



Dilemmas and Paths: Influencing Factors and Solutions for the Professional Development of Regional Primary School English Teachers

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Abstract

The professional development of primary school English teachers constitutes a critical component in advancing the reform of compulsory education. Nevertheless, the prevailing developmental paradigm encounters multifaceted challenges that constrain the enhancement of overall teacher competence. This study employed a questionnaire-based survey to investigate 310 regional primary school English teachers from 16 cities in Shandong province, China, with the objective of examining the current state and factors impeding their professional growth. The results indicate that teachers confront common constraints, influenced by factors including individual cognition, institutional mechanisms, and external support systems. Conventional, isolated approaches to professional development have proven increasingly inadequate in addressing contemporary demands. In response, this study proposes a tripartite approach comprising the establishment of “teaching-research communities”, the implementation of “school-based micro-research projects”, and the integration of “digital-intelligence resources with formative teacher evaluation frameworks”. The study offers empirical support and practical insights for optimizing regional teacher development systems.

Subject Areas

Educational Technology

Keywords

Primary School English, Teacher Professional Development, Dilemmas, Development Paths

1. Introduction

Under the background of globalization and digital intelligence, English teaching is playing an increasingly prominent role in the primary school curriculum system. Primary school education is the key period for mastering a foreign language, yet the restrictions of domestic students' language environment undoubtedly put forward higher requirements for the comprehensive literacy of primary school English teachers. The professional development of primary English teachers is not only related to the personal growth and improvement of themselves, but also directly affects English learner's learning interest and effect, as well as the potential for comprehensive development of primary school students in the following learning stages. Therefore, implementing an in-depth study of the professional development dilemma of local primary school English teachers and proposing targeted solutions is of profound practical significance.

2. Research Background

Teacher's professional development refers to the long-term and dynamic development process of teachers in knowledge, skills, experience and mentality during their teaching career, which includes three main dimensions: knowledge and skills development, self-understanding and ecological change [1]. Generally, it encompasses the holistic development of both pre-service and in-service teachers, primarily involving their professional philosophy, knowledge base, pedagogical expertise, identity formation, professional autonomy, values, and awareness of ongoing growth [2]. Primary school English teachers not only do share the common characteristics of general teachers' professional development, but also manifest characteristics of their own. When facing the English beginning learners, they need to base their teaching on practice in a non-native speaking environment, continuing to update their own methodological concepts and knowledge repository, so that their professional knowledge, skills and research capabilities will grow and improve steadily, thus forming a thriving cycle which is conducive to the continuous growth of their professional knowledge, teaching practice, and theoretical level.

It should be acknowledged that Chinese scholars have achieved numerous achievements in their research on primary English teachers' professional development, for since the the past 20 years, China's primary school English teacher development research has achieved relatively fruitful yields in the following four aspects: the connotation of development [3] [4], development status [5] [6], influencing factors [7] [8] and the path for improvement [9] [10], which are worthy of recognition. However, there are still some issues that need to be further discussed. Firstly, regarding the research subjects, current researches present a comparatively small sample size and lack of subject diversity. Most researchers target primary English teachers in a specific city or region, and only investigate the professional development of teachers from one or two local schools, which cannot represent the overall status of primary English teachers' professional development in

China. Secondly, as for the perspective of research, most scholars conduct their research from the angle of teachers and teaching. However, primary English teachers' professional development involve multiple and complicated factors. And there exist multiple directions and paths for the professional development of primary school English teachers. In light of the above analysis, this paper comprehensively analyzes the major factors restricting the professional development of local primary school English teachers by investigating the current professional status and difficulties faced by 310 primary school English teachers from 16 cities of Shandong Province, China. Accordingly, the author proposes corresponding strategies for specific factors and finally proposes a tripartite approach comprising the establishment of "teaching-research communities", the implementation of "school-based micro-research projects", and the integration of "digital-intelligence resources with formative teacher evaluation frameworks". Hopefully, this study can provide useful reference and suggestions for the professional development of regional primary English teachers and even the overall quality of primary English education.

3. Research Design

3.1. Research Questions

This study mainly aims to answer the following three questions:

- 1) What are the primary dilemmas confronting the professional development of regional primary school English teachers?
- 2) What factors can stimulate and sustain the endogenous motivation for professional development among these regional primary school English teachers?
- 3) How can their professional development dilemmas be resolved by tailoring strategies to different types of endogenous motivation?

3.2. Research Participants

The participants of this study are 310 local primary school English teachers from 16 cities in Shandong Province, China, aged between 25 and 45. Among them, there are 34 male teachers, accounting for 10.97% of the total, and 276 female teachers, accounting for 89.03% of the participants. Most of the teachers have a bachelor's degree (88.71%), and a dominant majority (66.77%) have a professional background in English. The years of work experience are relatively balanced, and the title structure is mainly junior and intermediate. The investigation was conducted in the form of questionnaires and interviews, and all participants were voluntary to participate. Besides, each participant received a small gift as a reward after completing the survey.

3.3. Research Instruments and Data Collection

The primary research instruments for this study are the Questionnaire on the Professional Development Status of Primary School English Teachers and face-to-face in-depth interviews. The questionnaire was specifically designed before the

commencement of the research based on the common issues highlighted in daily communications among certain primary school teachers. It consists of two major parts: the first part centers on the participants' basic information, while the second part contains the survey content, encompassing four aspects with 20 questions in total, including self-assessment of professional competence, evaluation of professional development motivation, attributions influencing professional development, and preferences for professional development formats. Before the research was carried out, a pilot study was conducted among 30 English teachers in three primary schools, which indicates that the Cronbach's alpha coefficients for all four dimensions exceeded the acceptable threshold of 0.7, with the overall reliability reaching a high value of 0.891. The KMO measure of sampling adequacy yielded a value of 0.876, surpassing the recommended threshold of 0.8, which indicates strong correlations among variables. These results demonstrate that the questionnaire possesses robust construct validity and effectively discriminates among and measures the four distinct constructs. The face-to-face in-depth Interviews were conducted as a more thorough and specific examination of the factors (both favorable and unfavorable) that influence the personal professional development of primary school teachers, as well as the motivations that drive their personal development. These interviews adopt a semi-structured format, lasting approximately 10 - 15 minutes per teacher. A total of 10 teachers participated in the interviews.

3.4. Research Results

3.4.1. Self-Assessment of Professional Competence

The subjects showed a relatively high level of confidence in their professional fundamental knowledge. Among them, 59.68% of the teachers were satisfied or more than satisfied with their professional fundamental knowledge, while only 6.13% were not very satisfied and lacked confidence. They believed their confidence stemmed from the professional knowledge they learned during their university years. More than half (53.54%) of the teachers believed that the professional knowledge they learned during university played a significant or very significant role in their current teaching practice. They also had positive recognition for their professional skills, with 56.36% of the teachers being satisfied with their professional skills, and only 7.42% holding a negative attitude.

In terms of transforming professional knowledge and skills into teaching practice, the research subjects exhibit a relatively high degree of self-recognition, with 63.88% of teachers holding that they have acquired relatively proficient teaching experience and techniques. By contrast, however, over half (52.58%) of the teachers perceive their teaching research capabilities inadequate and in need of improvement. These primary English teachers have accumulated considerable practical teaching experience during their individual professional growth and development spanning 5 to 10 years. Currently, their utmost need lies in transforming this teaching experience into research outcomes. Nonetheless, the current level of

individual scientific research capabilities has posed a constraint on the further professional development, which has emerged as the paramount obstacle for the surveyed teachers in their current individual professional development.

During the interview, some teachers, such as Teacher A, suggested that *“an adverse handicap to personal development lies in conducting research. One must first have a correct understanding of the overall structure of research and how to carry it out effectively, in order to drive its implementation and ensure its success.”*

Some teachers conceive that their poor research capabilities stem from limited theoretical knowledge, just like teacher C shared: *“I feel that I cannot delve deeply into research, struggling to find suitable methods. When choosing a research topic, I often feel there is no fitting option to choose from, picking a topic from the existing ones passively and randomly and attempting to study it. However, there are theoretical gaps that I still need to address.”*

Although they have acquired some theoretical knowledge, they still feel that they have not learned enough, and there are still many gaps in their research projects, including research methods, which has been a persistent challenge in their professional development. Just like teacher E mentioned, *“As ordinary teachers, we feel confused when it comes to writing papers. We are unsure of the specific steps to take, how to compose a paper, and how to conduct a research project. We desperately need guidance in these areas”*.

Some teachers, even after attaining a teaching and research project, still feel overwhelmed and helpless. Teacher G stated, *“I was only able to secure a municipal-level research project this year. However, I have encountered some difficulties. I am somewhat confused about what to do after my project has been approved. How can I strengthen the theoretical framework and elevate the scope of my research? It is indeed true that we lack theoretical depth in conducting research projects... The common challenge we encounter in our professional growth is related to pedagogical and scientific research.”*

Despite engaging in reflections and compiling case studies in their teaching practice, they are unable to further transform them into a systematic research topic. As Teacher H mentioned, *“I have written and published some papers, but I still don't know how to conduct a research project. I'm wondering whether other teachers also face a similar dilemma. Through self-study, I can apply the concepts of the new curriculum standards to my classroom teaching. After each lesson, I review and reorganize my lesson plans, analyze how my course aligns with the new curriculum standards, attempting to compile my findings into a comprehensive research result for publication, with some having been accepted. However, to this day, I have not actually embarked on a genuine research project.”*

3.4.2. Professional Development Motivation

In terms of their current working status, a majority (76.45%) of primary school teachers reported being moderately to highly satisfied, with only 5.16% indicating

dissatisfaction with their work. When it comes to their professional development, a substantial proportion (85.48%) stated that they actively engaged in their professional growth and advancement, and a vast majority (90.32%) were acutely aware of the specific areas which required further enhancement and development.

Although the interviewed primary school English teachers admitted experiencing career weariness in their careers, they were able to recognize its negative impact on their professional development and surmount it with a positive and optimistic attitude. Furthermore, driven by a strong internal motivation, they eagerly desired to enhance their current professional level and capabilities through various forms of learning so as to change the current situation.

Teacher B shared his experience, *“Ten years ago, I encountered a dramatic decline in my teaching achievements, with students ranking last for three consecutive semesters. During that time, I also encountered career weariness in my profession, the root cause of which was a lack of professional growth. My sense of defeat made me feel obsolete, as if I was lagging behind the times. Hence, I’ve been actively addressing my career weariness. Therefore, since then, I have been actively seeking professional growth through various remote learning platforms, reading books, utilizing various apps, accessing the National Smart Primary and Secondary School Platform, and purchasing numerous VIP course materials”*. Likewise, Teacher E shared her story, *“I do not quite favor my initial teaching approach. Consequently, I sought to transform my classroom practice by motivating students to develop a passion for English. After teaching for over ten years, I experienced career weariness, but I found engaging in educational research and projects could bring me joy. Therefore, I aim to infuse vitality to my class through research, overcoming my career weariness and continuing to grow as an educator. Moreover, I strive to make my classroom more engaging and enjoyable for students, encouraging them to learn with greater enthusiasm. My goal is to empower children in small towns to gain the same vision and knowledge as their peers in large cities do.”*

The interviewed teachers exhibited a strong desire for their own professional development, with internal motivation serving as the primary source for seeking self-advancement, just as Teacher A mentioned, *“For me, the motivation for growth is actually to solve practical problems and accomplish tasks. I am willing to grow professionally... I have realized that engaging in research can, in turn, benefit my teaching, enabling me to complete tasks more efficiently and effectively, and thus improve my learning efficiency”* For such teachers, they possess an inner aspiration for progress and growth, maintaining a positive and optimistic attitude, as Teacher D concluded, *“I hold that the fundamental reason is that we are all willing to change and approach life with a positive mindset.”*

For some teachers, their professional motivation to grow and develop stems from dissatisfaction with the effectiveness of their teaching or the encouragement of achieved accomplishments. A case in point is Teacher C’s sharing, *“Faced with so many children, I feel it urgent to grow professionally, and theoretically, I still*

have room for improvement. As a subject leader, if I am not competent enough, it's beyond me to lead others to grow and progress, which is one of my driving forces". Likewise, Teacher G shared his experience, "My personal sense of accomplishment does serve as a driving force within me. However, I'm challenged by how to proceed after a research project is approved, how to progressively enhance my research, and organize activities that enable my research team to achieve more and better".

3.4.3. Factors Affecting Professional Development

The survey indicates that interviewed teachers consider various pressures and burdens from work, including title evaluation, teaching workload, and teaching administration, as the primary obstacles to their individual professional advancement. The main pressures currently faced by primary school teachers in descending order are: title evaluation (39.03%), teaching pressure (31.94%), professional development pressure (20%), communication pressure with parents and students (5.48%), and economic pressure (3.55%) (see **Figure 1**).

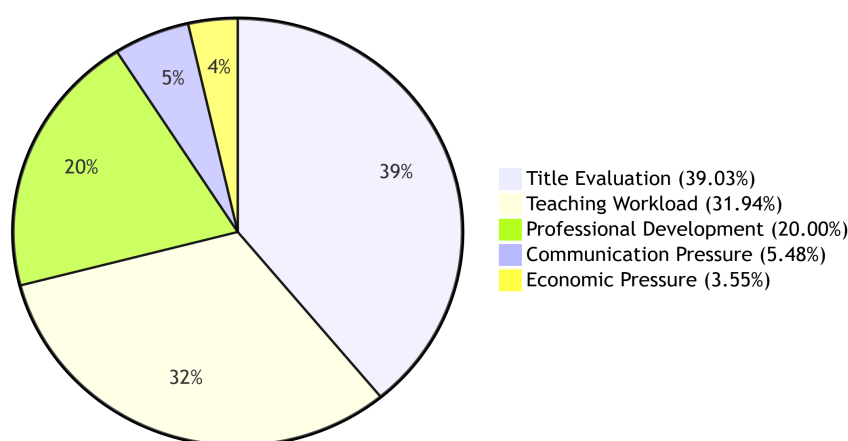


Figure 1. Source of pressures for individual development.

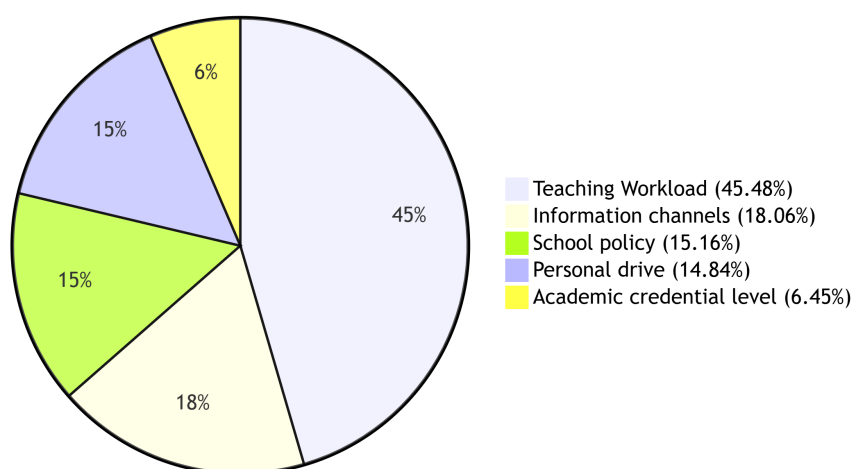


Figure 2. Major factors restricting individual development.

However, several obstacles are in the way of their professional development, among which the top three obstacles impeding and constraining their current professional development are: heavy teaching load (45.48%), inadequate access to information (18.06%), and lack of school policies support (15.16%) (see **Figure 2**).

During the interview, Teacher A informed the author that, *“Currently, I am teaching English in four sixth-grade classes, overseeing four morning reading sessions and four after-school supervision sessions, with a total of 12 classes. Additionally, I shoulder the responsibilities of our school’s teaching and research team and the director of the administrative office, and participate in the recently established studio program for 50 renowned principals, head teachers, and class masters in Jinan High-tech Zone, which imposes significant pressure on me. One disadvantage is that my schedule is tightly packed, leaving little time for reflection. Personally, I am eager for professional growth, but I feel that my current state is such that the time for conducting research and educational studies has been squeezed out.”*

Teacher D agreed that, *“As Teacher A just mentioned, we are currently engaged in various administrative tasks in the school, submitting tons of materials. I perceive that some of the work I do, like the tedious and routine tasks, is actually meaningless. Of course, I shouldn’t complain too much about it, but when it comes to actual implementation, they seem to be completely different... I also feel that my English classroom teaching requires considerable reflection, but I seem to have neither the time nor the opportunity to do so.”*

Teacher E concurred that, *“In agreement with the previous teachers, I must confess that, as middle-level administrators, we are often reluctant to review these documentary materials and are particularly disinclined to compile such reporting records. They are undoubtedly the most mentally demanding tasks we face.”*

Due to the fact that large amount of administrative work takes up much time originally meant for pedagogical research, the teachers are left with little opportunity to reflect on problems in their classroom teaching, let alone to consider how to reform and innovate their teaching methods based on actual issues. This has led to a habitual tendency to perform routine tasks superficially, even turning pedagogical research into a secondary occupation, inevitably leading to career weariness. Consequently, personal professional development is rendered impossible.

3.4.4. Preferences for Professional Development

Regarding personal professional development means and forms, over half of the respondents (52.9%) stated that they have access to ample opportunities of professional development training and frequently engage in diverse post-service teacher training programs. The vast majority of teachers (84.2%) acknowledged the benefits of these training programs, considering them conducive to their professional growth and development. In terms of facilitating professional development, 75.49% of the teachers maintain teacher learning community exert a considerable or profound impact on individual growth, with 65.48% indicating they

frequently engage in educational activities organized by such communities to jointly enhance their professional proficiency. In terms of professional growth, the teachers have witnessed the most rapid advancement in teaching practice skills (66.77%), transforming from an initial weakness (52.26%) to a foremost strength. Conversely, information technology proficiency and teaching research capabilities have far lagged behind with slower progress. Despite frequently reflecting on teaching ideologies and methodologies (83.87%) and framing classroom issues as research questions (56.45%), the teachers acknowledge insufficient research capabilities as a significant obstacle, emphasizing the need to integrate teaching practice with research to enhance their research abilities (68.07%). A majority (65.16%) deem collaboration between university professors and primary school English teachers crucial and imperative for personal growth, expressing their willingness to actively participate in collaboration in English teaching research between universities and local primary schools. According to the surveyed teachers, the optimal approach to enhancing their teaching and research capabilities lies in the collaborative and integrated development between universities and local primary schools.

Confronted with obstacles in their current professional development, especially in terms of teaching and research level and skills, many teachers attribute the primary cause to the scarcity of teaching and research resources, as well as the absence of guidance from experts and scholars in their research teams. As Teacher D remarked, *“The scarcity of resources and the lack of expert guidance are significant barriers to our progress. Specifically, we lack experienced teachers and experts in our midst.”* Teacher A concurred, stating, *“For research to yield fruitful outcomes, it must be grounded in practice. However, our team is understaffed, both in terms of time and manpower. Hence, collaboration is crucial for us to achieve meaningful results.”* Therefore, they argue that the optimal approach to enhancing their teaching and research capabilities is to foster a collaborative model between universities and local primary schools, thereby addressing and improving the shortcomings and deficiencies in teaching and research.

Despite their relentless efforts, they have encountered numerous bottlenecks in the course of their development. The root cause of these challenges lies in the lack of top-down guidance, which refers to instructions from local or even higher-level educational authorities. Furthermore, collaborating with universities is essential to guide and implement primary school’s English teaching and scientific research. A majority of the interviewed teachers indicated a keen desire to collaborate with local universities as they are capable of supplying valuable resources, like small-class teaching settings, which are sought after by college institutions. Any research endeavors, including faculty development, classroom instruction innovations and quality enhancement, as well as the implementation of various formats including surveys or experimental testing, all present substantial collaboration prospects.

4. Discussion and Analysis

Based on the above mentioned research findings, it is evident that regional pri-

mary school English teachers encounter striking plights in their professional development, primarily classified into heavy teaching workloads and insufficient teaching and research capabilities. Despite their strong intrinsic motivation and eagerness for development, they still face challenges in overcoming professional bottlenecks and obstacles, the reasons for which can be summarized in the following three aspects:

Firstly, the professional ecosystem for local primary school English teachers is often characterized by significant constraints that impede systematic growth and pedagogical innovation. This stagnation is not a monolithic issue but rather the product of a confluence of interrelated systemic failures. The core challenges—inadequate training, insufficient resources, and stagnant teaching methodologies—can be traced to several underlying causes, primarily rooted in structural inequities and strategic oversight.

A primary causative factor is the profound disparity in the allocation of educational resources between urban centers and local or rural areas. This inequity creates a foundational barrier to quality. Many local primary schools operate with severely limited budgets, resulting in dilapidated infrastructure and a critical shortage of modern teaching aids. The absence of fundamental tools—such as language labs, multimedia projectors, or stable internet access—precludes the adoption of interactive or student-centered methodologies. Consequently, teachers are forced to rely on traditional, rote-based techniques, which stifles both instructional innovation and their own professional creativity.

Compounding this resource scarcity is the lack of access to high-quality, sustained professional development. Teacher training in these contexts is often sporadic, theoretically oriented, and disconnected from the practical realities of the local classroom. Workshops, when available, tend to be one-off events rather than part of a coherent, long-term growth strategy. This approach fails to provide the continuous support and scaffolding necessary for teachers to assimilate and apply new knowledge. Furthermore, the uneven distribution of expert trainers and mentorship programs means that local teachers have limited exposure to advanced pedagogical concepts and collaborative learning communities. This isolation hinders the renewal of their teaching philosophies and prevents them from keeping pace with global advancements in language acquisition theory and practice.

Secondly, the demographic landscape within local primary schools presents a critical challenge characterized by an aging teaching workforce and a pronounced shortage of younger educators. This structural imbalance, when juxtaposed with the accelerating demands of basic education reform, creates a uniquely stressful environment for early-career teachers, severely constraining their capacity for professional growth. The primary cause of the aging teacher population is a long-standing issue of recruitment and retention in local areas. Socioeconomic factors, including lower salary scales, less developed community infrastructure, and perceived limited career advancement opportunities compared to urban centers, make it difficult to attract new teaching graduates. Consequently, the existing fac-

ulty ages in place, creating a significant generational gap. This demographic skew places an inherent structural burden on the smaller cohort of younger teachers. They are often automatically assigned a disproportionate share of extra-curricular duties, administrative responsibilities, and class sponsorship roles, based on an implicit assumption of greater energy and familiarity with modern organizational systems. This “youth tax” results in an excessive administrative workload that encroaches upon their core instructional and planning time.

Furthermore, the relentless push for digital integration in education exacerbates this burden. As curricula and administrative systems become increasingly digitized, younger teachers are presumed to possess innate digital literacy. They are frequently tasked with leading the implementation of new technological platforms, managing online student assessment systems, and creating digital teaching resources, often with little formal support or release from other duties.

Finally, the professional development of local primary school English teachers is significantly constrained by an imperfect teacher evaluation system. Currently, the assessment mechanisms in many local primary schools exhibit a pronounced over-reliance on students’ standardized examination scores, which creates a restrictive environment that fails to capture the complexity of the teaching process. This narrow focus has profound implications for teachers’ capacity for long-term growth and sustainable professional advancement.

This evaluation paradigm systematically discourages pedagogical innovation and reflective practice. When assessment is tied predominantly to test results, teachers have little institutional motivation to engage in time-consuming activities such as action research, developing creative lesson plans, or exploring student-centered methodologies that may not yield immediate score improvements. The system effectively devalues the intellectual labor and dedicated research inherent in high-quality teaching. As a result, teachers’ professional development becomes truncated, focused on short-term test preparation techniques rather than cultivating the deep, sustainable expertise that supports long-term educational goals and personal career fulfillment, ultimately creating a cycle that limits both teacher growth and educational quality.

5. Recommendations

Based on the above analysis, this study proposes the following strategies and suggestions to address the challenges faced by local primary school English teachers in their professional development:

1) Constructing a University-Partnered Teaching-Research Community to Drive Teacher Development

It is imperative to strengthen the theoretical study of education and teaching in local primary schools and enhance teachers’ research competence. Constructing teaching-research communities and leveraging university collaboration to guide teacher professional development represents a core pathway for enhancing the theoretical knowledge of local primary school education and teaching, elevating

teachers' research literacy, and thereby driving their professional growth. University faculty typically possess more systematic educational theoretical resources. By proactively establishing teaching-research collaborative communities with them, local primary schools can effectively address their own theoretical deficiencies. Through participating in such communities, primary school English teachers can achieve continuous learning and development within professional dialogue and collaboration.

The term "teaching-research collaborative community" is widely used as a "Teacher Professional Learning Community (PLC)". It primarily encompasses two forms: professional learning communities and communities of practice [11]. In the context of Chinese educational practice, it is defined as "a learning organization composed of teachers, experts, and/or peers, aimed at enhancing teaching and academic practices while fostering professional identity and development" [12]. It is regarded as one of the key mechanisms for promoting teacher professional growth.

Local primary schools are advocated proactively to establish stable collaborative teaching-research mechanisms with higher education institutions, forming teams composed of university experts and key primary school teachers. Clear delineation of responsibilities among all parties is essential to foster synergistic collaboration. Both sides are encouraged to jointly develop systematic teaching-research plans and protocols, specifying objectives, content, methodologies, and timelines, while encompassing organization, implementation, evaluation, and incentive mechanisms to ensure standardization and sustainability.

Furthermore, local primary schools may periodically select key teachers for academic visits and exchanges at university research institutes to enhance their teaching-research capabilities. Concurrently, regular communication platforms may offer teachers to share teaching challenges, reflections, and cases, facilitating bidirectional learning and mutual exchange of experiences between university and school teachers.

Teachers are advised to set fixed periods for collective or self-directed study, including foreign language education policy, educational psychology, and English curriculum and teaching methodology, thereby broadening theoretical perspectives. They are encouraged to engage in professional reading of academic books and journal articles during their spare time. By leveraging platforms like teacher learning exchange networks, they can promote experience sharing and academic dialogue, gradually forming a professional learning community.

The dissemination and application of teaching-research achievements warrant equal attention. Schools should facilitate the translation of high-quality outcomes into teaching practice and collaborate with university research institutions to share resources and amplify their impact. Through activities such as research achievement exhibitions and teaching demonstrations, a robust culture of teaching research can be cultivated, strengthening teachers' recognition of the value of research and their enthusiasm for participation.

2) Promoting Action Research on Micro-Level Issues to Ignite Teachers' Internal Drive

Engaging teachers in practice-based micro-research offers a viable pathway to address authentic classroom challenges. Micro-research derives its value from being situated in authentic teaching contexts. Through careful observation and documentation of classroom practice, such as persistent learning difficulties or methodological constraints, teachers identify focused research questions that ensure relevance and practical significance. Through systematic inquiry into teaching and learning issues, educators develop context-sensitive instructional strategies, enhancing both pedagogical effectiveness and research competence. For primary school teachers, school-based micro-research provides a practical foundation for professional growth while stimulating intrinsic motivation for continued development.

The integration of theoretical knowledge with daily teaching practice remains central to cultivating research literacy. By applying theoretical frameworks to reflect on and refine classroom instruction, teachers gradually formulate individualized teaching models. Structured inquiry and case documentation further facilitate meaningful theory-practice connections. Effective micro-research employs appropriate empirical methods, with systematic data collection through questionnaires, classroom observations, or controlled experiments providing evidence for analysis and conclusion. Completed research finds expression in structured reports containing clear rationale, objectives, methodology, findings, and implications. Dissemination through academic channels contributes to professional discourse, while application of findings to refine teaching methods and optimize curriculum content demonstrates the tangible impact of research on classroom practice.

3) Strengthening Support Systems to Enhance Teacher Development Outcomes

A robust external support system, comprising enriched teaching research resources, developmental teacher evaluation frameworks, and scientifically designed incentive mechanisms, serves as both a foundational condition and a significant catalyst for translating teacher development efforts into tangible outcomes. Schools and educational authorities are encouraged to collaborate to provide diverse educational resources, including professional literature, academic journals, and online courses, while establishing a dedicated repository for teaching-research achievements to facilitate easy access. Regularly organized expert seminars and external training opportunities enable teachers to stay informed about cutting-edge educational research and innovative pedagogical concepts.

Digital intelligence offers distinct advantages in enhancing teaching research efficiency. By participating in or establishing professional learning communities on digital platforms, such as high-quality teaching material database, excellent courseware and teaching plan database, National Smart Education Platform for Primary and Secondary Schools, local education bureau cloud platform, etc., teachers can share resources, exchange experiences, and discuss pedagogical chal-

allenges, thereby expanding resource access and strengthening cross-school and cross-regional collaboration. Multimedia tools support the creation of dynamic teaching materials, case presentations, and instructional videos, increasing the visibility and interactivity of teaching-research content. Data analysis tools enable the tracking of student progress and evaluation of teaching-research effectiveness, providing evidence for instructional improvement and research refinement. Furthermore, social media platforms allow teachers to follow disciplinary developments and engage in professional discussions, broadening their research perspectives, while online training resources offer flexible and continuous pathways for professional growth.

The integration of digital resources is fundamentally transforming formative teacher evaluation, shifting it from a model reliant on intermittent snapshots to a continuous, data-driven process of professional growth. This paradigm is enabled by the synergy between digital assets—the data and content, such as lesson plans, student performance metrics, and teaching videos—and digital tools—the platforms that process this information, like Learning Management Systems and AI analytic software. This integration supports formative evaluation in three key dimensions:

Digital tools move evaluation beyond summative outcomes by capturing rich process data. This includes analyzing a teacher's use of digital resources in lesson planning, quantifying classroom interaction patterns, and using AI to provide objective feedback on teaching videos. The aggregation of this data facilitates the creation of a dynamic “teacher data profile”, which highlights strengths and growth areas with specificity. This enables highly personalized professional development, such as recommending targeted micro-courses or relevant teaching exemplars based on individual needs. Access to their own data empowers teachers to engage in evidence-based self-reflection. Furthermore, it enriches peer collaboration, allowing communities of practice to discuss anonymized students' work or teaching strategies grounded in concrete data, fostering a culture of shared improvement.

6. Conclusions

This study systematically examines the practical challenges and influencing factors in the professional development of 310 primary school English teachers in Shandong Province through a questionnaire and some interviews. The findings reveal that the dilemma facing teacher development transcends individual levels, demonstrating complex multi-dimensional characteristics:

At the individual cognition level, while teachers display basic developmental motivation, they generally exhibit insufficient theoretical awareness and weak research capabilities. Regarding school institutional mechanisms, evaluation systems prioritize outcomes over processes, employing uniform approaches that fail to provide sustained professional support. In terms of external support, inadequate supply of quality training resources and the absence of effective university-

primary school collaboration further constrain developmental effectiveness. These challenges collectively indicate that traditional development models centered on isolated individuals no longer meet the profound demands of educational reform in the new era.

Based on in-depth analysis of the causes behind these challenges, this study proposes a tripartite approach: First, establishing deeply integrated university-school teaching-research communities that enhance teachers' theoretical literacy and research capacity through bidirectional theory-practice interaction. Second, promoting school-based micro-research models that guide teachers in identifying, analyzing, and addressing problems within authentic teaching contexts, thereby strengthening the practical foundation of teaching-research capabilities. Finally, integrating digital-intelligence resources with developmental teacher evaluation systems to expand learning pathways through information technology, while stimulating endogenous motivation through diversified evaluation mechanisms, creating a virtuous cycle of "resources-evaluation-development".

From an interdisciplinary theory-practice perspective, this study demonstrates both the necessity and feasibility of transforming teacher professional development models. Only by transitioning from individualized, fragmented development paths toward systematic, collaborative, and practice-oriented professional support systems can we effectively address the profound needs of teacher development. These findings not only provide empirical evidence for understanding the professional development mechanisms of regional primary school English teachers but also offer feasible references for optimizing teacher education policies and innovating school-based teaching-research models. However, the participants in this study only cover Shandong province, which causes the fact that the findings may not be fully generalizable to all primary English teachers across the diverse regions of China. Future research could further examine the differentiated needs of teachers across various regions and developmental stages to enhance the precision and adaptability of teacher support systems.

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Conflicts of Interest

The authors declare no conflicts of interest.

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