls to make teacher learning culturally and pedagogically relevant, especially in non-Western EFL settings (Qi & Derakhshan, 2023).

Another critical insight is the role of collaborative learning methods in reinforcing the sustainability of PD. Teachers' qualitative feedback highlighted a preference for interactive, practice-oriented sessions over lecture-based formats. Quantitative data supported the distinct reliability of this dimension and its strong factor loadings. These findings mirror international research that positions peer coaching, action research, and communities of practice as essential vehicles for professional growth (Asaoka, 2021; Vadivel et al., 2021). Studies have shown that such collaborative spaces allow teachers to experiment with new ideas, share challenges, and receive peer feedback, resulting in deeper and more durable learning (Afshar & Doosti, 2022; Bin-Hady et al., 2024). Moreover, the documented value of online platforms in this study resonates with work demonstrating that digital collaboration can extend access and support beyond physical boundaries, although it requires purposeful design to avoid superficial participation (Aktar et al., 2022; He & Bagwell, 2023).

The evaluation and feedback system also emerged as a decisive factor. Teachers expressed dissatisfaction with generic post-training evaluations and emphasized the need for constructive, personalized feedback and follow-up. Our quantitative findings confirm that this dimension is reliable and theoretically distinct, supporting the literature that highlights feedback as a catalyst for teacher growth (Irgatoglu, 2021; Saeb et al., 2021). When teachers receive actionable feedback, they are more likely to implement new

strategies and sustain innovation. This aligns with the call for evaluation mechanisms that are iterative, participatory, and tied to actual classroom practice rather than bureaucratic compliance (Al Ofi, 2022).

Motivational and structural support also proved to be essential, though it had slightly lower mean scores than other factors. This suggests that while teachers value collaboration and learning, practical barriers such as time, resources, and recognition still limit their engagement. Research across diverse contexts has repeatedly shown that PD fails when teachers feel unsupported or unrewarded (Aktar et al., 2022; Dahri et al., 2024). Providing adequate incentives, access to technology, and managerial encouragement can create an enabling environment for sustained participation (Afshar & Doosti, 2022; Rafique, 2024). These findings are particularly relevant in Iran, where heavy teaching loads and limited institutional support have been cited as major obstacles to ongoing professional growth (Qi & Derakhshan, 2023).

Finally, the dimension of sustainability and future orientation was validated as an essential predictor of lasting impact. Teachers stressed the need for programs with long-term planning, continuity, and adaptability to technological and curricular change. This aligns with the growing consensus that PD must prepare educators not only for current instructional demands but also for emerging challenges in education (Geron, 2025; Zhao, 2025). The positive association between sustainability and other constructs, particularly policy and participation, underscores that enduring PD systems require both top-level strategic vision and grassroots teacher involvement (Babayi & Babayi, 2025; Suryandari et al., 2024; Takalao et al., 2024).

This study makes three major contributions. First, it responds to calls for contextualized measurement tools for CCPD. While previous research has explored collaborative PD conceptually (Sato et al., 2022; Taşdemir & Karaman, 2022), few instruments have been validated to capture its multi-dimensional nature, especially in non-Western contexts. The questionnaire introduced here bridges this gap by operationalizing seven interrelated dimensions, each supported by robust psychometric evidence. Second, it integrates teacher voice and lived experience into instrument design. The qualitative phase ensured that the constructs reflect the realities of Iranian EFL teachers rather than importing Western frameworks wholesale (Afshar & Doosti, 2022; Arefian, 2022). Third, it demonstrates the structural relationships among key factors, showing that policy, participation, and support systems work together to sustain

collaborative growth. These insights add nuance to global discussions about how to institutionalize teacher-driven PD while maintaining systemic alignment (Ahmad & Shah, 2022; Rafique, 2024).

Although this study offers a validated and contextually grounded instrument, several limitations must be acknowledged. First, the sample was limited to Iranian EFL teachers from universities and language institutes, which may restrict the generalizability of findings to other disciplines or educational contexts. Teachers of other subjects or from rural and underserved schools might experience different structural barriers or motivational dynamics not fully captured in this dataset. Second, the cross-sectional design of the quantitative phase prevents conclusions about how CCPD evolves over time. Professional development is inherently longitudinal, and teachers' collaborative engagement may shift with changing policies, technological adoption, or personal career stages. Third, while the study employed rigorous mixed methods, qualitative data came primarily from volunteers who might already be positively inclined toward professional growth. This self-selection could have introduced a degree of optimism bias, potentially overlooking voices of teachers who are disengaged or resistant to collaboration. Finally, the validation process, though comprehensive, relied on self-reported data, which can be affected by social desirability or recall bias. Observational or performance-based measures could complement self-report instruments to provide a fuller picture of collaborative professional development in practice.

Future research should aim to expand the scope and applicability of the CCPD questionnaire. One promising direction is to test the instrument with teachers from different subject areas, educational levels, and cultural contexts to explore its cross-disciplinary and cross-cultural validity. Comparative studies between EFL and non-language teachers could uncover discipline-specific needs and refine the instrument accordingly. Longitudinal research is also essential to examine how CCPD practices and perceptions evolve across teachers' careers and in response to educational reforms. Tracking teachers over several years would reveal patterns of sustained growth or attrition and identify the long-term impact of policy stability, technological change, and evolving collaborative networks. Moreover, mixed-methods research integrating classroom observations and student learning outcomes could triangulate self-reported engagement with objective measures of instructional improvement. Digital professional

development also warrants deeper investigation. As online platforms become increasingly prominent, future studies should explore how to design virtual spaces that genuinely foster collaboration and reflection rather than superficial content sharing. Finally, advanced statistical modeling, such as multi-group structural equation modeling, could test whether the CCPD framework operates similarly across gender, experience levels, or institutional types, further strengthening its robustness and utility.

For policymakers and institutional leaders, this study highlights the need to rethink professional development as a collaborative, teacher-driven, and sustainable process. Designing PD programs should begin with systematic needs assessment that respects teachers' classroom realities and student diversity. Providing clear, stable, and supportive policy frameworks is crucial; frequent shifts and top-down mandates undermine engagement and continuity. Institutions should embed collaborative learning methods into PD structures by facilitating peer coaching, lesson study, and communities of practice, both face-to-face and online. Equally important is building robust evaluation and feedback mechanisms that go beyond compliance to offer constructive, personalized guidance and opportunities for iterative improvement. Practical support—including time allocations, access to digital tools, recognition, and modest incentives—should be integrated to lower participation barriers and signal institutional commitment. Finally, long-term vision is essential: PD initiatives must be future-oriented, anticipating educational innovation and equipping teachers to adapt proactively. By applying these principles and using validated tools such as the CCPD questionnaire, decision-makers can create professional development ecosystems that empower teachers, enhance instructional quality, and ultimately benefit learners.

### Authors' Contributions

All authors significantly contributed to this study.

### Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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### Declaration of Interest

The authors report no conflict of interest.

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### Ethical Considerations

In this study, to observe ethical considerations, participants were informed about the goals and importance of the research before the start of the interview and participated in the research with informed consent.

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