



Learning by Teaching: How Classroom Challenges Shape Teachers' Professional Development

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Abstract: Traditional models of teachers' professional development (TPD) emphasize formal training, workshops, and certification programs; however, persistent gaps between these programs and classroom practice raise questions about their effectiveness. This article argues that everyday classroom challenges shape teachers' professional development more strongly than formal training alone by positioning teaching as a central site of professional learning. The study adopts a qualitative, interpretive design and draws on written reflective narratives from 12 secondary school teachers working in Moroccan public schools. Data were collected through open-ended prompts and analyzed using thematic analysis. The findings show that challenges related to students' lack of foundational knowledge, low motivation, mixed-ability classrooms, and loss of confidence drive professional growth through processes of problem-solving, adaptation, and ongoing decision-making. These processes foster deeper professional understanding than externally delivered training by prompting teachers to reinterpret methods, reassess assumptions, and develop context-sensitive strategies. Rather than rejecting formal training, the study positions it as secondary to experiential learning in the classroom. It concludes by proposing an interpretive, practice-driven model of professional development in which learning by teaching constitutes the foundation of teachers' professional growth, with implications for teacher education and policy.

Introduction

Teachers' professional development (TPD) is widely recognized as a central factor in improving educational quality and classroom effectiveness. Educational systems and training institutions invest heavily in formal professional development programs, including workshops, in-service training, and certification courses, to improve teaching practices and student learning outcomes. These initiatives generally emphasize the acquisition of pedagogical knowledge and instructional techniques through structured and externally designed training. Despite the expansion of such programs, concerns persist regarding their limited influence on everyday classroom practice (2, 22). Teachers frequently report difficulties in applying training content to the complex and unpredictable realities of teaching.

Traditionally, professional development has been conceptualized as a formal and externally organized process in which teachers acquire knowledge from experts and later apply it in the classroom (5). Underlying this model is the assumption that professional knowledge can be transferred directly from training contexts to teaching

practice. However, a growing body of research has challenged this assumption. Studies consistently indicate that formal professional development often fails to produce sustained instructional change when it is disconnected from teachers' lived classroom experiences (1, 2, 20). In many cases, training programs are designed in a top-down manner and assume stable, homogeneous classroom conditions that rarely reflect the diversity and complexity of actual teaching environments.

Research on teacher learning increasingly suggests that professional growth is shaped less by the passive reception of prescribed methods and more by active engagement with classroom practice. Clarke and Hollingsworth's model of teacher professional growth emphasizes that teacher learning emerges through dynamic interaction between beliefs, classroom experimentation, reflection, and contextual factors rather than through the straightforward implementation of externally provided knowledge (6). Similarly, Putnam and Borko argue that teacher learning is inherently situated and socially constructed through participation in professional practice (8). From this perspective, classroom experience becomes not merely a site where knowledge is

applied, but a central context in which professional knowledge is produced and reshaped. Teachers continuously adapt their practices in response to changing classroom conditions, thereby transforming experience into a valuable source of professional learning.

These perspectives have contributed to growing interest in informal and practice-based forms of professional learning. Informal professional learning includes reflective dialogue, peer collaboration, classroom experimentation, and problem-solving that emerge from teachers' everyday work (7). Because such learning is embedded in authentic teaching situations, it allows teachers to develop context-sensitive strategies that respond directly to students' needs and institutional realities. Research has shown that teachers often view reflective engagement with classroom challenges as more professionally meaningful than isolated training sessions (22, 23). Informal learning also contributes to the development of professional identity by enabling teachers to negotiate practical understandings of teaching within their own contexts. Consequently, professional learning is increasingly viewed as a continuous process embedded within daily teaching activities rather than as an outcome of periodic training events alone.

Reflective practice occupies a particularly important position within contemporary theories of teacher learning. Drawing on Schön's concept of the reflective practitioner, reflection is understood as the ongoing examination of actions, assumptions, and decisions within professional contexts (3). Through reflection-in-action and reflection-on-action, teachers generate practical knowledge grounded in lived experience. Studies on reflective practice suggest that teachers develop deeper pedagogical understanding when they critically examine instructional successes, failures, and uncertainties (9, 22). Reflection enables teachers to reinterpret difficulties not simply as obstacles, but as opportunities for learning and professional growth.

Recent scholarship further suggests that effective professional development cannot rely exclusively on either formal training or experiential learning. Instead, professional growth appears strongest when structured learning opportunities are connected to classroom realities through reflection and practice (5, 21). Integrated models of professional development emphasize the interaction between theory, classroom experimentation, and contextual adaptation. Within such frameworks, formal training gains significance when teachers reinterpret it through their own instructional experiences and professional judgment.

This article builds on these perspectives by arguing that everyday classroom challenges play a central role in shaping teachers' professional development. Teaching is conceptualized as a site of professional learning where growth emerges through reflection, adaptation, and problem-solving (3, 4). When teachers encounter students who struggle with basic concepts, display low motivation, or require differentiated instruction, they are compelled to rethink instructional strategies and develop context-sensitive responses. These processes often generate deeper professional understanding than externally delivered training because they are grounded in immediate pedagogical demands. Such learning is grounded in classroom realities.

The notion of learning by teaching captures this perspective by positioning professional growth as an active and situated process. Classroom challenges, including uncertainty, failure, and emotional strain, become formative experiences that reshape teachers' beliefs, practices, and professional identities. Rather than being peripheral to professional development, such experiences constitute one of its primary driving forces.

The Moroccan public education system offers a particularly relevant context for examining this issue. Teachers often work in conditions characterized by large class sizes, diverse learner profiles, uneven student preparation, and limited curricular flexibility. Although formal professional development programs are available, they frequently provide limited guidance for addressing everyday classroom realities. As a result, teachers rely extensively on experiential knowledge developed through sustained classroom practice.

While international scholarship increasingly recognizes the importance of reflective and practice-based learning, relatively little research has examined how everyday classroom challenges drive teachers' professional development in the Moroccan context. Existing studies continue to privilege formal and structured models of professional learning while paying less attention to the interpretive work teachers perform in response to recurring instructional difficulties. A deeper understanding of these experiences may provide valuable insights into how teachers learn, adapt, and develop professionally within resource-constrained educational environments.

This study addresses this gap by examining how teachers' professional development unfolds through everyday classroom experiences in Moroccan public high schools. It is guided by the following research question: How do everyday classroom challenges contribute to teachers' professional development in Moroccan schools? Two sub-questions further explore 1) the recurring classroom challenges teachers identify as central to their professional learning, and 2) how teachers interpret and respond to these challenges in ways that reshape their practices and beliefs. Drawing on qualitative data from teachers' reflective accounts, the study conceptualizes professional development as an ongoing, practice-based, and interpretive process rooted in classroom experience.

Methodology

Research Design

This study adopted a qualitative, interpretive research design to examine how teachers' professional development emerged through everyday classroom challenges. A qualitative approach was appropriate because the study aimed to understand teachers' experiences, interpretations, and meaning-making processes rather than measure predefined variables or establish causal relationships (10).

From an interpretive perspective, professional development was understood as a situated and socially constructed process. Teaching was viewed not as the application of fixed methods acquired through training, but as an ongoing process of negotiation between pedagogical knowledge, classroom realities, and contextual constraints. This framework allowed close attention to teachers' voices and reflective accounts, which

are central to understanding practice-based professional learning (3, 4).

The study was exploratory in nature. It did not aim to produce statistically generalizable findings, but rather to provide an in-depth understanding of how professional learning unfolded within specific classroom contexts in Moroccan public high schools.

Research Context and Participants

The study was conducted in Moroccan public high schools, a context characterized by large class sizes, diverse learner profiles, and varying levels of student preparedness. Teachers operated within a centrally prescribed curriculum while simultaneously responding to local classroom conditions and institutional constraints.

The participants consisted of twelve secondary school teachers working in Moroccan public schools. Purposeful sampling was employed to select participants who could provide rich and relevant insights into classroom practice and professional learning (11). The sample was designed to capture variation in teaching experience, gender, and school context.

Participants included six female and six male teachers, with teaching experience ranging from 2 to 22 years. This range allowed for the inclusion of both early-career teachers (2–6 years of experience), mid-career teachers (8–15 years), and highly experienced teachers (17–22 years). Teachers worked in urban, semi-urban, and rural school settings, providing diverse perspectives on classroom challenges.

All participants taught language subjects, primarily English, which allowed for comparability across instructional contexts. To ensure confidentiality, teachers were assigned codes (T1–T12), and no identifying institutional information was included. Participation was voluntary.

The sample size was consistent with qualitative research practices that prioritize depth of understanding over breadth. The goal was not to achieve representativeness, but to obtain detailed, experience-based accounts that could illuminate patterns of professional learning across different teaching contexts.

Data Collection

Data were collected through written reflective narratives. Participants were invited to respond to a set of open-ended prompts designed to elicit reflection on their everyday classroom experiences. These prompts asked teachers to 1) describe a recurring classroom challenge, 2) explain how this challenge influenced their instructional decisions, and 3) reflect on what they learned professionally from dealing with it.

Participants were asked to provide detailed written responses, typically ranging from approximately 150 to 300 words per prompt. This format allowed teachers to articulate their experiences in their own words while ensuring sufficient depth for qualitative analysis.

Written reflection was selected as the primary data collection method because it enabled access to teachers' professional thinking and interpretive processes. It also allowed participants time to reflect on their experiences, which was particularly important in studies focusing on meaning-making and professional learning (12, 9).

The reflections focused on issues such as students' lack of foundational knowledge, low motivation, mixed-ability classrooms, and teachers' emotional responses to instructional challenges. These themes emerged inductively from participants' accounts rather than being imposed in advance.

Data Analysis

The data were analyzed using thematic analysis, following established qualitative procedures (13). The analysis proceeded in several stages. First, all reflective accounts were read multiple times to develop familiarity with the data. Initial codes were then generated to capture recurring ideas related to classroom challenges and professional learning.

In the next stage, related codes were grouped into broader themes representing patterns in how teachers experienced classroom challenges and how these experiences contributed to their professional development. Attention was paid to both shared patterns and variations across participants.

The analysis was iterative. Themes were refined through repeated engagement with the data to ensure that they accurately represented participants' perspectives. Selected extracts from the reflective narratives were used to illustrate key themes while maintaining anonymity.

Ethical Considerations and Trustworthiness

Ethical considerations were addressed throughout the study. Participants were informed about the purpose of the research and the voluntary nature of their participation. They were assured that their identities and institutions would remain confidential.

All data were anonymized, and participants were identified using coded labels (T1–T12). The study focused on teachers' professional experiences rather than evaluative judgments, thereby minimizing potential risks.

To enhance trustworthiness, several strategies were employed (14). First, the use of rich, descriptive data allowed readers to assess the credibility of the findings. Second, the analysis was grounded closely in participants' own accounts, ensuring a clear connection between data and interpretation. Third, variation in teaching experience and school context provided multiple perspectives on classroom challenges and professional learning.

While the study did not aim for statistical generalization, it sought to offer analytically meaningful and contextually grounded insights into how teachers' professional development emerged through everyday classroom practice.

Results

Analysis of teachers' reflective narratives revealed four interrelated themes illustrating how everyday classroom challenges contribute to professional development. Across participants' accounts, teaching emerged as an ongoing learning process shaped by immediate classroom demands. Teachers consistently described a gap between what was emphasized in training programs and curricula and what was required in daily classroom practice. As a result, professional learning was driven less by formal instruction and more by the need to respond to students' actual levels, behaviors, and emotional realities. This finding aligns with research emphasizing the situated

nature of teacher learning and the limitations of decontextualized professional development models (7, 8, 22, 23).

Students' Lack of Foundational Knowledge

A recurring theme in teachers' narratives concerned students' limited foundational knowledge. Participants across different levels of experience reported persistent difficulties related to grammar, vocabulary, and basic comprehension. These gaps directly affected lesson pacing, task design, and instructional decision-making.

Teachers frequently noted that official curricula and training programs assumed levels of proficiency that many students did not possess. One early-career teacher explained that lesson plans learned during training were difficult to implement because students struggled to follow basic instructions in English (T1). A more experienced teacher described encountering "serious gaps" each academic year, which required revising the curriculum sequence and creating additional materials (T5). Another participant stated explicitly that formal training did not prepare them for teaching students with such low foundational levels, emphasizing that daily trial and error was more instructive than workshops (T9).

In response, teachers adapted their instructional approaches by slowing lesson pacing, simplifying explanations, and redesigning activities to align with students' actual abilities. Over time, these adjustments contributed to the development of diagnostic skills and a more realistic understanding of learner needs. These findings support research emphasizing that adaptive expertise develops through sustained classroom engagement rather than through the direct application of formal training (6, 17).

Low Student Motivation and Classroom Engagement

Low student motivation emerged as another persistent challenge shaping teachers' professional growth. Participants described disengagement as a common feature of classroom life, particularly when lessons followed syllabus-driven or method-focused approaches emphasized during training.

Several teachers reported that focusing on content coverage did not lead to meaningful learning. One teacher explained that repeated disengagement pushed them to "change [their] approach completely" because of the gap between training and classroom reality (T2). Others described experimenting with group work, discussion, and interactive activities to encourage participation, noting that such strategies were rarely emphasized during formal training (T6).

Through these experiences, teachers reported a shift in their professional priorities. Motivation came to be understood as a precondition for learning rather than a secondary concern. One experienced teacher reflected that learning occurred only when students felt involved, not when methods were applied mechanically (T11).

Participants also described the emotional impact of student disengagement. Persistent lack of participation initially generated frustration and self-doubt. Over time, however, repeated experimentation encouraged reflection and adaptation. Teachers reported increased confidence in managing classroom interaction and fostering participation. These findings reinforce research

emphasizing the importance of student engagement and the affective dimensions of teacher learning (15, 16).

Teaching in Mixed-Ability Classrooms

Teaching in mixed-ability classrooms emerged as a central site of professional learning. Participants described classrooms characterized by wide differences in proficiency, learning pace, and confidence. Applying a single instructional method to all students was consistently described as ineffective.

Teachers explained that training programs often presented idealized classroom scenarios that did not reflect this diversity. As one participant noted, classroom reality required flexibility that training did not address (T7). In response, teachers developed differentiated tasks, adjusted expectations, and adopted flexible grouping strategies. These practices were learned gradually through experience rather than through formal instruction.

More experienced teachers emphasized that managing diversity was a skill developed over time. One participant stated that learning to handle mixed-ability classes came through sustained practice rather than formal guidance (T10). This process involved continuous observation, experimentation, and reflection. These findings are consistent with research showing that adaptive teaching practices develop primarily through classroom-based experience and reflective adjustment (6, 17).

Loss and Reconstruction of Teacher Confidence

A fourth theme concerned teachers' emotional experiences, particularly periods of reduced confidence. Participants described moments when repeated instructional challenges led them to question their competence as teachers. These experiences were reported by both new and experienced teachers, although they were more pronounced during the early stages of teaching.

Failed lessons, student disengagement, and unmet expectations contributed to feelings of inadequacy. One teacher described a prolonged period of self-doubt following repeated classroom difficulties (T4). Another emphasized that formal training did not address the emotional dimension of teaching, particularly the impact of failure on confidence (T8).

Over time, teachers described reconstructing confidence through reflection and adaptation. Analyzing mistakes, adjusting strategies, and gradually improving classroom outcomes contributed to a stronger sense of professional identity. One experienced teacher summarized professional development as emerging from "surviving difficult situations and learning how to adapt" (T12).

Discussion

The findings demonstrate that teachers' professional development emerged primarily through engagement with everyday classroom challenges rather than through formal training alone. Teaching functioned as a learning process characterized by continuous interpretation, experimentation, and adjustment. Teachers did not simply apply methods acquired during training; instead, they reconstructed professional knowledge in response to contextual demands.

These findings support previous research emphasizing the situated and interpretive nature of teacher learning (7, 8, 19). Participants' experiences showed that classroom challenges acted as catalysts for professional growth by disrupting routine practices and encouraging reflection. Professional learning unfolded gradually through repeated encounters with similar instructional difficulties across different classroom contexts.

The findings also reinforce critiques of transmission-oriented professional development models (2, 20). Teachers consistently described formal training as insufficient when disconnected from classroom realities such as mixed abilities, low student motivation, and weak foundational knowledge. While participants did not reject formal professional development entirely, they emphasized that training became meaningful only when mediated through practical experience and reflective adaptation.

In addition, the study highlights the importance of reflective and experiential learning in shaping teachers' professional identities. Experiences of frustration, uncertainty, and reduced confidence did not merely represent obstacles to teaching; they became important moments of professional learning. This finding aligns with scholarship emphasizing the emotional dimensions of teacher development and the role of reflection in developing adaptive expertise (3, 15, 18).

Overall, the findings suggest that teachers' professional development is best understood as a situated, ongoing, and practice-based process. Rather than occurring primarily through externally delivered programs, professional growth emerged through teachers' continuous engagement with the realities of classroom life.

Conclusion

This study examined teachers' professional development through their everyday classroom experiences in Moroccan public high schools. The findings show that professional learning is shaped primarily by sustained engagement with classroom challenges rather than by formal training alone. Teaching emerged as a central site of learning, where teachers developed pedagogical understanding through reflection, adaptation, and ongoing decision-making.

Across participants' accounts, recurring challenges related to students' limited foundational knowledge, low motivation, mixed-ability classrooms, and emotional demands required teachers to rethink instructional assumptions and revise prescribed approaches. Professional growth was gradual and context-sensitive. Rather than applying training content linearly, teachers learned by responding to the realities of their classrooms. These processes position learning by teaching as a core mechanism of professional development.

Implications

The findings have important implications for teacher education and professional development policy. First, they suggest that classroom experience should be recognized as a central component of teacher learning rather than as a site for the application of prior knowledge. Teacher education programs would benefit from integrating structured opportunities for reflection, mentoring, and

collaborative inquiry, enabling teachers to make sense of classroom challenges more systematically.

Second, professional development policies should move beyond standardized, one-size-fits-all models. Greater attention should be given to teachers' experiential knowledge and context-specific practices. Creating spaces for teachers to share classroom experiences and problem-solving strategies may help bridge the persistent gap between theory and practice.

Finally, curriculum design should better align with students' actual proficiency levels and learning conditions. Reducing the mismatch between curriculum expectations and classroom realities would support both teaching effectiveness and teacher development.

Limitations and Directions for Future Research

This study has several limitations. It is based on a small, qualitative sample of twelve language teachers working in Moroccan public high schools. The findings are context-specific and do not aim to be statistically generalizable. In addition, the data rely on written reflective accounts, which provide insight into teachers' perspectives but do not directly capture classroom interaction.

Future research could extend this work by examining practice-based professional development across different subject areas and educational levels. Comparative studies across institutional or national contexts would help clarify how classroom-based learning interacts with formal training systems. Longitudinal research following teachers over time could provide deeper insight into how professional learning develops and how reflective practices evolve. Further exploration of the emotional dimensions of teaching would also contribute to a more comprehensive understanding of teacher development.

Declaration

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Conflict of Interest

The authors declare no conflicting interest.

Data Availability

The data generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Statement

This study involved human participants and followed ethical principles for observational qualitative research. Participation was voluntary, and informed consent was obtained from all participants prior to data collection. Participants were informed of the purpose of the study and assured of confidentiality and anonymity. No identifying personal or institutional information was collected. The study did not involve clinical intervention and posed no risk to participants. This aligns perfectly with your methodology and data.

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