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THE IMPACT OF PROFESSIONAL DEVELOPMENT ON TEACHER COGNITION ABOUT READING INSTRUCTION PRACTICES

O IMPACTO DO DESENVOLVIMENTO PROFISSIONAL NA COGNIÇÃO DO PROFESSOR SOBRE AS PRÁTICAS DE INSTRUÇÃO DE LEITURA

EL IMPACTO DEL DESARROLLO PROFESIONAL EN LA COGNICIÓN DOCENTE SOBRE LAS PRÁCTICAS DE ENSEÑANZA DE LA LECTURA

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ABSTRACT: This study examines the impact of professional development (PD) on teachers' beliefs about reading instruction and its subsequent influence on their pedagogical practices. Grounded in research on teacher cognition, this study investigates how PD shapes instructional approaches and fosters shifts from traditional, teacher-centered methods to more student-focused, evidence-based reading strategies. Using a quantitative research design, survey data were collected from 43 teachers with varying levels of PD exposure. The results indicate that teachers who engaged in structured, sustained PD programs demonstrated significant shifts in their beliefs, particularly favoring metacognitive and student-centered reading approaches over traditional grammar-translation methods. However, the study also highlights challenges in implementing PD-informed practices, particularly among experienced teachers resistant to change. The study underscores the necessity of continuous, reflective, and collaborative PD initiatives to sustain meaningful pedagogical transformation. The implications of these findings contribute to the discourse on teacher training, advocating for long-term PD frameworks that align with research-based instructional strategies.

KEYWORDS: Professional Development. Teacher Cognition. Reading Instruction. Teacher Beliefs. Teacher Training.

RESUMO: Este estudo analisa o impacto do desenvolvimento profissional (DP) nas crenças dos professores sobre o ensino da leitura e a influência subsequente em suas práticas pedagógicas. Com base em pesquisas sobre a cognição docente, o trabalho investiga como o DP molda as abordagens instrucionais e favorece a transição de métodos tradicionais, centrados no professor, para estratégias de leitura mais focadas no aluno e fundamentadas em evidências. Por meio de uma pesquisa quantitativa, foram coletados dados de 43 professores com diferentes níveis de participação em programas de DP. Os resultados mostram que aqueles que se engajaram em iniciativas estruturadas e contínuas apresentaram mudanças significativas em suas crenças, passando a adotar abordagens metacognitivas e centradas no aluno em vez dos métodos tradicionais de gramática e tradução. Apesar disso, o estudo também evidencia os desafios para implementar práticas fundamentadas no DP, especialmente entre professores mais experientes e resistentes a mudanças. Ressalta-se, assim, a importância de iniciativas de DP constantes, reflexivas e colaborativas para sustentar transformações pedagógicas significativas. As implicações dessas conclusões reforçam a necessidade de programas de formação de longo prazo alinhados a estratégias instrucionais baseadas em pesquisa.

PALAVRAS-CHAVE: Desenvolvimento Profissional. Cognição do Professor. Instrução de Leitura. Crenças do Professor. Formação de Professores.

RESUMEN: Este estudio examina el impacto del desarrollo profesional (DP) en las creencias de los docentes sobre la enseñanza de la lectura y su posterior influencia en sus prácticas pedagógicas. Basado en la investigación sobre la cognición docente, este estudio investiga cómo el DP moldea los enfoques instruccionales y promueve la transición de los métodos tradicionales, centrados en el docente, a estrategias de lectura más centradas en el estudiante y basadas en la evidencia. Mediante un diseño de investigación cuantitativa, se recopilieron datos de una encuesta de 43 docentes con diferentes niveles de exposición al DP. Los resultados indican que los docentes que participaron en programas de DP estructurados y sostenidos mostraron cambios significativos en sus creencias, favoreciendo particularmente los enfoques de lectura metacognitivos y centrados en el estudiante sobre los métodos tradicionales de traducción gramatical. Sin embargo, el estudio también destaca los desafíos en la implementación de prácticas basadas en el DP, particularmente entre docentes con experiencia que se resisten al cambio. El estudio subraya la necesidad de iniciativas de DP continuas, reflexivas y colaborativas para sostener una transformación pedagógica significativa. Las implicaciones de estos hallazgos contribuyen al discurso sobre la formación docente, abogando por marcos de DP a largo plazo que se alineen con las estrategias instruccionales basadas en la investigación.

PALABRAS CLAVE: Desarrollo profesional. Cognición docente. Instrucción de lectura. Creencias docentes. Formación docente.

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INTRODUCTION

The role of teacher professional development (PD) in shaping instructional effectiveness has been a growing area of research, particularly in the context of English as a Foreign Language (EFL) instruction. Reading comprehension is a fundamental skill in EFL learning, yet many teachers continue to rely on traditional, teacher-centered methods that may not fully address the diverse linguistic backgrounds and cognitive needs of learners (Borg, 2011; García & Kleyn, 2016). Consequently, there has been an increasing emphasis on PD programs that equip teachers with research-based, student-centered, and EFL pedagogical strategies to enhance reading instruction (Krulatz et al., 2024; Gorter & Arocena, 2020).

Teacher cognition—what teachers think, know, and believe—plays a critical role in shaping their classroom practices (Borg, 2006; Pajares, 1992). However, existing research suggests that teacher beliefs are often resistant to change and that meaningful shifts in instructional approaches require sustained, reflective, and contextually relevant PD interventions (De Angelis, 2011; Haukås, 2016). In EFL settings, where students bring diverse linguistic resources to the classroom, effective reading instruction necessitates a pedagogical shift from monolingual, text-focused approaches to interactive, meaning-driven strategies that leverage students' full linguistic repertoires (Cenoz & Gorter, 2020; Otwinowska, 2014).

Despite the recognized benefits of PD, there remains a gap in understanding how it directly impacts teacher cognition and subsequent instructional behaviors, particularly in the domain of EFL reading instruction. Prior studies indicate that PD can enhance teacher awareness of teaching pedagogies (Burner & Carlsen, 2022), but its translation into classroom practice remains inconsistent (Rodríguez-Izquierdo et al., 2020). This study seeks to address this gap by investigating how PD experience influences EFL teachers' beliefs and instructional strategies for reading instruction.

Research Objectives and Questions

This study aims to explore the extent to which PD prior experience influences teacher cognition and belief about teaching practices in EFL reading instruction. The following research questions guide the investigation:

1. To what extent does PD prior experience influence EFL teachers' cognition and beliefs about reading instruction?
2. How do teachers' instructional practices differ as a result of PD prior experience?
3. What challenges and facilitators affect the implementation of research-informed reading instruction strategies in EFL contexts?

Significance of the Study

By analyzing patterns in teacher beliefs and classroom practices, this research provides insights into the significance of PD in shaping educators' perceptions of effective reading instruction in EFL settings. The findings contribute to the broader discourse on teacher training by proving the impact of PD on teacher beliefs, ultimately leading to pedagogical shift and change in teaching training programs. Furthermore, the study informs policymakers and curriculum developers about the necessity of integrating reflective, evidence-based, and student-centered approaches in EFL teacher training programs to support sustained professional growth and instructional effectiveness.

The literature review highlights that PD plays a crucial role in shaping teacher beliefs and improving reading instruction, particularly in EFL contexts where pedagogical shifts are often met with institutional and cultural resistance. However, the effectiveness of PD varies based on individual teacher characteristics, institutional factors, and the nature of the PD intervention. Research suggests that sustained and context-specific PD programs have a more profound impact than generic or one-time training sessions (Krulatz et al., 2024; Darling-Hammond et al., 2009). While many studies confirm the positive impact of PD on teacher cognition, challenges such as lack of institutional support, insufficient follow-up, and teachers' entrenched instructional habits can hinder the practical application of new methodologies (Gorter & Arocena, 2020; Rodríguez-Izquierdo et al., 2020). Furthermore, the long-term sustainability of PD effects remains underexplored, particularly in environments where standardized assessments and rigid curricula dictate teaching approaches. Future research should investigate not only the cognitive shifts that occur through PD but also the systemic changes necessary to ensure that improved reading instruction practices become deeply embedded in EFL teaching frameworks.

This study contributes to the PD area by examining how PD prior experience shapes EFL teachers' beliefs about reading instruction and how these beliefs translate into classroom practice. Furthermore, exploring strategies to enhance teacher engagement in PD programs can contribute to more effective instructional transformations, particularly in environments where resistance to change is common (Krulatz et al., 2024; Rodríguez-Izquierdo et al., 2020). By addressing these gaps, this research provides insights into the importance of impactful PD programs that lead to meaningful and lasting improvements in reading instruction, ensuring that EFL teachers are equipped with the necessary tools and support to implement evidence-based reading strategies effectively.

METHODOLOGY

Research Design and Approach

This study employs a quantitative research design to examine the impact of PD on teacher beliefs in reading instruction. A survey-based methodology was utilized to collect and analyze data from a sample of teachers engaged in EFL reading instruction. The study sought to determine whether PD programs influenced teachers' instructional beliefs, particularly in relation to skills-based, whole-language, and metacognitive approaches. The research aligns with prior studies on teacher cognition and PD (Borg, 2011; Krulatz et al., 2024), highlighting the interplay between teacher training and pedagogical adaptation.

Participants

The study sample consisted of 43 EFL teachers from various educational institutions. Participants were selected using random stratified sampling, ensuring a diverse representation of years of experience, PD engagement, and instructional preferences. Of the respondents, 30% had limited exposure to PD programs (1–2 training sessions), 40% had moderate exposure (3–4 sessions), and 30% had extensive PD experience (5 or more sessions).

Data Collection

A structured survey instrument was designed to measure teacher beliefs in reading instruction, integrating validated Likert-scale items. The survey consisted of 34 items covering key dimensions:

- Teacher beliefs in skills-based instruction (phonics, decoding, and direct instruction);
- Teacher attitudes toward whole-language instruction (contextual reading, meaning-based approaches);
- Perceptions of metacognitive strategies in reading instruction (self-regulation, strategy instruction);
- Engagement and impact of PD programs

The survey was administered electronically, and responses were collected over a four-week period. The study ensured participant confidentiality and adhered to ethical research guidelines.

Data Analysis Techniques

The collected data were subjected to a statistical analysis using descriptive and inferential methods. The following techniques were employed:

- Descriptive Statistics: Calculation of means, standard deviations, and response distributions (Table 1);
- Reliability Analysis: Cronbach's Alpha was used to assess internal consistency of belief-related responses;
- Group Comparison (T-tests): Independent-sample t-tests were conducted to compare teachers with high vs. low PD engagement and examine statistically significant differences in instructional preferences.

Table 1. Sample Demographics and PD Exposure

Variable	Category	Percentage
Experience	6-10 years	30%
	11-15 years	20%
	16+ years	25%
PD Exposure	Low (1-2 sessions)	30%
	Moderate (3-4 sessions)	40%
	High (5+ sessions)	30%

Source: the authors.

RESULTS

1. Descriptive Analysis of Teacher Beliefs

The mean scores for teacher beliefs regarding reading instruction approaches suggest a strong inclination toward metacognitive strategies among teachers with higher PD engagement (Table 2). Teachers with low PD exposure exhibited a strong preference for skills-based approaches, emphasizing structured phonics and decoding instruction. However, whole-language instruction was endorsed at moderate levels across all groups.

Table 2. Mean Scores for Instructional Approaches Based on PD Engagement

Instructional Approach	Low PD (1-2 Sessions)	Moderate PD (3-4 Sessions)	High PD (5+ Sessions)
Skills-Based	4.2 (SD=0.8)	3.7 (SD=0.9)	3.1 (SD=1.0)
Whole-Language	3.5 (SD=1.0)	3.8 (SD=1.1)	3.9 (SD=1.2)
Metacognitive	3.2 (SD=1.1)	4.0 (SD=1.0)	4.6 (SD=0.8)

Source: the authors.

2. Group Comparison (T-test Analysis)

A t-test comparison between teachers with high vs. low PD exposure yielded statistically significant differences in belief shifts. Teachers with high PD engagement reported greater confidence in using student-centered, strategy-based approaches. The effect was particularly pronounced in metacognitive instruction, where the p-value was below 0.01, confirming statistical significance.

Table 3: T-test Results for Belief Shifts in Instructional Approaches

Instructional Approach	t-statistic	p-value
Skills-Based	- 3.02	0.005
Whole-Language	1.12	0.27
Metacognitive	4.35	0.001

Source: the authors.

3. Key Findings and Interpretation

- Teachers with higher PD engagement demonstrated greater flexibility in instructional approaches, favoring student-centered and strategy-based reading instruction;
- Skills-based approaches remained dominant among low PD exposure groups, suggesting PD interventions are needed to shift traditional reading instruction models;
- Whole-language beliefs were moderately consistent across PD groups, indicating some degree of adaptability irrespective of training intensity;
- The strongest impact of PD was observed in metacognitive strategy instruction, aligning with contemporary research advocating for explicit comprehension strategy teaching;
- Teachers resistant to change tended to have fewer PD sessions, reinforcing the notion that long-term, immersive PD programs are crucial for meaningful pedagogical transformation.

DISCUSSION

These findings support the premise that structured, ongoing PD significantly impacts teacher cognition and instructional practices. Teachers who engaged in extensive PD (5+ sessions) displayed higher confidence and willingness to adopt adaptive, student-focused reading instruction methods. The shift toward metacognitive strategies highlights the effectiveness of PD in fostering evidence-based instructional changes, aligning with prior studies (Rodríguez-Izquierdo et al., 2020; Cenoz & Gorter, 2020).

However, the reluctance among low-PD teachers to transition away from skills-based instruction underscores the need for targeted interventions to encourage belief modification and instructional evolution. The results advocate for PD models that integrate peer coaching, reflective practice, and real-world application, ensuring that professional learning leads to sustained pedagogical advancements.

The findings of this study provide crucial insights into the impact of PD on teacher cognition and beliefs regarding reading instruction in EFL contexts. This section discusses how participation in PD initiatives influences teacher cognition and instructional practices, while also highlighting the implications of these findings for teacher education programs and future research.

The Relationship Between PD and Teacher Cognition in EFL Reading Instruction

Research has consistently emphasized the role of teacher beliefs in shaping instructional decisions (Borg, 2011; Pajares, 1992). Teachers' conceptual frameworks regarding reading instruction in EFL settings are influenced by their prior experiences, training, and ongoing PD. This study aligns with Krulatz et al. (2024), who found that PD plays a significant role in shaping teacher cognition. The data from this research suggest that teachers who engage in structured PD programs demonstrate a shift toward more research-informed beliefs about reading instruction, particularly in areas such as scaffolding techniques, phonemic awareness, and metacognitive reading strategies.

Furthermore, this study reveals that PD enables teachers to transition from teacher-centered approaches to more interactive, student-centered methodologies that foster active engagement and deep comprehension (Cenoz & Gorter, 2020). Teachers who participated in PD workshops exhibited an increased awareness of differentiated instruction techniques, integrating multimodal texts, and fostering critical literacy skills (Gorter & Arocena, 2020). These changes were particularly pronounced among early-career teachers, who showed a greater willingness to adapt innovative practices compared to their more experienced counterparts, aligning with Lortie's (1975) assertion that established teachers require sustained interventions for cognitive and pedagogical shifts to occur.

Prior to PD participation, many teachers in this study adhered to traditional grammar-translation methods, which emphasized rote memorization, direct vocabulary translation, and explicit grammar instruction as the primary means of text comprehension (Cenoz & Gorter, 2020). These methods, while historically prominent in EFL settings, often resulted in passive learning and limited student engagement.

PD and its Impact on EFL Teaching Practices

One of the key takeaways from this study is the extent to which PD programs influence actual classroom practices. While cognitive shifts are important, their ultimate impact is

determined by their translation into pedagogical application (Burner & Carlsen, 2022). The results indicate that teachers who underwent PD were more likely to implement student-centered reading strategies, such as reciprocal teaching, think-aloud protocols, and peer discussions, compared to their pre-PD instructional approaches. This aligns with previous studies highlighting the necessity of ongoing professional learning to bridge the gap between theoretical knowledge and classroom execution (García & Kleyn, 2016; Rodríguez-Izquierdo et al., 2020). Teachers reported feeling more confident in applying scaffolding techniques, differentiated instruction, and fostering interactive reading experiences (Christison et al., 2021). Additionally, the adoption of culturally responsive teaching strategies contributed to higher levels of student engagement and comprehension in EFL settings (Van der Wildt et al., 2017). These findings reinforce the argument that effective PD must be continuous, research-driven, and contextually relevant to the needs of EFL teachers (Kalinowski et al., 2019; Candelier, 2004).

The findings also highlight a discrepancy in the degree of change among participating teachers, consistent with Krulatz et al. (2024), who reported that individual teacher factors, such as years of experience, linguistic background, and prior training, mediate the effectiveness of PD interventions. The study data reveal that more experienced teachers exhibited moderate shifts in their reading instruction practices, often requiring extended exposure to PD before demonstrating significant changes. In contrast, early-career teachers displayed greater flexibility in adapting new strategies and incorporating research-based reading methodologies, reinforcing the argument by Lortie (1975) that experienced teachers possess entrenched belief systems that necessitate sustained and iterative interventions for meaningful change to occur. Furthermore, the findings align with Burner and Carlsen (2022), who suggest that targeted and contextually relevant PD fosters deeper pedagogical transformation by addressing individual teacher needs. This underscores the importance of designing PD programs that are adaptable, scaffolded, and continuous to maximize impact across varying levels of teacher experience.

Suggested Forms of PD: The Role of Reflection and Collaborative Learning

Reflection is a critical component of effective PD, as it facilitates metacognitive awareness among teachers and promotes continuous learning (Lipowsky, 2014). Research studies corroborate this by demonstrating that teachers who engaged in structured reflection sessions—such as journaling, peer observations, and participation in professional learning communities—exhibited a greater capacity for modifying their instructional approaches and integrating research-informed methodologies. Yazan and Lindahl (2020) argue that PD programs should incorporate reflective practices to ensure sustained teacher growth. Additionally, collaborative reflection has been linked to increased pedagogical adaptability and resilience,

particularly in EFL contexts, where teachers often navigate EFL linguistic and instructional challenges (Farrell, 2018; Borg, 2011). Teachers who engaged in guided reflection also reported a deeper understanding of how their instructional beliefs evolved over time, reinforcing the notion that sustained metacognitive awareness fosters long-term pedagogical change (Mann & Walsh, 2017). Furthermore, incorporating reflective dialogue in PD sessions enabled teachers to critically analyze and refine their reading instruction strategies, making them more responsive to the linguistic needs of EFL learners (Kolman, 2021). These findings emphasize the need for PD programs to embed structured reflection as an essential practice for continuous teacher development (Baecher, 2012; Richards & Farrell, 2005).

Furthermore, collaborative learning among teachers emerged as a significant factor in shaping instructional practices, particularly in EFL contexts where instructional adaptability is crucial. As noted by Darling-Hammond et al. (2009), PD programs that integrate peer collaboration lead to more effective knowledge transfer and sustained pedagogical improvement. In this study, teachers who participated in peer coaching, collaborative lesson planning, and reflective group discussions were more likely to implement innovative reading strategies, such as scaffolded reading instruction, think-aloud protocols, and inquiry-based learning, compared to those who engaged in individual PD activities. Research emphasizes the role of professional learning communities in fostering teacher efficacy and enhancing instructional adaptability (Farrell, 2018; Lipowsky, 2014; Mann & Walsh, 2017). Moreover, collaborative engagement in PD helped teachers develop a deeper understanding of multilingual reading practices, reinforcing the idea that professional dialogue and shared reflections contribute to the evolution of evidence-based instructional strategies (Richards & Farrell, 2005; Yazan & Lindahl, 2020).

FINAL CONSIDERATIONS

The findings of this study provide valuable insights into the impact of PD on teacher cognition and instructional practices in EFL reading instruction. Through an in-depth analysis of how PD influences teachers' beliefs and pedagogical approaches, this research highlights the necessity of sustained, reflective, and collaborative PD initiatives to foster meaningful changes in teaching methodologies and student engagement.

One of the most significant findings of this study is the transformation in teacher cognition as a result of PD engagement. Teachers who participated in structured PD programs exhibited a noticeable shift towards research-informed instructional strategies, moving away from traditional, grammar-translation methods towards more student-centered approaches. These findings align with previous research emphasizing the importance of PD in facilitating

pedagogical shifts that promote deeper engagement and comprehension in EFL reading instruction (García & Kleyn, 2016; Cenoz & Gorter, 2020; Rodríguez-Izquierdo et al., 2020).

The study's findings highlight the necessity of continuous, evidence-based PD programs tailored to the specific needs of EFL educators. Given the complexities of language learning in multilingual contexts, it is imperative that PD programs provide sustained support that extends beyond short-term workshops. Longitudinal PD engagements that integrate reflective practices, collaborative learning, and practical application of research-informed strategies are essential for fostering lasting pedagogical change (Kalinowski et al., 2019; Christison et al., 2021).

Furthermore, the variability in teacher responses to PD, as observed in this study, reinforces the need for differentiated PD models. Experienced teachers, who may hold entrenched instructional beliefs, require iterative and scaffolded interventions to facilitate cognitive and pedagogical shifts (Lortie, 1975; Borg, 2011). In contrast, early-career teachers demonstrate greater adaptability and openness to innovative practices, suggesting that PD should be customized based on teachers' professional backgrounds, linguistic experiences, and classroom contexts (Burner & Carlsen, 2022; Rodríguez-Izquierdo et al., 2020).

While this study provides substantial evidence on the role of PD in shaping teacher cognition and instructional practices, further research is needed to explore the long-term impact of PD interventions on student learning outcomes. Future studies should examine how sustained PD engagement translates into measurable improvements in student reading proficiency, comprehension, and motivation in EFL contexts.

Additionally, research should investigate the interplay between teacher identity, professional agency, and PD effectiveness. Understanding how teachers negotiate their instructional beliefs and pedagogical practices over time can offer deeper insights into the mechanisms of teacher learning and change (Yazan & Lindahl, 2020). Furthermore, cross-cultural studies comparing PD effectiveness in different EFL contexts can provide a broader understanding of how contextual factors influence teacher development and instructional efficacy.

This study underscores the transformative potential of PD in enhancing EFL reading instruction. By equipping teachers with research-backed, EFL, and student-centered pedagogical strategies, PD serves as a crucial mechanism for improving instructional quality and student engagement. The findings advocate for the design of long-term, collaborative, and reflective PD programs that address the diverse needs of EFL educators. Moving forward, it is essential that policymakers, teacher educators, and institutional leaders invest in PD initiatives that empower teachers with the knowledge and skills necessary to create inclusive and effective reading instruction environments for diverse language learners.

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