

Developing the Professional Competence of Pre-Service English Language Teachers Through A Reflective Approach: Theoretical Foundations and Experimental Evidence

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Abstract: This study examines the effectiveness of a reflective approach in developing the professional competence of pre-service English language teachers. Drawing on established theories of reflection, including experiential learning (Morris, 2020), the reflective practitioner model (Helyer, 2015), structured reflective frameworks (Bassot, 2016), and the ALACT model (Korthagen, 2017), the research integrates these perspectives into a unified pedagogical system based on 3R+ technology (Reflect, Reframe, Reform + Continuous Professional Development).

A quasi-experimental design was employed with 423 participants from three higher education institutions. The experimental group ($n = 211$) engaged in structured reflective modules, while the control group ($n = 212$) followed traditional instruction. Professional competence was assessed across motivational, gnoseological, practical, and reflective components. Statistical analysis revealed significant post-intervention differences between groups, $\chi^2(2, N = 423) = 38.11, p < .001$, with a medium-to-large effect size (Cramér's $V \approx .30$). The proportion of high-level competence in the experimental group increased from 18% to 43%, while low-level indicators decreased from 43% to 12%.

The findings provide strong empirical evidence that a structured reflective approach functions as a transformative pedagogical technology in teacher education.

Keywords: Reflective approach; professional competence; pre-service English language teachers; reflective practice; experiential learning; 3R+ technology; teacher education; pedagogical innovation.

Introduction: Contemporary education increasingly demands teachers who are not only knowledgeable but also capable of critical reflection, adaptive decision-making, and continuous professional growth. In English language teaching (ELT), where communicative flexibility and contextual responsiveness are central, professional competence extends beyond subject mastery to include motivational commitment, theoretical understanding, practical skills, and reflective capacity. Among these dimensions, reflection is widely recognized as a key regulatory mechanism that integrates and sustains professional development.

The theoretical foundations of reflection originate in experiential learning theory, where reflection is conceptualized as the systematic reconstruction of experience (Yardley, S., Teunissen, P. W., & Dornan, T., 2012). Schön further positioned reflection at the core of professional expertise through the concepts of reflection-in-action and reflection-on-action (Sellars, 2017). Subsequent models, including Kolb's experiential learning cycle (Seaman, J., Brown, M., & Quay, J., 2017), Gibbs' reflective framework (Bassot, 2016), Rolfe's analytical model (G. Rolfe, D. Freshwater & M. Jasper, 2001), and Korthagen's ALACT framework

(Korthagen, 2017), have operationalized reflection into structured pedagogical processes.

Despite strong theoretical grounding, empirical validation of reflection as a systematic pedagogical technology in pre-service ELT education remains limited. Reflection is often implemented as isolated activities rather than as an integrated developmental system.

This study addresses this gap by investigating the effectiveness of a structured reflective approach implemented through 3R+ technology (Reflect, Reframe, Reform + Continuous Professional Development). Using a quasi-experimental design and statistical analysis, the research examines whether systematic reflective intervention significantly enhances the multidimensional professional competence of pre-service English language teachers.

LITERATURE REVIEW

Reflection has long been recognized as a central construct in educational theory and professional development. Its philosophical roots can be traced to John Dewey's theory of experiential learning, which conceptualizes reflection as the systematic reconstruction of experience through disciplined inquiry (Yardley, S., Teunissen, P. W., & Dornan, T., 2012). According to Dewey, meaningful learning occurs not through experience alone, but through critical examination of that experience. This perspective established reflection as a cognitive process that transforms practical situations into opportunities for intellectual growth.

Donald Schön extended this idea into professional contexts through the concept of the "reflective practitioner" (Sellars, 2017). He distinguished between reflection-in-action (real-time analysis during professional activity) and reflection-on-action (retrospective evaluation after practice). Schön's framework shifted the understanding of professional competence from the application of technical knowledge toward adaptive expertise grounded in situational awareness and iterative problem-solving.

To operationalize reflection in educational settings, several structured models have been proposed. Kolb's experiential learning cycle conceptualizes learning as a four-stage process consisting of concrete experience, reflective observation, abstract conceptualization, and

active experimentation (Morris, 2020). This model emphasizes reflection as a pivotal stage connecting practice with theory. Gibbs' reflective cycle further structures reflective analysis into six stages, integrating emotional awareness with strategic planning (Bassot, 2016). Rolfe simplified reflection through three guiding questions, "What? So what? Now what?", providing an accessible analytical framework (G. Rolfe, D. Freshwater & M. Jasper, 2001). Korthagen's ALACT model (Action-Looking back-Awareness-Creating alternatives-Trial) connects reflective awareness directly to professional competence development (Korthagen, 2017).

In English language teaching (ELT), reflection is closely linked to communicative competence theory, which emphasizes context-sensitive language use (Celce-Murcia, M., Brinton, D. M., & Snow, M. A., 2014) (Morris, 2020). Effective language teachers must adapt instruction to dynamic classroom contexts, making reflective practice essential for methodological flexibility. Reflective journals, teaching portfolios, peer observation, and microteaching analysis have been shown to enhance pedagogical awareness and professional identity formation.

Despite strong theoretical foundations, several research gaps remain. Reflective models are often implemented independently rather than as components of an integrated pedagogical system. Moreover, empirical studies employing rigorous statistical analysis to measure the multidimensional impact of reflection on professional competence remain limited.

The present study addresses these limitations by integrating multiple reflective frameworks within a structured 3R+ technological model and empirically examining its effectiveness in developing the professional competence of pre-service English language teachers.

METHODOLOGY

Research Design

The study employed a quasi-experimental pre-test-post-test control group design to examine the effectiveness of a structured reflective approach in developing the professional competence of pre-service English language teachers. The independent variable was the implementation of 3R+ technology (Reflect,

Reframe, Reform + Continuous Professional Development), while the dependent variable was professional competence, conceptualized across four components: motivational, gnoseological (cognitive), practical, and reflective.

Two groups participated in the study: an experimental group (EG) that received structured reflective intervention and a control group (CG) that followed traditional instructional practices without systematic reflective integration. The design was grounded in established reflective and experiential learning theories (Korthagen, 2001), which informed both the intervention framework and assessment criteria.

Participants

The study involved 423 pre-service English language teachers from three higher education institutions. Participants were distributed as follows:

Experimental Group (EG): $n = 211$

Control Group (CG): $n = 212$

Prior to the intervention, a baseline diagnostic assessment was conducted to ensure equivalence between groups. A chi-square test confirmed no statistically significant differences in competence distribution at pre-test, $\chi^2(2, N = 423) = 1.84, p > .05$. This result supports the internal validity of the comparative design.

Intervention Procedure

The reflective intervention was implemented over one academic semester and integrated into 15 thematic modules within the teacher education curriculum. The experimental group engaged in structured reflective activities combining:

- Experiential learning cycles
- Reflection-in-action and reflection-on-action principles
- Structured analytical stages
- The ALACT model for pedagogical analysis

These models were synthesized within the 3R+ framework, which included four stages: Reflect (systematic analysis), Reframe (reinterpretation through theoretical lenses), Reform (implementation of improved strategies), and Continuous Professional Development (long-term integration of reflection).

Instructional activities included reflective journals,

microteaching simulations, peer observation, portfolio development, and collaborative reflective discussions. The control group completed equivalent academic content without structured reflective cycles.

Measurement and Data Analysis

Professional competence was assessed using standardized rubrics aligned with four competence components: motivational, gnoseological, practical, and reflective. Each component was categorized into three levels: High, Medium, and Low.

Instrument reliability was evaluated using Cronbach's alpha ($\alpha = .87$), indicating strong internal consistency. Content validity was ensured through expert review.

Data analysis involved both descriptive and inferential statistics. Frequency distributions and percentage changes were calculated for pre-test and post-test results. Pearson's chi-square test was used to examine differences between groups and within groups over time:

$$\chi^2 = \sum (O - E)^2 / E$$

Post-test analysis revealed a statistically significant association between instructional condition and competence level, $\chi^2(2, N = 423) = 38.11, p < .001$. Within the experimental group, pre- to post-test comparison also showed significant structural transformation, $\chi^2(2, N = 211) = 66.54, p < .001$.

To assess practical significance, Cramér's V was calculated ($V \approx .30$), indicating a medium-to-large effect size. All statistical assumptions for chi-square testing were met, including independence of observations and adequate expected cell frequencies.

RESULTS

This section presents the statistical findings of the study, including baseline equivalence, post-intervention between-group comparison, and within-group transformation analysis.

Baseline Equivalence

Prior to the intervention, a pre-test analysis was conducted to ensure comparability between the experimental group (EG; $n = 211$) and the control group (CG; $n = 212$). The chi-square test indicated no statistically significant differences in competence level distribution at baseline, $\chi^2(2, N = 423) = 1.84, p > .05$. Both groups demonstrated predominantly medium and low levels of professional competence, confirming

initial equivalence and supporting the internal validity of the quasi-experimental design.

Distribution of Competence Levels: Pre- and Post-Test

Results

The generalized results of competence development across all four components are presented in Table 1.

Table 1

Pre- and Post-Experimental Distribution of Professional Competence Levels

Experimental Group (n = 211)

Component	High (Pre)	High (Post)	Medium (Pre)	Medium (Post)	Low (Pre)	Low (Post)
Motivational	37	92	81	94	93	25
Cognitive (Gnoseological)	40	89	80	95	91	27
Practical	39	93	84	97	88	21
Reflective	36	90	83	94	92	27
Overall Average	38	91	82	95	91	25

Control Group (n = 212)

Component	High (Pre)	High (Post)	Medium (Pre)	Medium (Post)	Low (Pre)	Low (Post)
Motivational	33	38	77	123	102	51
Cognitive (Gnoseological)	35	35	79	119	98	58
Practical	36	34	80	120	96	58
Reflective	32	37	76	122	104	53
Overall Average	34	36	78	121	100	55

Post-Intervention Between-Group Comparison

Following the implementation of the structured reflective intervention in the experimental group, substantial differences emerged between groups at post-test.

In the experimental group, the distribution of competence levels was as follows:

High: 91 (43.1%)

Medium: 95 (45.0%)

Low: 25 (11.8%)

In the control group, post-test distribution was:

High: 36 (17.0%)

Medium: 121 (57.1%)

Low: 55 (25.9%)

A Pearson chi-square test revealed a statistically significant association between instructional condition and competence level:

$$\chi^2(2, N = 423) = 38.11, p < .001$$

Since the obtained value exceeded the critical threshold at $\alpha = .01$, the null hypothesis was rejected. This result indicates that participation in the reflective intervention was significantly associated with higher competence levels.

Effect Size

To evaluate practical significance, Cramér's V was

calculated:

$$V \approx 0.30$$

According to conventional interpretation benchmarks, this value represents a medium-to-large effect size, indicating meaningful educational impact. The proportion of participants achieving high-level competence in the experimental group (43.1%) was more than double that in the control group (17.0%), highlighting the strength of the intervention effect.

Within-Group Transformation: Experimental Group

Pre-test distribution in the experimental group was:

High: 38 (18.0%)

Medium: 82 (38.9%)

Low: 91 (43.1%)

Post-test distribution demonstrated a pronounced upward shift:

High: 91 (43.1%)

Medium: 95 (45.0%)

Low: 25 (11.8%)

Internal chi-square analysis confirmed statistically significant structural transformation:

$$\chi^2(2, N = 211) = 66.54, p < .001$$

The increase of approximately 25 percentage points in the high-level category and the reduction of over 30 percentage points in the low-level category indicate qualitative redistribution rather than incremental improvement.

Within-Group Transformation: Control Group

The control group exhibited moderate changes:

Pre-test:

High: 34 (16.0%)

Medium: 78 (36.8%)

Low: 100 (47.2%)

Post-test:

High: 36 (17.0%)

Medium: 121 (57.1%)

Low: 55 (25.9%)

Although some redistribution occurred—primarily from low to medium levels—the increase in high-level competence was minimal (+1%). This suggests gradual academic progression rather than structural

transformation.

Component-Level Trends

Analysis across competence components (motivational, gnoseological, practical, and reflective) revealed consistent positive dynamics in the experimental group. The reflective component demonstrated the most substantial growth, suggesting enhanced metacognitive awareness and self-regulation. Improvements in motivational and cognitive dimensions were accompanied by significant gains in practical performance, indicating inter-component synergy.

In contrast, the control group showed limited growth in high-level indicators across components, reinforcing the conclusion that traditional instruction alone does not produce comparable transformative effects.

Summary of Findings

The results demonstrate that:

1. No significant differences existed between groups at baseline.
 2. Post-intervention differences were highly significant, $\chi^2(2, N = 423) = 38.11, p < .001$.
 3. The experimental group experienced substantial upward redistribution toward high competence levels.
- The intervention produced a medium-to-large practical effect (Cramér's $V \approx .30$).
- The control group showed limited qualitative transformation.

Overall, the statistical evidence confirms that structured reflective intervention significantly enhances the multidimensional professional competence of pre-service English language teachers.

CONCLUSION

The present study set out to empirically investigate the effectiveness of a structured reflective approach in developing the professional competence of pre-service English language teachers. Grounded in established theoretical traditions of experiential learning and reflective practice, the research aimed to move beyond theoretical advocacy and provide statistically validated evidence of reflective pedagogy as a systematic instructional technology. The findings confirm that when reflection is embedded as a structured and continuous component of teacher preparation, it

produces meaningful and multidimensional transformation in professional competence.

The quasi-experimental design demonstrated that the experimental group, exposed to the integrative 3R+ technology (Reflect, Reframe, Reform + Continuous Professional Development), experienced statistically significant and educationally substantial growth across motivational, gnoseological, practical, and reflective dimensions. The upward redistribution toward high-level competence, coupled with a marked decline in low-level indicators, indicates not merely incremental improvement but structural reorganization of competence profiles. The medium-to-large effect size further underscores the practical significance of the intervention.

One of the central conclusions of this study is that reflection operates as a regulatory core within the competence structure. The reflective component did not improve in isolation; rather, it functioned as a catalyst influencing motivational engagement, theoretical understanding, and practical performance. This inter-component synergy reinforces contemporary interpretations of reflection as a metacognitive mechanism that integrates knowledge, skills, and professional values. The results substantiate the argument that professional competence in teacher education should be understood not as a static accumulation of knowledge but as a dynamic, self-regulated system shaped by continuous reflective inquiry.

The study also confirms that the integrative application of multiple reflective models generates cumulative pedagogical benefits. Kolb's experiential cycle (Morris, 2020) provided a structured pathway from experience to conceptualization and experimentation, while Gibbs' reflective stages encouraged emotional awareness and strategic planning. Rolfe's analytical questioning facilitated clarity of interpretation, and Korthagen's ALACT framework deepened awareness of essential pedagogical aspects. The synthesis of these models within the 3R+ technological structure enabled reflection to function coherently rather than episodically. This integrative approach addresses a persistent limitation in previous research, where reflective tools were frequently implemented in fragmented form without examining their systemic impact.

From a theoretical standpoint, the findings contribute to the reconceptualization of reflective practice as a measurable and operationalizable construct within teacher education research. While reflection has long been recognized as conceptually valuable, empirical validation through rigorous statistical analysis has remained relatively limited. By employing chi-square analysis and effect size calculation, this study strengthens the quantitative evidence base supporting reflective pedagogy. The results demonstrate that reflection can be evaluated not only through qualitative insights but also through statistically significant competence redistribution patterns.

From a practical perspective, the findings highlight the necessity of institutionalizing reflective modules within pre-service teacher education curricula. Structured reflective journals, microteaching analysis, peer observation, and portfolio-based assessment should be integrated as systemic components rather than optional enhancements. The incorporation of continuous professional development principles within the 3R+ framework further emphasizes that reflection should extend beyond short-term coursework into long-term professional identity formation.

At the same time, it is important to acknowledge the contextual boundaries of the study. The quasi-experimental design, while robust, does not fully eliminate potential confounding variables, and the research was conducted within three higher education institutions. Although baseline equivalence and statistical controls strengthen internal validity, generalization to broader contexts should be approached cautiously. Future research should incorporate longitudinal designs to assess the sustainability of reflective competence during in-service teaching practice. Additionally, comparative investigations across diverse cultural and institutional contexts would provide further insight into the adaptability of reflective technologies.

Another promising direction for future research involves deeper examination of digital and artificial intelligence-enhanced reflective environments. While digital platforms were incorporated into the present intervention, their specific contribution was not isolated statistically. Investigating the interaction between reflective practice and AI-supported feedback mechanisms may yield further advancements in

teacher education innovation.

In conclusion, this study substantiates the reflective approach as a transformative pedagogical technology capable of enhancing the multidimensional professional competence of pre-service English language teachers. Reflection, when systematically structured and theoretically grounded, functions not as a supplementary instructional technique but as a foundational mechanism of adaptive expertise and sustainable professional development. The empirical evidence presented here reinforces the central role of reflection in modern teacher education and supports its institutional integration as a core element of professional preparation in English language teaching contexts.

Implications for Practice

The findings of this study suggest that reflection should be institutionalized as a systemic component of pre-service English language teacher education rather than implemented as an occasional pedagogical activity. Structured reflective frameworks: such as microteaching analysis, peer observation, teaching portfolios, and guided reflective journals, can significantly enhance multidimensional professional competence when embedded consistently within the curriculum.

Teacher education programs should integrate reflective cycles across methodological courses, ensuring that students repeatedly engage in experience–analysis–improvement processes. The 3R+ model (Reflect, Reframe, Reform + Continuous Professional Development) provides a practical structure for organizing reflective tasks in progressive stages. Such structured implementation may strengthen metacognitive awareness, instructional adaptability, and long-term professional commitment. Furthermore, the integration of digital platforms for collaborative reflection can enhance peer feedback and promote interactive professional dialogue. Embedding reflection into assessment systems, through portfolio evaluation and structured feedback rubrics, may also increase transparency and accountability in competence development.

Overall, systematic reflective integration has the potential to modernize teacher preparation programs by fostering adaptive expertise and sustainable

professional growth in future English language teachers.

Limitations and Future Research

Despite its contributions, this study has several limitations. First, the quasi-experimental design, while methodologically robust, did not involve full randomization, which may limit causal generalization. Second, the research was conducted within three higher education institutions, and contextual factors may influence the transferability of findings to other educational settings.

Additionally, the intervention was implemented over one academic semester, which does not allow evaluation of long-term sustainability of competence gains. Future research should employ longitudinal designs to examine whether reflective competence developed during pre-service education is maintained during in-service teaching practice.

Further studies may also explore the comparative effectiveness of different reflective models when implemented independently. Investigating the role of digital and AI-supported reflective tools in enhancing metacognitive development represents another promising direction. Expanding research across diverse cultural and institutional contexts would strengthen the generalizability and global applicability of reflective pedagogical technologies.

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