



Evaluating Teacher Training Effectiveness in Morocco: A Mixed-Methods Analysis of CRMEF Programs and Their Impact on Classroom Practice

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ABSTRACT: This study examines the effectiveness of teacher training programmes in Morocco's Regional Centres for Education and Training Professions (CRMEF) in preparing educators for 21st-century classrooms. The research responds to Morocco's concerning performance in international assessments, with TIMSS 2023 results showing primary students scoring 393 in mathematics and 390 in science, while middle school students scored 378 and 327 respectively. Using a convergent mixed-methods design, we surveyed 384 newly qualified teachers and conducted in-depth interviews with 45 teacher educators across six regions.

Results indicate significant gaps between theoretical preparation and practical classroom demands, with only 42% of new teachers feeling adequately prepared for Morocco's multilingual educational context. While CRMEFs excel in subject-matter knowledge delivery (78% satisfaction), they fall short in preparing teachers for classroom management (38%) and differentiated instruction (35%). Regression analysis revealed that practicum experience quality was the strongest predictor of overall preparedness ($\beta = 0.42$, $p < 0.001$). The study proposes a comprehensive framework for reforming teacher training, emphasising extended practical experience, enhanced mentorship, and better integration of local educational contexts.

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I. INTRODUCTION

1.1. Background and Context

Morocco's educational system stands at a critical juncture, balancing ambitious modernisation goals with persistent challenges in quality and equity. The Kingdom's Strategic Vision 2015-2030 for educational reform identifies teacher quality as the cornerstone of educational improvement, recognising that no education system can exceed the quality of its teachers (CSEFRS, 2015). This recognition comes at a time when Morocco faces significant educational challenges, as evidenced by its position at 154th out of 218 countries in the Global Education Index 2024, and concerning trends in student achievement across multiple international assessments. The urgency of addressing teacher preparation quality is underscored by Morocco's substantial investments in education, which consume approximately 26% of the national budget, yet yield outcomes that fall significantly short of regional and international benchmarks.

The complexity of Morocco's educational landscape is characterised by multiple intersecting factors that directly impact teacher training needs. The country's unique multilingual education policy, incorporating Modern Standard Arabic, Moroccan Arabic (Darija), Amazigh, French, and increasingly English, demands sophisticated linguistic and pedagogical competencies from teachers that traditional training models may not adequately develop (Boutieri, 2016). This linguistic diversity represents both a cultural asset and a pedagogical challenge, requiring teachers to navigate complex code-switching practices while maintaining educational quality across different linguistic contexts. The 2011 constitutional recognition of Amazigh as an official language, alongside Arabic, has added new dimensions to these challenges, as schools struggle to implement trilingual education policies without adequately prepared teachers.

Furthermore, Morocco exhibits stark urban-rural disparities in educational access and quality that profoundly shape the demands placed on teachers. Rural areas, which house approximately 40% of the population, experience teacher shortage rates of up to 60%,

with many schools operating with multi-grade classrooms and minimal resources (World Bank, 2024). These disparities create diverse professional contexts that teacher training programmes must address if Morocco is to achieve equitable educational outcomes across all regions. The challenge is compounded by high teacher turnover in rural areas, where newly qualified teachers often seek transfers to urban postings within their first years of service, creating a perpetual cycle of inexperienced educators serving the most vulnerable student populations.

1.2. The CRMEF System

The Regional Centres for Education and Training Professions (Centres Régionaux des Métiers de l'Éducation et de la Formation - CRMEF) represent Morocco's primary pathway for teacher preparation. Established in 2011 through the merger of various teacher training institutions, including the former Centres Pédagogiques Régionaux (CPR) and Écoles Normales Supérieures (ENS), CRMEFs are designed to standardise and elevate teacher preparation across the Kingdom (Ministry of National Education, 2023). This institutional consolidation aimed to address the fragmentation that had characterised Morocco's teacher training landscape for decades, where different institutions operated with varying standards, curricula, and quality assurance mechanisms.

The CRMEF system currently operates through 12 regional centres, each serving multiple provinces and adapting to local educational needs while following a national curriculum framework. These centres offer a one-year professional qualification programme for university graduates who have passed competitive entrance examinations, representing a significant shift from previous models that integrated pedagogical training throughout undergraduate education. According to official documentation, the training programme comprises three main components: theoretical modules covering pedagogy, psychology, and educational sciences (40% of programme time); subject-specific didactics (30%); and supervised practicum experiences in partner schools (30%). The programme culminates in a qualifying examination that determines candidates' eligibility for permanent teaching positions within the public education system.

Despite the structural reforms implemented through the CRMEF system, persistent questions remain about the adequacy of current teacher preparation models in addressing Morocco's complex educational challenges. The compression of teacher preparation into a single year, following an undergraduate degree that may have little connection to pedagogical content, raises fundamental questions about the depth of professional learning possible within such a condensed timeframe. Additionally, the standardised national curriculum may not adequately account for the significant regional variations in educational contexts, linguistic environments, and resource availability that characterise Morocco's diverse educational landscape.

1.3. Problem Statement

Recent international assessments have highlighted concerning gaps in Moroccan student achievement that point to systemic issues in educational delivery, with teacher preparation emerging as a critical factor. The TIMSS 2023 results reveal that Moroccan primary students score 393 points in mathematics and 390 in science, while middle school students show even more concerning results with scores of 378 in mathematics and 327 in science—all significantly below international averages and the low international benchmark of 400 points (IEA, 2024). These results represent a decline from previous assessment cycles, suggesting that current reforms have not yet yielded the anticipated improvements in educational outcomes.

The disconnect between the ambitious goals outlined in Vision 2030 and the reality of classroom practice suggests fundamental misalignments in how teachers are being prepared for their professional roles. This gap manifests in multiple dimensions: linguistic, where teachers struggle to navigate Morocco's multilingual educational landscape effectively; pedagogical, where theoretical knowledge fails to translate into effective classroom practice; technological, where digital literacy training remains largely abstract despite substantial government investment in educational technology infrastructure; and contextual, where preparation for urban contexts fails to address rural realities. Understanding and addressing these misalignments is essential for Morocco to achieve its educational development objectives.

1.4. Research Questions and Objectives

This study seeks to address four fundamental research questions that capture the complexity of teacher preparation challenges in Morocco:

- (1) To what extent do CRMEF training programmes align with the practical competencies required in Moroccan classrooms?
- (2) What are the primary strengths and weaknesses of current teacher preparation models as perceived by programme graduates and teacher educators?
- (3) How effectively do CRMEF programmes prepare teachers for Morocco's specific educational contexts, including multilingual instruction, inclusive education, and technology integration?
- (4) What structural and pedagogical reforms could enhance teacher training effectiveness in supporting Morocco's Vision 2030 educational objectives?

The overarching objective of this study is to provide a comprehensive, empirically-grounded evaluation of teacher training effectiveness in Morocco that can inform evidence-based policy and practice improvements. Specific objectives include: evaluating the alignment between CRMEF training curricula and the competencies required for effective classroom practice in diverse Moroccan contexts; identifying specific competency gaps in current teacher preparation programmes through systematic assessment

of teacher preparedness across multiple domains; assessing regional variations in training effectiveness and their relationship to local educational contexts and resources; and developing actionable recommendations for programme improvement that balance international best practices with local contextual requirements.

II. LITERATURE REVIEW

2.1. Theoretical Frameworks

This study is grounded primarily in sociocultural learning theory, as articulated by Vygotsky (1978) and extended by contemporary scholars of professional education. This framework posits that learning is fundamentally a social process, occurring through participation in cultural practices and mediated by tools, language, and more knowledgeable others. For teacher education, this perspective emphasises that learning to teach occurs not through passive absorption of decontextualised knowledge but through active participation in teaching communities and authentic classroom contexts. The Zone of Proximal Development concept is particularly relevant for understanding teacher development, as novice teachers operate within zones where they can accomplish teaching tasks with support from mentors and structured programmes that they cannot yet accomplish independently.

Lave and Wenger's (1991) framework of situated cognition and legitimate peripheral participation provides additional theoretical grounding for this study. This perspective views learning as inherently situated in specific contexts and communities of practice, suggesting that abstract knowledge about teaching gained in university classrooms has limited transfer value unless it is connected to actual teaching practice in real schools with real students. The concept of legitimate peripheral participation—where novices gradually move from the periphery to full participation in professional communities—has profound implications for how practicum experiences should be structured in teacher education programmes.

Korthagen's (2016) analysis of the theory-practice gap provides a critical framework for understanding persistent challenges in teacher education worldwide. This gap represents the disconnect between what teacher candidates learn in training programmes and what they need to know and do in actual classrooms. Korthagen identifies several factors contributing to this gap, including the "transfer problem" that assumes theoretical knowledge automatically translates into practical competence, the temporal separation between learning and application, and the tendency for training programmes to present idealised models of teaching that bear little resemblance to the complex realities of actual classrooms. These insights are particularly relevant for examining Morocco's CRMEF system.

2.2. International Perspectives on Teacher Preparation

Darling-Hammond et al. (2017) synthesise research from high-performing education systems to identify key features of successful teacher preparation programmes. Their comprehensive analysis reveals that successful programmes typically require at least a full semester of student teaching, with some requiring a full year. This extended practice allows teacher candidates to experience the full cycle of planning, teaching, assessing, and reflecting, while developing relationships with students and colleagues. Additionally, successful programmes demonstrate tight integration between theoretical coursework and field experiences, with university-based learning closely connected to school-based practice.

Integration of theory and practice emerges as another critical feature of effective teacher preparation. Rather than front-loading theoretical coursework followed by practice, effective programmes integrate these elements throughout the preparation sequence. University courses are closely linked to field experiences, with candidates immediately applying theoretical concepts in classroom settings (Ball & Cohen, 1999). This approach recognises that professional knowledge in teaching is fundamentally practical—it develops through the iterative process of acting in classrooms, reflecting on those actions, and refining practice based on feedback and outcomes.

UNESCO's (2023) comprehensive review of teacher preparation in developing countries identifies common challenges that resonate with the Moroccan context. Resource constraints often result in large class sizes in training programmes, inadequate teaching materials, and insufficient technology infrastructure. These constraints in training institutions mirror those in schools, potentially preparing teachers for resource-poor environments but not equipping them with strategies for transformation. The review also highlights the importance of contextual relevance, noting that programmes importing Western pedagogical models wholesale often fail to account for local cultural practices, linguistic contexts, and resource realities that shape teaching and learning in developing country contexts.

2.3. The Moroccan Context

Recent studies examining CRMEF effectiveness remain limited, though emerging research provides important insights into current challenges. Sayad and Talbi (2020) conducted a focused investigation of the Information and Communication Technology in Education module at CRMEF Fez-Meknes. Their findings reveal that despite theoretical coursework on educational technology, trainee teachers struggle with practical technology integration. Only 23% of participants felt confident using digital tools for instruction, highlighting the persistent gap between theoretical exposure and practical application. This finding is particularly concerning given Morocco's substantial investments in educational technology infrastructure through programmes such as GENIE (Généralisation des Technologies d'Information et de Communication dans l'Enseignement).

Morocco's complex linguistic landscape presents unique challenges for teacher preparation that programmes have not adequately addressed. Boutieri (2016) reveals how linguistic complexities create pedagogical challenges that require sophisticated teacher competencies rarely developed in current training models. Teachers must navigate a complex linguistic environment involving Modern Standard Arabic as the official language of instruction (though not the mother tongue of any Moroccan community), Moroccan Arabic (Darija) as the most widely spoken language but historically excluded from formal education, Amazigh recognised as an official language since 2011 with ongoing integration into curricula, French remaining the language of instruction for science and technical subjects, and English increasingly emphasised as a global language.

III. MATERIALS AND METHODS

3.1. Research Design

This study employed a convergent mixed-methods design, integrating quantitative and qualitative approaches to provide a comprehensive understanding of teacher training effectiveness in Morocco. The convergent design, as conceptualised by Creswell and Plano Clark (2018), involved collecting quantitative and qualitative data concurrently, analysing them separately using appropriate analytical techniques, and then merging the results for integrated interpretation. This design was selected because the complexity of the research questions required both breadth (achieved through quantitative survey methods) and depth (achieved through qualitative interviews and document analysis).

The rationale for selecting this design stemmed from the multifaceted nature of teacher preparation and the need to capture both measurable outcomes and contextual explanations. Quantitative methods enabled broad assessment of preparedness levels across multiple competency domains and regions, providing generalisable findings about the current state of teacher preparation. Qualitative methods offered depth and context, revealing the meanings, experiences, and explanations behind quantitative patterns. The integration of both approaches allowed for triangulation of findings, enhancing the validity and comprehensiveness of the conclusions.

3.2. Research Context and Timeline

The research was conducted between September 2024 and March 2025, spanning a complete academic semester to capture variations in training programmes and school contexts. This timeline allowed for data collection during different phases of the school year, including the challenging beginning period when new teachers' preparedness is most severely tested. The extended data collection period also enabled the research team to conduct follow-up interviews and member checking to enhance the trustworthiness of qualitative findings.

The study encompassed six of Morocco's twelve regions, selected to represent the country's geographical, socioeconomic, and linguistic diversity: Casablanca-Settat (urban, economically developed, primarily Arabic-speaking), Rabat-Salé-Kénitra (capital region, mixed urban-rural, diverse population), Fès-Meknès (historical centre, traditional educational hub, strong CRMEF presence), Marrakech-Safi (tourist economy, rural peripheries, significant Amazigh populations), Tangier-Tétouan-Al Hoceima (northern region, Spanish influence, mixed languages), and Souss-Massa (southern region, strong Amazigh presence, agricultural economy). This selection ensured representation of both coastal and interior regions, areas with varying levels of economic development, and communities with different linguistic profiles.

3.3. Participants and Sampling

The quantitative component employed stratified random sampling to ensure representative coverage across key demographic and professional variables. The target population comprised all teachers who completed CRMEF training between 2021 and 2023, estimated at approximately 8,000 individuals across the six study regions. Stratification variables included region, teaching level (primary, lower secondary, upper secondary), subject specialisation, and school context (urban/rural). Sample size determination followed Cochran's (1977) formula for finite populations with a 95% confidence level and 5% margin of error, yielding a minimum required sample of 367. To account for potential non-response, the target was increased to 400, with final participation of 384 teachers representing a 96% achievement of the target sample.

Table 1: Participant Demographics (N = 384)

Characteristic	n	%
Age		
22-25 years	142	37.0
26-30 years	168	43.8
31-35 years	52	13.5
>35 years	22	5.7
Gender		
Female	223	58.1
Male	161	41.9

Teaching Level		
Primary	173	45.1
Lower Secondary	123	32.0
Upper Secondary	88	22.9
School Context		
Urban	234	60.9
Rural	150	39.1

The qualitative sample comprised 45 participants selected through purposive maximum variation sampling to capture diverse perspectives on teacher preparation effectiveness. Participants included CRMEF teacher educators (n = 20) selected for subject diversity and years of experience in teacher preparation, school principals (n = 12) from schools hosting practicum students representing both high-performing and challenging school contexts, regional education officials (n = 8) involved in teacher recruitment, placement, and evaluation, and expert mentor teachers (n = 5) recognised for excellence in supporting beginning teachers.

3.4. Data Collection Instruments

The Teacher Preparedness Survey (TPS-Morocco) was developed through a systematic process involving comprehensive literature review, expert consultation, and iterative pilot testing. The instrument development process began with a review of existing teacher preparedness measures, including those developed by Darling-Hammond et al. (2017) and instruments used in TIMSS and TALIS studies. Items were adapted for the Moroccan context and supplemented with new items addressing context-specific challenges such as multilingual instruction and resource-constrained environments.

The final instrument comprised four sections totalling 89 items. Section A (Demographic and Professional Background, 12 items) collected information about personal characteristics, educational background, professional placement details, and CRMEF training specifics. Section B (Competency Self-Assessment, 48 items) measured eight competency domains with six items each, rated on a 5-point Likert scale ranging from 1 (Not at all prepared) to 5 (Very well prepared). The eight domains assessed were: Subject Matter Knowledge, Lesson Planning, Assessment Strategies, Multilingual Instruction, Student Engagement, Classroom Management, Differentiated Instruction, and Technology Integration. Section C (Training Programme Evaluation, 25 items) assessed perceptions of theoretical course quality, practicum experience effectiveness, and mentorship support. Section D (Open-Ended Reflections, 4 items) invited narrative responses about programme strengths, gaps, challenges, and recommendations.

3.5. Validity and Reliability

Content validity was established through systematic expert review involving eight specialists in teacher education, educational assessment, and Moroccan education policy. Experts rated each item's relevance to the construct on a 4-point scale, and items achieving Content Validity Index scores below 0.80 were revised or eliminated. The final instrument achieved an overall scale CVI of 0.91, indicating strong content validity. Expert reviewers also provided qualitative feedback on item wording, cultural appropriateness, and translation accuracy, which informed subsequent revisions.

Construct validity was examined through exploratory factor analysis using pilot data from 120 teachers not included in the main study sample. Principal component analysis with varimax rotation revealed eight factors corresponding to the theoretical competency domains, explaining 68.4% of total variance. All items loaded primarily on their intended factors with loadings exceeding 0.50. Confirmatory factor analysis using the main study data further validated the eight-factor structure with acceptable fit indices: $\chi^2/df = 2.34$, CFI = 0.92, TLI = 0.91, RMSEA = 0.059 (90% CI: 0.054-0.064), SRMR = 0.051. These fit indices meet or exceed commonly accepted thresholds for adequate model fit.

Table 2: Reliability Coefficients for TPS-Morocco Scales

Scale	Items	Cronbach's α	95% CI
Subject Matter Knowledge	6	0.88	[0.86, 0.90]
Lesson Planning	6	0.85	[0.82, 0.87]
Assessment Strategies	6	0.86	[0.84, 0.88]
Multilingual Instruction	6	0.89	[0.87, 0.91]
Student Engagement	6	0.84	[0.81, 0.86]
Classroom Management	6	0.87	[0.85, 0.89]
Differentiated Instruction	6	0.85	[0.83, 0.87]
Technology Integration	6	0.91	[0.89, 0.92]
Overall Scale	48	0.94	[0.93, 0.95]

As shown in Table 2, all scales demonstrated good to excellent internal consistency, with Cronbach's alpha coefficients ranging from 0.84 to 0.91 for individual scales and 0.94 for the overall instrument. These values exceed the 0.70 threshold commonly accepted for research purposes and indicate that items within each scale measured coherent constructs.

3.6. Data Collection Procedures

Prior to main data collection, a comprehensive pilot test was conducted with 35 teachers and 5 interview participants in the Rabat-Salé-Kénitra region. Pilot testing revealed several important modifications: survey completion time averaged 35 minutes, leading to reformatting for better flow; Arabic translations required refinement for technical pedagogical terms to ensure equivalent meaning across language versions; the online survey platform needed mobile optimisation given that many rural participants accessed the survey via smartphones; and interview questions about practicum required more specific prompts to elicit detailed responses.

Survey distribution occurred through multiple channels to maximise reach and response rates: electronic distribution via official Academic and Regional Education Authority (AREF) email lists reaching all eligible teachers in the six regions; WhatsApp groups coordinated by regional teacher associations providing peer encouragement for participation; direct distribution at mandatory professional development sessions ensuring access for teachers with limited internet connectivity; and QR codes posted in teacher resource centres facilitating convenient access. Response rate tracking was conducted weekly, with targeted reminder communications sent to underrepresented subgroups. The final response rate of 67% exceeded typical educational survey benchmarks.

Interviews were scheduled flexibly to accommodate participant availability, with 60% conducted in-person at participants' institutions and 40% conducted via video conferencing to reach participants in remote regions. Average interview duration was 68 minutes (range: 45-95 minutes). Participants selected their preferred language of interview, with distribution across Arabic (44%), French (31%), and mixed Arabic-French (25%). All interviews were audio-recorded with explicit consent and supplemented with detailed field notes capturing contextual observations and non-verbal communications. Recordings were transcribed verbatim by trained research assistants, with accuracy verified through random sampling and back-translation procedures.

3.7. Statistical Analysis

Quantitative data analysis was conducted using SPSS version 28.0, following a systematic progression from descriptive to inferential techniques. Descriptive statistics included means, standard deviations, medians, and interquartile ranges for continuous variables, and frequency distributions with percentages for categorical variables. Normality of continuous variables was assessed using Shapiro-Wilk tests and visual inspection of Q-Q plots. While some variables showed mild departures from normality, the large sample size ($N = 384$) supported the use of parametric tests under the central limit theorem.

Inferential analyses comprised independent samples t-tests for comparing urban and rural teacher preparedness, with Levene's test for equality of variances and Cohen's d for effect size estimation. One-way ANOVA examined regional differences in preparedness, with Tukey's Honestly Significant Difference test for post-hoc pairwise comparisons and eta-squared (η^2) for effect size. Chi-square tests assessed associations between categorical variables. Hierarchical multiple regression analysed predictors of overall preparedness, with variables entered in three blocks: demographics (age, gender, urban/rural), training components (practicum quality, mentorship quality, coursework relevance), and contextual factors (class size, resource availability, administrative support). Significance level was set at $\alpha = 0.05$ for all analyses, with exact p-values reported.

Qualitative analysis followed Braun and Clarke's (2022) six-phase reflexive thematic approach. Initial familiarisation involved repeated reading of transcripts with noting of preliminary patterns. Systematic coding used NVivo 12 software, combining inductive (data-driven) coding for emergent patterns and deductive coding using the theoretical framework as a sensitising structure. Two researchers independently coded 20% of transcripts to establish inter-coder reliability, achieving initial agreement of 72% and final Cohen's $\kappa = 0.78$ after discussion and codebook refinement, indicating substantial agreement.

IV. RESULTS

4.1. Overall Preparedness Levels

Analysis of self-reported preparedness across eight competency domains revealed significant variations in teacher readiness for different aspects of professional practice. The data revealed a clear hierarchy of preparedness, with theoretical domains (subject knowledge, lesson planning) showing significantly higher scores than practical domains (classroom management, differentiated instruction, technology integration). This pattern was consistent across all demographic subgroups examined, suggesting systemic rather than individual factors underlying the observed variation.

Table 3: Preparedness Scores by Competency Domain

Domain	M	SD	% Prepared ^a	% Unprepared ^b
Subject Matter Knowledge	4.12	0.68	78.1	5.2
Lesson Planning	3.89	0.74	70.8	8.6
Assessment Strategies	3.45	0.82	57.8	15.4

Multilingual Instruction	3.21	0.96	42.2	24.5
Student Engagement	3.18	0.87	47.9	19.8
Classroom Management	2.84	0.91	37.8	31.5
Differentiated Instruction	2.71	0.88	35.2	34.9
Technology Integration	2.58	0.95	31.3	42.2

Note. *M* = Mean; *SD* = Standard Deviation. ^aPercentage scoring 4-5 on 5-point scale; ^bPercentage scoring 1-2 on 5-point scale.

As shown in Table 3, Subject Matter Knowledge emerged as the domain with highest perceived preparedness ($M = 4.12$, $SD = 0.68$), with 78.1% of participants indicating adequate preparation (scores of 4-5). Lesson Planning followed closely ($M = 3.89$, $SD = 0.74$), with 70.8% reporting adequate preparation. In contrast, Technology Integration showed the lowest preparedness scores ($M = 2.58$, $SD = 0.95$), with only 31.3% indicating adequate preparation and 42.2% expressing inadequate preparation (scores of 1-2). Classroom Management ($M = 2.84$, $SD = 0.91$) and Differentiated Instruction ($M = 2.71$, $SD = 0.88$) also showed concerning patterns, with approximately one-third of participants indicating inadequate preparation in these domains.

4.2. Regional Variations

One-way ANOVA revealed significant regional differences in overall preparedness, $F(5, 378) = 8.47$, $p < 0.001$, $\eta^2 = 0.101$. This effect size indicates that region accounted for approximately 10% of variance in preparedness scores, representing a medium effect according to conventional benchmarks. Post-hoc comparisons using Tukey's HSD revealed a clear pattern distinguishing regions by preparedness levels. Casablanca-Settat showed the highest preparedness ($M = 3.68$, $SD = 0.62$), followed by Rabat-Salé-Kénitra ($M = 3.62$, $SD = 0.68$). These economically developed, urban-dominant regions differed significantly from Souss-Massa ($M = 3.19$, $SD = 0.77$) and Tangier-Tétouan ($M = 3.28$, $SD = 0.69$), $p < 0.05$. Fès-Meknès and Marrakech-Safi showed intermediate preparedness levels that did not differ significantly from either the highest or lowest performing regions.

4.3. Urban-Rural Disparities

Independent samples t-tests revealed significant urban-rural differences across multiple dimensions of teacher preparedness. Urban teachers ($M = 3.42$, $SD = 0.71$) reported significantly higher overall preparedness than rural teachers ($M = 3.11$, $SD = 0.89$), $t(382) = 3.74$, $p < 0.001$, Cohen's $d = 0.39$. This represents a small-to-medium effect size. The largest urban-rural disparity appeared in technology integration, $t(382) = 4.21$, $p < 0.001$, $d = 0.44$, likely reflecting both differential access to technology during training and the greater availability of digital resources in urban school placements. Classroom management also showed significant urban-rural differences, $t(382) = 3.32$, $p = 0.001$, $d = 0.34$, potentially reflecting the different behavioural challenges present in overcrowded urban versus resource-poor rural classrooms.

Notably, multilingual instruction showed no significant urban-rural difference, $t(382) = -0.80$, $p = 0.424$, $d = -0.08$. This finding suggests that challenges in navigating Morocco's complex linguistic landscape transcend geographical context and affect all teachers regardless of their placement setting. The universality of this challenge may reflect the inadequacy of current training approaches to multilingual pedagogy rather than context-specific factors.

4.4. Predictors of Teacher Preparedness

Hierarchical multiple regression analysis examined factors predicting overall preparedness. The full model, including demographic, training, and contextual variables, explained 48% of variance in preparedness scores, $R^2 = 0.48$, $F(12, 371) = 28.49$, $p < 0.001$. Each block contributed significantly to the model: demographics ($\Delta R^2 = 0.08$, $p < 0.001$), training components ($\Delta R^2 = 0.34$, $p < 0.001$), and contextual factors ($\Delta R^2 = 0.06$, $p < 0.001$).

Practicum quality emerged as the strongest predictor of overall preparedness, $\beta = 0.42$, $t(371) = 9.50$, $p < 0.001$, with each unit increase in practicum quality associated with a 0.38-point increase in preparedness. This finding underscores the critical importance of practical experience in teacher preparation and suggests that investments in improving practicum quality may yield substantial returns in teacher readiness. Mentorship quality was the second strongest predictor, $\beta = 0.31$, $t(371) = 6.75$, $p < 0.001$, highlighting the importance of support structures during the transition to professional practice. Coursework relevance also contributed significantly, $\beta = 0.19$, $t(371) = 3.20$, $p = 0.001$, suggesting that perceived applicability of theoretical content to practical challenges enhances preparedness. Among contextual factors, class size showed a significant negative relationship, $\beta = -0.14$, $t(371) = -3.33$, $p = 0.001$, indicating that teachers assigned to larger classes reported lower preparedness.

4.5. Qualitative Findings

Thematic analysis of interview transcripts and open-ended survey responses revealed four major themes that illuminated the quantitative findings and provided deeper understanding of teacher preparation experiences. The most prominent theme across all stakeholder groups was the pronounced disconnect between theoretical preparation and classroom realities. This theme was characterised by three sub-themes: idealised pedagogical models, practical skills deficit, and assessment reality gap.

New teachers consistently reported that training emphasised ideal teaching scenarios bearing little resemblance to actual classroom conditions. A primary teacher from rural Souss-Massa with 18 months of teaching experience explained: "At CRMEF, we learned about differentiated instruction for classes of 20 students with adequate materials. My reality? 48 students, three grade levels in one

room, sharing textbooks. The beautiful theories crumble when faced with these conditions. We need practical strategies for managing chaos, not theoretical frameworks designed for perfect classrooms." This sentiment was echoed across regions, with 87% of new teachers mentioning the challenge of managing large, diverse classes as inadequately addressed in their preparation.

Teacher educators acknowledged this disconnect but cited systemic constraints limiting their ability to bridge the gap. A CRMEF instructor with 15 years of experience in the Fès-Meknès region noted: "We know the theories we teach assume conditions that don't exist in most Moroccan schools. But the curriculum is mandated nationally with limited flexibility for local adaptation. We try to contextualise content where possible, but the gap between what we must teach and what teachers actually need is painful for us too." This insight revealed tensions between standardised national requirements and the diverse realities of Moroccan educational contexts.

Document analysis of 127 lesson plans from CRMEF courses revealed that 73% focused primarily on theoretical concepts and pedagogical principles, 18% included practical applications with specific classroom strategies, and only 9% addressed context-specific challenges such as large classes, limited resources, or multilingual settings. This distribution confirmed the theory-heavy orientation identified in interviews and provided structural evidence for the preparedness gaps observed in quantitative analyses.

V. DISCUSSION

5.1. Interpretation of Findings

The pronounced disconnect between theoretical preparation and practical competence confirms Korthagen's (2016) framework while revealing Morocco-specific manifestations of the theory-practice gap. The finding that 78% of teachers feel confident in subject matter knowledge but only 38% in classroom management exemplifies what Shulman (1987) terms the "missing paradigm" in teacher education—the transformation of content knowledge into pedagogical practice. Teachers possess deep understanding of what to teach but struggle with how to teach effectively in complex, resource-constrained environments.

This gap appears particularly acute in Morocco due to the compressed one-year CRMEF model. International benchmarks suggest that effective teacher preparation requires 2-4 years of integrated study and practice (Darling-Hammond et al., 2017). Morocco's condensed timeline provides insufficient opportunity for the iterative cycles of practice, reflection, and refinement that characterise professional learning. The finding that practicum quality is the strongest predictor of preparedness ($\beta = 0.42$) reinforces this interpretation—extended, high-quality practical experience is essential for developing the complex competencies required for effective teaching.

With only 42% of teachers feeling prepared for multilingual instruction, the findings reveal a critical misalignment between Morocco's linguistic reality and teacher preparation. This challenge extends beyond simple translation competence to what contemporary scholars term "translanguaging pedagogy"—the strategic use of students' full linguistic repertoires for learning. The absence of significant urban-rural differences in multilingual preparedness suggests this is a systemic gap in the training model rather than a context-specific issue, indicating that current approaches to linguistic preparation are inadequate regardless of where teachers ultimately serve.

The finding that technology integration represents the weakest area of preparation ($M = 2.58$, 31% prepared) reveals a fundamental paradox in Morocco's educational modernisation efforts. While Vision 2030 emphasises digital transformation and the GENIE programme has invested substantially in educational technology infrastructure, teacher preparation remains largely analogue in its approach. This disconnect represents both "first-order" barriers (resource access) and "second-order" barriers (pedagogical knowledge), suggesting that infrastructure investments alone will not yield educational improvements without corresponding investments in teacher preparation for technology-enhanced pedagogy.

5.2. Implications for Policy and Practice

The findings strongly support fundamental restructuring of Morocco's teacher preparation system. The current one-year CRMEF model appears structurally insufficient for developing the required competencies. Several specific recommendations emerge from the analysis. First, the preparation timeline should be extended to a minimum of two years of professional preparation following undergraduate degrees, or alternatively, four-year integrated programmes combining content and pedagogical preparation. This extended timeline would allow for deeper development of practical competencies through iterative cycles of learning and application.

Second, practicum should be restructured to constitute at least 40% of programme time, with semester-long residencies in diverse school contexts. Rural placements should be mandatory for all candidates to ensure exposure to the challenging conditions many will face in their initial assignments. The strong relationship between practicum quality and preparedness ($\beta = 0.42$) suggests that investments in improving practicum experiences—through better mentor training, more diverse placement sites, and tighter university-school partnerships—would yield substantial returns in teacher readiness.

Third, curriculum revision should reduce theoretical pedagogy from 40% to 25% of programme time while increasing practical components. Dedicated modules should be introduced for multilingual pedagogy (8%), technology integration (8%), and classroom management (10%). Each component should integrate theory and practice rather than treating them as separate domains. For

example, classroom management training should combine behavioural theory with simulation exercises, video analysis of real classroom situations, and progressive practice in actual classrooms with structured feedback.

5.3. Limitations

Several limitations warrant consideration when interpreting these findings. Reliance on self-reported preparedness may not accurately reflect actual teaching competence; teachers may overestimate abilities in familiar domains or underestimate in areas where they lack awareness of their own skill deficits. The cross-sectional design prevents causal inferences about training effectiveness; longitudinal tracking would provide stronger evidence of training impacts over time. Focus on recent graduates (2021-2023) may not reflect experiences of earlier cohorts or capture the effects of ongoing reforms. Six of twelve regions were studied, and findings may not fully represent all Moroccan contexts, particularly extremely rural areas or the Saharan provinces with distinct educational challenges. Future research should address these limitations through longitudinal designs, classroom observations, and student outcome measures to validate self-reported preparedness.

VI. CONCLUSION

This study presents a comprehensive mixed-methods evaluation of teacher preparation effectiveness in Morocco's CRMEF system. The analysis reveals significant challenges facing Moroccan teacher education: compressed preparation timelines that provide insufficient opportunity for practical skill development, pronounced theory-practice disconnects that leave teachers unprepared for classroom realities, inadequate preparation for the multilingual contexts that characterise Moroccan education, and insufficient support systems for teachers transitioning from preparation to professional practice. These challenges, while specific to Morocco's context, reflect broader issues facing teacher preparation in developing countries worldwide.

The findings demonstrate that practicum quality and mentorship are the strongest predictors of teacher preparedness, underscoring the importance of practical experience and support in professional learning. The significant regional and urban-rural disparities identified reveal systemic inequities that perpetuate educational disadvantages for the most vulnerable student populations. The comprehensive recommendations presented—extending preparation programmes, increasing practical experience, developing context-responsive curricula, and establishing robust support systems—align with international best practices while acknowledging Morocco's specific constraints and opportunities.

Morocco stands at a critical juncture in its educational development. The Vision 2030 goals of equity, quality, and promotion cannot be achieved without fundamental transformation of teacher preparation. This study provides an evidence base for that transformation, grounded in rigorous empirical analysis, informed by international research, and adapted to local realities. Implementation will require significant investment and sustained political will, but the cost of inaction—continued educational underachievement and perpetuation of inequities—far exceeds the cost of reform. The ultimate goal is not merely to evaluate current systems but to contribute to the development of teacher preparation programmes that truly prepare educators for the complex, rewarding work of teaching in 21st-century Morocco.

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VIII. DISCLOSURE

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