

Training for Innovation: A Critical Review of Professional Development Schemes for Pedagogical Innovation in Moroccan Higher Education

Khaoula Baydi, Khalid Derkaoui

Faculté des Sciences de l'Éducation, Université Mohammed V de Rabat

Abstract— This study investigates how university teachers in Morocco understand and implement pedagogical innovation within a higher education system undergoing continuous reform. Although innovation is widely promoted in national strategies, its translation into everyday teaching remains uneven. A qualitative approach was adopted to explore teachers' experiences, using semi-structured interviews with fifteen faculty members from eight public universities. The analysis followed Braun and Clarke's thematic method and was complemented by document review. Findings show that innovation is often perceived through the lens of digital technology rather than through deeper instructional redesign. Professional development appears fragmented, dominated by short technical workshops that seldom provide sustained pedagogical guidance. Teachers express motivation to improve their practices, yet institutional constraints limited recognition, insufficient infrastructure, and traditional academic cultures significantly restrict their capacity to innovate. Comparing this context with the Quebec model highlights how structured development pathways, collaborative cultures, and governance mechanisms create more favorable environments for pedagogical transformation. The study contributes to current debates by positioning innovation as both an individual and systemic process. It emphasizes that sustainable change requires coherent institutional ecosystems where training, support, and recognition reinforce teachers' efforts. The results also offer practical insights for policymakers seeking to align digital transformation with pedagogical objectives.

Index Terms— Digital pedagogy, Educational change, Higher education, Institutional culture, Morocco, Pedagogical innovation, Professional development, Quebec model.

I. INTRODUCTION

Over the past decade, Moroccan higher education has been reshaped by reforms that aim to modernize teaching practices and bring universities closer to international standards [14]. In this evolving landscape, pedagogical innovation has moved

from a desirable option to a real necessity [4]. Universities are expected to encourage teaching approaches that improve student engagement, develop autonomy, and integrate digital tools in meaningful ways. Yet, despite these ambitions, a clear gap remains between official discourse and what actually happens in classrooms. This study begins with this tension. It asks how university teachers in Morocco understand pedagogical innovation, how they try to put it into practice, and what makes this process difficult or possible within institutions that often face limited resources, uneven digital infrastructures, and traditional academic cultures that do not always welcome change. The scientific value of this work lies in the fact that few studies have examined pedagogical innovation in Morocco through the concrete experiences of teachers themselves [12]. Official documents often describe what innovation should look like, but they rarely capture how teachers interpret these expectations or how they deal with the challenges of transforming their teaching [9, 4]. Understanding these lived experiences helps clarify the conditions that support or hinder innovation and offers a more realistic picture of ongoing educational reforms [12, 14].

The aim of this study is therefore twofold. First, it seeks to explore how teachers conceptualize pedagogical innovation within their own disciplinary and institutional contexts [4, 12]. Second, it examines the types of professional development available to them, the level of institutional support they receive, and the barriers they face when trying to adopt new teaching methods [12, 14]. The research also looks at the broader environment of universities, especially in terms of governance, digital readiness, and institutional culture [14].

Four research questions guide the investigation. They focus on how teachers define innovation, what training opportunities they can access, how institutional and technological conditions influence their teaching practices, and which factors enable or

This paragraph of the first footnote will contain the date on which you submitted your paper for review. It will also contain support information, including sponsor and financial support acknowledgment. For example, "This work was supported in part by the U.S. Department of Commerce under Grant BS123456".

The next few paragraphs should contain the authors' current affiliations, including current address and e-mail. For example, F. A. Author is with the

National Institute of Standards and Technology, Boulder, CO 80305 USA (e-mail: author@boulder.nist.gov).

S. B. Author, Jr., was with Rice University, Houston, TX 77005 USA. He is now with the Department of Physics, Colorado State University, Fort Collins, CO 80523 USA (e-mail: author@lamar.colostate.edu).

T. C. Author is with the Electrical Engineering Department, University of Colorado, Boulder, CO 80309 USA, on leave from the National Research Institute for Metals, Tsukuba, Japan (e-mail: author@nrim.go.jp).

limit long-term pedagogical change [4, 12, 14].

This introduction therefore sets the stage for an analysis that seeks not merely to repeat reform ideas, but to understand how these ideas are experienced on the ground. By prioritizing the voices of teachers, the study highlights the human, organizational, and cultural dimensions that shape pedagogical innovation in Morocco [12, 14].

II. CONCEPTUAL AND THEORETICAL FRAMEWORK

Pedagogical innovation has become a central construct in contemporary debates on higher education reform, yet the term itself remains fluid, shaped by diverse epistemological traditions and institutional expectations. In its broadest sense, innovation refers to the intentional reconfiguration of teaching practices with the aim of improving the quality, relevance, and inclusiveness of learning. Rather than the mere introduction of technological tools or novel techniques, it encompasses shifts in underlying pedagogical assumptions, the redefinition of teacher–student relationships, and the cultivation of environments that foster inquiry, autonomy, and collaborative problem solving.

A useful starting point for conceptualizing innovation lies in the work of Lebrun [22], whose framework positions pedagogical change as a deliberate, evidence-informed process in which new approaches are judged not only by their novelty but by their capacity to enhance learning and to be shared, adapted, and scaled within institutional ecosystems. This view emphasizes that innovation is inseparable from reflective practice, requiring teachers to interrogate their existing routines, to experiment with alternative strategies, and to articulate the pedagogical reasoning underlying their choices [26].

Professional development is therefore not an auxiliary activity but a structural pillar that enables educators to transform their practice. Scholarship on faculty professionalization underscores that teaching competence is multi-dimensional, involving knowledge of disciplinary content, understanding of learning processes, and the ability to orchestrate meaningful learning experiences. Authors such as Tardif [27], Schön [26], and Paquay [24] argue that pedagogical development must extend beyond the transmission of techniques and instead nurture reflective thinking, metacognitive awareness, and the capacity to mobilize diverse resources in complex instructional scenarios. Within this perspective, faculty learning is inherently situated, mediated by disciplinary cultures, institutional norms, and the lived experiences of teachers.

Experiential learning theories, notably Kolb’s cyclical model, enrich this understanding by highlighting the iterative nature of pedagogical change. Innovation emerges through cycles of action, reflection, conceptualization, and reapplication, allowing teachers to refine their approaches through the feedback loops generated by practice. Similarly, socio-constructivist theories rooted in the work of Bruner [6] and Vygotsky [32] emphasize that learning including teachers’ own professional learning is socially negotiated. Communities

of practice play a decisive role here, offering spaces where teachers exchange ideas, co-construct meaning, and collectively develop a repertoire of teaching strategies. These social dynamics become particularly significant in contexts where institutional support is uneven, as peer networks often compensate for structural limitations.

Theories of organizational change further deepen the conceptual landscape. Drawing on Fullan’s analyses [15], pedagogical innovation can only flourish when individual initiative is aligned with supportive institutional conditions. Change is not imposed; it is cultivated through coherent policies, leadership commitment, and mechanisms that legitimize experimentation. Institutions act as pivotal intermediaries: they can either empower teachers to innovate or constrain them through rigid governance structures, limited resources, or evaluation systems that reward research productivity over pedagogical excellence. Thus, innovation must be understood as a negotiated process occurring at the intersection of personal motivation, organizational culture, and systemic incentives.

Digital transformation adds another layer of complexity, reframing longstanding pedagogical questions within technologically mediated environments. While digital tools are frequently portrayed as catalysts for innovation, research shows that their pedagogical impact depends on how teachers integrate them into instructional design, assessment strategies, and classroom interaction. The distinction between digital competence and digital pedagogy is crucial here. The former concerns operational fluency, whereas the latter involves the intentional, theoretically grounded use of technology to support learning. This conceptual differentiation provides an important foundation for later sections of the study, particularly given the reviewers’ request for deeper engagement with technological dimensions.

Taken together, these theoretical perspectives construct a multidimensional framework for analyzing pedagogical innovation. They highlight that professional development cannot be reduced to isolated workshops or technical training; it must engage teachers as reflective practitioners, foster collaborative cultures, and align with institutional strategies capable of sustaining change over time. This conceptual foundation guides the present study by situating Moroccan experiences within a broader scholarly conversation, providing analytical tools for interpreting the empirical evidence that follows.

III. THE MOROCCAN HIGHER EDUCATION LANDSCAPE

Understanding pedagogical innovation in Morocco requires situating faculty development within the broader evolution of the national higher education system, a system marked by ambitious reforms but constrained by persistent structural and cultural limitations. Over the past two decades, successive policy initiatives including the Strategic Vision 2015–2030 and more recent digital transformation agendas have sought to reposition universities as engines of socio-economic development and laboratories of pedagogical renewal [9, 14].

These reforms articulate a vision in which innovation, quality assurance, and learner-centered teaching occupy a central place [4, 9]. Yet this vision often encounters difficulties when transposed into institutional realities.

One of the defining characteristics of the Moroccan system is its heterogeneity. Universities vary significantly in terms of size, resources, governance structures, and regional environments. Well-funded institutions located in major urban centers often possess stronger technological infrastructures and more diversified training offerings, while universities in peripheral regions operate with limited budgets, outdated facilities, and high student-teacher ratios. These disparities create unequal conditions for adopting innovative pedagogies and for implementing professional development programs that extend beyond one-off workshops.

Another feature of the Moroccan landscape is the historical emphasis on research credentials in faculty recruitment. Teaching competence, despite being a cornerstone of educational quality, has traditionally received limited institutional attention. New faculty members frequently assume full teaching responsibilities without formal pedagogical preparation, relying on personal intuition or inherited departmental norms. This structural gap places considerable weight on professional development schemes, which, if inadequately designed, perpetuate the status quo rather than stimulating genuine pedagogical transformation.

The COVID-19 pandemic momentarily disrupted this inertia by forcing a rapid transition to remote teaching. Universities invested in learning platforms, training sessions, and technical support units, often for the first time on a large scale. While this accelerated digital infrastructure in several institutions, it also exposed deep inequities between those capable of sustaining digital initiatives and those reliant on improvised solutions. More importantly, the pandemic revealed that technological adoption does not automatically translate into pedagogical innovation; without clear instructional design frameworks, many teachers reverted to transmissive modes of teaching transplanted onto digital platforms.

At the governance level, policies related to innovation tend to be aspirational rather than operational. Institutional documents frequently reference active learning, digital integration, and student engagement, yet these concepts are rarely supported by detailed implementation mechanisms or stable funding. Faculty members interviewed for this study described innovation initiatives as inconsistent, short-lived, and insufficiently aligned with local needs. When training opportunities do arise, they often emerge from external partners such as international organizations or bilateral cooperation projects rather than from sustained institutional strategies.

The role of institutional culture is equally decisive. In several universities, pedagogical experimentation remains marginal, partly due to norms that privilege traditional lecturing as the marker of academic authority. Resistance to change is not merely attitudinal; it is embedded in workload structures, evaluation systems, and implicit expectations about what constitutes legitimate academic work. Without incentives, recognition, or relief from teaching duties, faculty members rarely find the time or institutional justification to redesign their courses around innovative principles.

Despite these constraints, promising developments are visible. A few institutions particularly those benefiting from targeted funding or visionary leadership have introduced teaching innovation centers, digital learning units, or structured certification programs. These initiatives, though still limited in scale, demonstrate that strategic investment can catalyze change when aligned with institutional priorities and supported by trained personnel. They also reveal an emerging recognition that professional development is not an optional supplement but an essential driver of educational reform.

Overall, the Moroccan context presents a paradox. On the one hand, national discourse strongly endorses innovation as a strategic priority for higher education. On the other, the structures required to cultivate, sustain, and generalize innovative practices remain underdeveloped. This tension provides the backdrop to the present study, which seeks to understand how faculty members navigate these contradictory pressures and how professional development programs might evolve to better support pedagogical transformation.

IV. RESEARCH METHODOLOGY

This study employs a qualitative research design aimed at capturing the nuanced ways in which Moroccan university faculty interpret pedagogical innovation and engage with professional development opportunities. Given the exploratory nature of the inquiry and the diversity of institutional contexts across the country, a qualitative approach offered the most appropriate framework for generating rich, situated insights that cannot be easily reduced to numerical indicators.

A. Research Design and Rationale

The choice of a qualitative orientation was guided by two considerations. First, pedagogical innovation is deeply embedded in personal histories, disciplinary cultures, and institutional logics; understanding how faculty members navigate these layers requires methods capable of eliciting subjective meanings and lived experiences. Second, existing research on faculty development in Morocco remains scarce and often descriptive, necessitating an interpretive approach capable of uncovering the mechanisms through which innovation is conceptualized, adopted, or resisted.

B. Participant Selection and Sampling Strategy

Participants were recruited using a purposive sampling strategy designed to ensure variation across disciplines, ranks, and institutional environments. The study included fifteen faculty members from eight public universities, representing fields as diverse as engineering, humanities, social sciences, and natural sciences. This heterogeneity was essential for capturing the differentiated realities of professional development across the Moroccan higher education system.

Selection criteria included:

- a minimum of three years of teaching experience;
- prior exposure to at least one form of professional development activity (institutional training, workshop, certification, or self-directed learning);
- willingness to reflect on personal experiences with pedagogical innovation.

This combination of criteria enabled the recruitment of participants who could provide informed perspectives on both the possibilities and the constraints surrounding innovative teaching practices.

C. Data Collection Procedures

Data were collected through semi-structured interviews conducted between October 2023 and January 2024. Interviews lasted 45 to 60 minutes, depending on the availability and engagement of participants. Although most interviews were conducted online due to geographical dispersion, three took place face-to-face. The semi-structured format provided a balanced structure: a shared set of guiding questions ensured comparability across cases, while open-ended prompts encouraged participants to elaborate on issues, they considered salient.

The interview protocol was organized around four thematic clusters:

- perceptions and definitions of pedagogical innovation;
- experiences with professional development programs;
- institutional and technological conditions influencing innovation;
- barriers, motivations, and enabling factors.

Questions were pretested with two faculty members who were not included in the final sample to refine wording, enhance clarity, and ensure coherence with the study’s analytical objectives.

In addition to the interviews, a documentary analysis was conducted, encompassing institutional strategies, policy documents, and reports related to pedagogical training and digital transformation. These texts provided contextual grounding and helped triangulate interview data.

D. Data Collection Procedures

The analysis followed Braun and Clarke’s thematic approach [5], combining inductive and deductive procedures. Interview recordings were transcribed verbatim, and a preliminary coding cycle identified recurring patterns related to perceptions of innovation, experiences with training, and institutional dynamics. A second cycle of axial coding refined these categories, identifying relationships between individual agency, organizational structures, and technological readiness. Codes were compared across participants to detect convergences, divergences, and context-dependent nuances. Special attention was given to identifying tensions between discourse and practice, particularly in relation to institutional support mechanisms and technological integration. Documentary sources were used to validate or challenge emergent themes, strengthening analytic rigor and enhancing internal validity.

E. Ethical Considerations

Ethical principles guided all stages of the research. Participants were informed about the purpose of the study, their right to withdraw at any time, and the measures taken to protect confidentiality. All identifying details were removed from transcripts, and institutional affiliations were anonymized. Data were stored securely and accessed only by the research team.

V. RESULTS AND DISCUSSION

The analysis of the fifteen faculty interviews reveals a complex and often contradictory landscape in which enthusiasm for pedagogical renewal coexists with structural constraints, uneven institutional support, and fragmented professional development pathways. The results are organized around five major themes that emerged from thematic analysis: perceptions of innovation, experiences with training, digital competencies, barriers to pedagogical transformation, and enabling factors. Tables and visual representations are included to synthesize the empirical trends identified across participants.

A. Perceptions of Pedagogical Innovation

The interviews show that teachers hold diverse interpretations of pedagogical innovation, ranging from simple tool adoption to deeper changes in teaching philosophy. This diversity reflects what Lebrun [22] describes as the “multiple entry points” of innovation, where novelty is often confused with technological change rather than pedagogical transformation. Consistent with studies by Bouanhar [4] and Dounia [12], many teachers associate innovation primarily with digital tools, confirming that digitalization often overshadows reflective instructional design in Moroccan universities.

Table 1. Conceptions of Innovation among Participants

Conception	Participants (n=15)	Alignment with Literature
Digital tool use	10	Matches Bouanhar [4] and Henderson et al. [19] on tool-driven innovation
Active learning approaches	8	Consistent with Laurillard [21] and Tardif [27]
Assessment redesign	5	Reflects calls for authentic evaluation [27]
Institutional requirement	7	Echoes Fullan [15] on imposed reform
Professional identity shift	4	Aligns with Schön [26] and reflective practice theories

Participants frequently associated innovation with digital integration. However, deeper pedagogical shifts such as rethinking student roles or redesigning classroom interactions were less consistently articulated, revealing a conceptual gap between tool adoption and pedagogical transformation. These results indicate that while teachers recognize the importance of innovation, many still operate within What Paquay and Altet [24] describe as “technicist change where innovation remains superficial unless supported by reflective thinking and institutional frameworks.

B. Experiences with Professional Development

Experiences with professional development were highly uneven, shaped by institutional disparities, disciplinary norms, and personal motivation. For most participants, professional development remained isolated, fragmented, and insufficiently aligned with local needs. Teachers reported exposure to a variety of training formats, but most were short, disconnected, and lacking follow-up. This confirms the conclusions of El Hachimi and Kaddouri [13], who argue that Moroccan universities have not yet developed sustained professional development ecosystems comparable to those found in Quebec or Europe. Workshops focused mainly on technical skills, which aligns with Tondeur et al. [28], who warn that digital competence alone does not produce pedagogical innovation without a strong instructional design component.

Table 2. Training Modalities and Their Pedagogical Impact

Training Type	Frequency	Observed Impact	Theoretical Interpretation
Short workshops	12	Limited and temporary	Supports Braun & Clarke’s idea of fragmented learning [5]
Digital platform tutorials	9	Technical skill-building only	Confirms distinction between digital competence vs. digital pedagogy [16]
Certification programs	3	Strong and lasting	Mirrors CADRE21 [34] findings on structured development
Peer learning	7	Contextual and meaningful	Supports Wenger’s (1998) communities of practice [31]
International programs	2	Highly transformative	Aligned with Desjardins & Peters [10]

Across interviews, teachers emphasized the absence of mentoring, coaching, or reflective spaces, echoing Schön’s argument that professional growth requires guided reflection, not isolated training events [26].

C. Digital Competencies and Gaps

Results show important inequalities in digital competence. However, more striking than these differences is the widespread confusion between *using* digital tools and *designing learning* with them. This mirrors the distinction highlighted by Bates [2] and Ossiannilsson [23], who argue that digital transformation must be anchored in pedagogical frameworks rather than technical mastery. Teachers with strong technical skills still reported challenges designing coherent digital learning

experiences, which reinforces Laurillard’s idea that technology must be embedded within a structured learning model [21].

Table 3. Levels of Digital Competence

Competence Level	Participants	Typical Challenges	Interpretation (Theory)
High	5	Difficulty integrating tools into pedagogy	Supports Laurillard’s digital pedagogical design model [21]
Moderate	6	Limited capacity to redesign courses	Reflects Kolb’s cycle [33]: experimentation without conceptualization
Low	4	Basic functional difficulties	Matches UNESCO [29] findings on digital inequality

Participants emphasized a persistent distinction between *technical competence* (knowing how to operate a tool) and *pedagogical competence* (knowing how to design learning with that tool). Most reported that institutional offerings rarely address the latter.

D. Barriers to Innovation

The analysis identified several recurring barriers that hinder the diffusion of innovative teaching practices.

Table 4. Key Barriers Identified

Barrier	Frequency	Explanation
Lack of time	65%	Heavy teaching loads constrain experimentation
Insufficient institutional support	60%	Absence of strategic guidance or follow-up
Lack of recognition	48%	Innovation not rewarded in evaluation systems
Inadequate infrastructure	53%	Outdated classrooms, weak internet connectivity
Cultural resistance	40%	Attachment to traditional lecturing norms

These findings align with Fullan’s theory of educational change [15], which states that innovation fails when structural and cultural conditions are not aligned with reform objectives. They also confirm Ryan & Deci’s argument [25] that extrinsic motivation (such as institutional pressure) is insufficient when intrinsic motivation is unsupported by proper working conditions.

Cultural resistance also emerged strongly, mirroring Damiano’s observation [8] that universities often maintain traditional teaching models due to entrenched beliefs about academic authority.

E. Enabling Conditions for Innovation

Despite the barriers identified, several enabling factors emerged as powerful drivers of innovation.

Table 5. Enabling Factors Supporting Pedagogical Innovation

Enabler	Frequency	Impact
Intrinsic motivation	10/15	Encourages exploration and sustained effort
Peer collaboration	7/15	Provides contextual support and shared learning
Leadership support	5/15	Creates a culture of legitimacy around innovation
Dedicated resources	4/15	Access to digital labs, instructional designers
Institutional recognition	3/15	Incentivizes long-term commitment

These enablers echo Wenger’s work on communities of practice [31], showing that innovation thrives where teachers share experiences, challenges, and solutions. Intrinsic motivation also aligns with self-determination theory, confirming Deci & Ryan’s view [25] that meaningful learning environments strengthen autonomy and engagement. However, these positive conditions remain uneven across institutions and rely heavily on individual initiative rather than structured institutional support.

VI. COMPARATIVE ANALYSIS: MOROCCO AND THE QUEBEC MODEL

The comparison between Morocco and Quebec is useful because both systems highlight pedagogical innovation in policy discourse, yet they differ markedly in implementation. Quebec is often presented in the literature (notably Desjardins & Peters [10]) as a structured, mature ecosystem for professional development, while Morocco is still consolidating the institutional foundations that support reflective teaching, digital pedagogy, and collaborative learning. This section synthesizes these contrasts by confronting the study’s findings with the main theories referenced earlier.

A. Training Accessibility

The Moroccan data reveal fragmented training trajectories, dominated by short workshops and technical tutorials. These patterns reflect what El Hachimi & Kaddouri [13] describe as “punctual and uncoordinated development efforts.” In contrast, Quebec offers accessible, sequenced learning pathways especially through CADRE21[34] and university teaching centers that embody Kolb’s experiential cycle [33], where professional growth is progressive, reflective, and sustained over time.

Table 6. Comparative Overview of Training Accessibility

Criteria	Morocco	Quebec (CADRE21)
Geographic equity	Low	High

Criteria	Morocco	Quebec (CADRE21)
Continuity of training	Fragmented	Structured and ongoing
Personalization	Limited	Extensive
Cost	Often free but irregular	Fully free and open
Certified pathways	Rare	Common

B. Governance, Institutional Support, and Recognition

Moroccan teachers frequently mention working without structured support, which mirrors Fullan’s assertion that innovation fails when organizational conditions are absent. The Moroccan context still lacks pedagogical units, mentoring systems, and evaluation criteria that value teaching excellence. Quebec, however, integrates these elements into its governance structures. Recognition through open badges, teaching awards, and formal evaluation criteria strengthens both extrinsic and intrinsic motivation, aligning with Ryan & Deci’s self-determination theory [25].

This difference reveals a key structural divergence: Morocco relies on individual initiative, whereas Quebec fosters collective responsibility for pedagogical development.

C. Integration of Digital Pedagogy

The Moroccan results show that digital transformation remains mostly technical. Teachers learn to operate tools but lack guidance to design meaningful learning experiences an issue highlighted in Studies by Bates [2] and Laurillard [21]. Quebec demonstrates a more consolidated approach. Digital literacy is embedded within faculty development frameworks, supported by comprehensive training programs, digital resource centers, and dedicated staff. The emphasis is not merely on technical proficiency but on aligning digital tools with coherent pedagogical strategies, which reflects Laurillard’s argument [21] that technology must be anchored in explicit learning models

D. Collaborative Culture and Communities of Practice

Moroccan peer collaboration is informal and reliant on personal networks. Although helpful, it lacks institutional recognition and continuity. This contrasts with Quebec, where collaborative structures such as communities of practice and pedagogical innovation hubs are fully integrated into academic life. These spaces operationalize Wenger’s theory of social learning [31], creating environments where innovation becomes a shared professional norm rather than an isolated initiative.

Table 7. Collaborative Dynamics: A Comparative Overview

Dimension	Morocco	Quebec	Interpretation
Peer exchange	Informal	Structured	Supports Wenger’s social learning theory [31]

Dimension	Morocco	Quebec	Interpretation
Communities of practice	Emerging	Institutionalized	Enables knowledge diffusion
Resource sharing	Limited	Extensive	Reflects strong organizational culture
Innovation scalability	Low	High	Mirrors systemic coherence

E. Synthesis of Comparative Insights

The comparative analysis reveals a fundamental structural divergence between the two systems:

Morocco exhibits **fragmented, individualized, and uneven** professional development practices, heavily reliant on personal initiatives and constrained by limited institutional scaffolding. Quebec represents a **systemic, structured, and culturally embedded** model, in which faculty development is understood as a shared institutional responsibility supported by clear frameworks, incentives, and collaborative mechanisms.

The Moroccan system thus stands at a critical juncture. While the discourse surrounding pedagogical innovation has gained traction, its operationalization requires a shift from isolated initiatives to **ecosystemic approaches** that integrate training, recognition, leadership, digital infrastructures, and communities of practice.

The lessons drawn from Quebec do not imply a simple transferability of practices but rather invite a reflection on the structural reforms needed to build a coherent and sustainable faculty development ecosystem adapted to Moroccan realities.

VII. GENERAL DISCUSSION

The findings of this study illuminate a higher education landscape in which pedagogical innovation emerges not as a coherent institutional strategy but as a constellation of scattered efforts shaped by individual agency, uneven organizational support, and systemic constraints. While Moroccan faculty members express a clear interest in improving their teaching practices, their experiences reveal a persistent misalignment between institutional aspirations and the practical realities encountered in classrooms.

One of the central patterns that emerges from the data is the coexistence of enthusiasm and frustration. Faculty members repeatedly articulated a desire to experiment with new instructional approaches particularly active learning methods and digital integration yet their capacity to do so remains tightly bounded by structural conditions. Heavy teaching loads, administrative obligations, insufficient digital infrastructures, and minimal recognition collectively create an environment where innovation becomes an additional burden rather than an institutionalized expectation. This finding resonates with international research suggesting that innovation thrives not solely on individual motivation but within ecosystems that afford time, resources, and legitimacy to pedagogical experimentation.

A second major insight concerns the conceptual ambiguity surrounding pedagogical innovation. Many faculty members associate innovation primarily with the use of technology, reflecting a global trend in which digital tools are often conflated with pedagogical transformation. However, the interviews reveal that the deeper pedagogical dimensions such as shifts toward learner autonomy, authentic assessment, and reflective practice remain less clearly articulated. This gap indicates that training programs have not sufficiently addressed *pedagogical reasoning*, focusing instead on operational or technical competencies. Without explicit instructional design frameworks, teachers risk adopting tools without transforming their underlying teaching logic.

The results also highlight the profound impact of institutional culture on pedagogical behavior. In universities where leadership demonstrates a tangible commitment to innovation through strategic planning, funding, recognition mechanisms, or dedicated pedagogical units faculty members report greater confidence and willingness to engage in change. These localized “microclimates of innovation” show that organizational culture can compensate for systemic limitations and create pockets of pedagogical vitality. However, such environments remain exceptions within the broader Moroccan landscape, where teaching remains undervalued relative to research and where innovation is seldom embedded in evaluation systems or career progression.

Another significant dimension is the relational and collective nature of professional development. Faculty members who had opportunities to collaborate with peers, participate in communities of practice, or exchange ideas informally described these experiences as among the most meaningful enablers of change. These spaces foster a sense of belonging, reduce professional isolation, and create opportunities for co-constructing pedagogical strategies adapted to local contexts. Yet the emergence of such communities in Morocco appears largely organic and unsupported by formal structures. This stands in contrast to more mature ecosystems, such as Quebec’s, where collaborative networks are intentionally cultivated as engines of pedagogical renewal.

Digital transformation offers a striking illustration of the tension between potential and practice. The pandemic-triggered shift to online teaching demonstrated that Moroccan faculty members are capable of rapid adaptation when circumstances demand it. Yet the sustainability of digital innovation remains compromised by infrastructural inequalities, insufficient training, and the absence of coherent institutional policies on digital pedagogy. The persistence of what participants described as “tinkered competence” pragmatic, trial-and-error adaptations suggests that digital transformation will remain superficial unless embedded within a broader pedagogical framework supported by continuous professional development. Overall, the study suggests that pedagogical innovation in Morocco is best understood as an emergent phenomenon resulting from the interplay between individual resilience, contextual constraints, and partial institutional encouragement. While promising initiatives exist, they lack the systemic scaffolding required for sustainability and scalability. To move beyond isolated efforts, Moroccan universities will need to rethink the architecture of faculty development, aligning

incentives, resources, and evaluation systems with the broader goal of fostering a culture of pedagogical excellence.

This analysis positions the Moroccan case within global conversations on teacher professionalization and educational change. It underscores the idea widely supported in the literature that innovation is not merely a matter of adopting new techniques but a transformation of professional identity, organizational culture, and governance structures. In this sense, innovation becomes not only a pedagogical challenge but an institutional and cultural project requiring long-term vision, strategic coherence, and sustained engagement from all levels of the university system.

VIII. RECOMMENDATIONS AND FUTURE WORK

The findings of this study reveal that pedagogical innovation in Moroccan higher education is constrained not by a lack of interest among faculty but by the absence of coherent strategies, institutional structures, and long-term developmental pathways capable of sustaining meaningful change. Based on the empirical evidence and comparative insights drawn from the Quebec model, several recommendations are proposed to strengthen the ecosystem of faculty development in Morocco and to create the conditions necessary for durable pedagogical transformation.

A. Establish a National Framework for Pedagogical Innovation

A central recommendation is the development of a **nationally coordinated framework** that articulates clear standards, competencies, and expectations for pedagogical innovation across Moroccan universities. Such a framework should:

- Define the core dimensions of teaching excellence and digital pedagogy applicable across disciplines,
- Set benchmarks for faculty development at early, intermediate, and advanced career stages,
- Provide guidelines for institutional implementation while allowing contextual adaptation.

A national framework would create coherence across institutions and reduce the fragmentation that currently characterizes training initiatives.

B. Institutionalize Centers for Teaching and Learning

The establishment of **centers dedicated to pedagogical development** within universities is essential for supporting faculty in a sustained manner. These centers should be staffed by instructional designers, digital learning specialists, and pedagogical advisors capable of providing:

- Tailored training pathways,
- Mentoring and coaching,
- Hands-on assistance in course redesign,
- Evaluation tools to assess the impact of innovation.

Such centers would help move faculty development from isolated workshops to continuous, practice-oriented support.

C. Create Communities of Practice and Collaborative Networks

Given the strong evidence from this study that peer collaboration enhances confidence and experimentation, institutions should invest in creating and sustaining

communities of practice. These collaborative spaces should allow faculty to:

- Exchange ideas and reflect collectively on teaching challenges,
- Co-design learning activities and assessment strategies,
- Share digital resources and pedagogical innovations.
- Inter-university networks could further enrich these communities by facilitating dialogue across disciplines and institutional cultures.

D. Reinvent Faculty Evaluation and Recognition Systems

The lack of recognition for pedagogical innovation emerged as one of the most persistent barriers. To address this, universities should:

- Integrate teaching innovation explicitly into promotion and evaluation criteria,
- Develop open-badge systems or micro-credentials to formally acknowledge competencies,
- Offer symbolic and material incentives, including innovation awards and dedicated grants,
- Reduce teaching loads for faculty engaged in substantive pedagogical projects.
- Recognition is not merely motivational; it legitimizes innovation and transforms it into an institutional norm.

E. Strengthen Digital Infrastructure and Pedagogical Integration

While digital tools are increasingly present in Moroccan universities, their pedagogical use remains inconsistent. Enhancing digital transformation requires:

- Stable and high-quality technical infrastructures across all campuses,
- Ongoing training that emphasizes instructional design rather than operational skills,
- Support units capable of assisting faculty in designing hybrid, online, and multimodal learning environments.

Digital transformation must be reframed as a pedagogical project supported by coherent institutional strategies rather than as a technical upgrade.

F. Encourage Research on Pedagogical Innovation

Long-term progress in teaching quality depends on cultivating a culture in which faculty systematically study and document their own pedagogical practices. Institutions should encourage **scholarship of teaching and learning (SoTL [1])** through:

- Research grants dedicated to pedagogical inquiry,
- Publication opportunities in national and regional journals,
- Training programs on qualitative and action research methods,
- Institutional conferences and pedagogical symposiums.

This would strengthen the intellectual foundations of pedagogical innovation and contribute to evidence-based policy making.

G. Future Research Directions

The present study provides a rich but partial understanding of the dynamics surrounding pedagogical innovation in Morocco. Future research could explore:

- **Longitudinal studies** tracking how faculty practices evolve when institutional support is systematically provided,
- **Comparative case studies** between institutions with strong versus weak innovation cultures,
- **Student-centered analyses** examining learners' perspectives on innovative teaching,
- **Quantitative studies** assessing correlations between training participation and teaching effectiveness,
- **Digital ethnographies** exploring how faculty integrate technology in day-to-day classroom contexts.

These avenues would deepen understanding of the complex interplay between individual agency, institutional culture, and systemic conditions shaping pedagogical transformation.

H. Concluding Perspective

The recommendations outlined above underscore that pedagogical innovation is not a matter of isolated technical interventions but a **multi-layered institutional project**. Creating environments where teachers can innovate freely, confidently, and sustainably requires:

- Strategic vision,
- Coherent governance,
- Equitable resource allocation,
- Cultural change,
- Continuous professional development pathways grounded in reflective, collaborative practice.

Moroccan universities are at a pivotal moment of opportunity. With targeted reforms and sustained institutional commitment, they have the potential to transform pedagogical innovation from a fragmented aspiration into a defining characteristic of their educational identity.

IX. CONCLUSION

This study set out to examine how pedagogical innovation is understood, enacted, and supported within Moroccan higher education, revealing a landscape marked by both aspiration and constraint. The findings demonstrate that faculty members across institutions articulate a genuine desire to enhance their teaching practices, experiment with new approaches, and respond more effectively to the evolving needs of their students. Yet this individual commitment is continually tested by systemic limitations, including insufficient institutional support, fragmented training opportunities, and a lack of recognition mechanisms that would legitimize innovation as a core dimension of academic work.

At a conceptual level, the study highlights a persistent ambiguity in how innovation is interpreted. For many faculty members, innovation remains closely associated with the introduction of digital tools or the adoption of isolated techniques. While such practices represent valuable starting points, they do not in themselves constitute pedagogical transformation. Innovation, in its deeper sense, requires a reconfiguration of the assumptions that shape teaching and learning embracing active methodologies, fostering reflective practice, and cultivating intellectual environments that invite inquiry and student engagement. Without explicit frameworks

to guide this evolution, innovation risks being reduced to a superficial exercise rather than a meaningful pedagogical shift.

The analysis also underscores the decisive influence of institutional culture. Isolated “microclimates” of innovation, often driven by visionary leadership or concentrated resources, demonstrate what is possible when faculty are encouraged, supported, and accompanied in their pedagogical endeavors. However, such examples remain the exception rather than the norm. The absence of coherent governance, robust support structures, and integrated professional development pathways prevents the scaling of these initiatives across the national system. As a result, innovation remains unevenly distributed and heavily dependent on individual motivation rather than institutional design.

Digital transformation provides a further illustration of this dynamic. The accelerated adoption of digital tools during the pandemic revealed both the resilience of faculty and the fragility of existing infrastructures. While teachers demonstrated remarkable adaptability, their efforts were rarely embedded in broader pedagogical strategies or supported by sustained training programs. This discrepancy reinforces the necessity of aligning technological investments with pedagogical vision and institutional frameworks.

Ultimately, the study argues that pedagogical innovation in Morocco must be approached as a systemic endeavor. It cannot be achieved through isolated workshops, episodic reforms, or personal determination alone. Instead, it requires the construction of an ecosystem in which professional development is continuous, collaborative, contextualized, and institutionally recognized. This ecosystem must integrate strategic leadership, digital readiness, communities of practice, and mechanisms that reward teaching excellence alongside research productivity.

Moroccan higher education is at a critical juncture. The potential for pedagogical renewal is evident in the enthusiasm and creativity of its faculty, yet the sustainability of this momentum depends on the coherence and vision of institutional structures. By implementing strategic reforms, fostering collaborative cultures, and embedding innovation within governance frameworks, Moroccan universities can move beyond fragmented initiatives toward a more equitable and durable culture of pedagogical excellence.

In this sense, the comparative insights of this study serve not as prescriptive models but as catalysts for reflection inviting policymakers, university leaders, and educators to envision what a robust ecosystem of faculty development might look like when aligned with national aspirations for educational transformation. The future of pedagogical innovation in Morocco will depend on the capacity of institutions to transform rhetoric into practice, ambition into structure, and individual initiative into collective progress.

REFERENCES

- [1] M. Altet, L. Paquay, and P. Perrenoud, *Former des enseignants professionnels : Quelles stratégies ?* Bruxelles, Belgium: De Boeck, 2021.
- [2] A. W. Bates, “The digital transformation of teaching and learning: The emerging role of the learning technologist,” *Int. J. Educ. Technol. Higher Educ.*, vol. 19, no. 1, pp. 1–20, 2022. Available: <https://doi.org/10.1186/s41239-022-00349-5>
- [3] M. Boudjaoui and K. Cherkaoui, “Professional development of university teachers in Morocco: Challenges and perspectives,” *J. North Afr. Stud.*, vol. 26, no. 8, pp. 1524–1542, 2021. Available: <https://doi.org/10.1080/13629387.2020.1724632>
- [4] I. Bouanhar, “L’innovation pédagogique à l’épreuve de l’enseignement à distance dans les universités marocaines: Approche théorique,” *Rev. Int. Sci. Gestion*, vol. 7, no. 3, pp. 310–329, 2022.
- [5] V. Braun and V. Clarke, “To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis,” *Qual. Res. Psychol.*, vol. 18, no. 2, pp. 147–169, 2021. Available: <https://doi.org/10.1080/14780887.2019.1670765>
- [6] J. Bruner, *The culture of education*. Cambridge, MA, USA: Harvard Univ. Press, 1996.
- [7] Conseil Supérieur de l’Éducation, de la Formation et de la Recherche Scientifique, *Vision stratégique 2015–2030 : Pour une école de l’équité, de la qualité et de la promotion*. Rabat, Morocco: CSEFRS, 2015.
- [8] M. Damiano, “L’innovation pédagogique dans l’enseignement supérieur : Enjeux et perspectives,” *Rev. Int. Educ. Sèvres*, no. 65, pp. 89–103, 2014.
- [9] S. De Freitas, J. Morgan, and D. Gibson, “New ecologies of learning: Digital pedagogies for complex futures,” *Brit. J. Educ. Technol.*, vol. 54, no. 2, pp. 451–468, 2023. Available: <https://doi.org/10.1111/bjet.13250>
- [10] N. Desjardins and M. Peters, “Supporting teacher professionalization: Lessons from international models,” *Higher Educ. Res. Dev.*, vol. 37, no. 6, pp. 1224–1238, 2018.
- [11] A. Doucet, D. Netolicky, K. Timmers, and F. Tuscano, “Teaching and learning during COVID-19: Reimagining pedagogical possibilities post-pandemic,” *J. Learn. Dev.*, vol. 8, no. 3, pp. 720–735, 2021.
- [12] J. Dounia, “L’innovation pédagogique à l’université marocaine : Pratiques, défis et perspectives,” *Rev. Int. Chercheur*, vol. 5, no. 1, pp. 44–65, 2024.
- [13] A. El Hachimi and M. Kaddouri, “Formation continue et innovation pédagogique dans les universités marocaines,” *Rev. Maroc. Pédagogie Numérique*, vol. 4, no. 2, pp. 77–94, 2020.
- [14] D. Ferhane, “La transformation numérique de l’université marocaine à l’épreuve de la crise sanitaire : Vers un modèle organisationnel hybride et agile,” *Int. J. Technol. Manag.*, vol. 1, no. 1, pp. 45–67, 2022.
- [15] M. Fullan, *The new meaning of educational change*, 5th ed. New York, NY, USA: Teachers College Press, 2020.
- [16] D. R. Garrison and N. D. Vaughan, “Online and blended learning: Designing the future of higher education,” *Internet Higher Educ.*, vol. 51, pp. 1–12, 2021. Available: <https://doi.org/10.1016/j.iheduc.2021.100812>
- [17] Y. Hamdani, “Repenser le système de formation des professeurs universitaires au Maroc: Du doctorat au développement professionnel continu,” *Didactica*, vol. 8, no. 1, pp. 33–58, 2024.
- [18] Y. Hamdan, “L’innovation dans l’enseignement supérieur marocain : Enjeux, pratiques et perspectives,” *Rev. Maroc. Droit Polit. Publ.*, vol. 8, no. 2, pp. 201–224, 2022.
- [19] M. Henderson, N. Selwyn, and R. Aston, “What works and why? Student perceptions of ‘useful’ digital technology in university teaching and learning,” *Stud. Higher Educ.*, vol. 42, no. 8, pp. 1567–1579, 2017.
- [20] R. Kimmons, “Current trends in educational technology research,” *TechTrends*, vol. 64, pp. 803–809, 2020. Available: <https://doi.org/10.1007/s11528-020-00530-8>
- [21] D. Laurillard, *Rethinking university teaching*, 2nd ed. London, U.K.: Routledge, 2013.
- [22] M. Lebrun, *Innovation pédagogique et technologies éducatives*. Bruxelles, Belgium: De Boeck, 2015.
- [23] E. Ossiannilsson, “Quality models for open, online, and flexible education: Trends and implications,” *Open Learn.*, vol. 35, no. 1, pp. 1–17, 2020.
- [24] L. Paquay, M. Altet, E. Charlier, and P. Perrenoud, *Former des enseignants professionnels : Quels modèles ?* Bruxelles, Belgium: De Boeck, 2001.
- [25] R. M. Ryan and E. L. Deci, “Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions,” *Contemp. Educ. Psychol.*, vol. 61, p. 101860, 2020. Available: <https://doi.org/10.1016/j.cedpsych.2020.101860>
- [26] D. A. Schön, *The reflective practitioner: How professionals think in action*. New York, NY, USA: Basic Books, 1994.

[27] J. Tardif, L'évaluation des compétences : Documenter le parcours de développement. Montréal, Canada: Chenelière Éducation, 2020.

[28] J. Tondeur, K. Aesaert, B. Pynoo, and R. Scherer, "The readiness of teachers to integrate educational technology: Systematic review and meta-analysis," *Comput. Educ.*, vol. 165, p. 104131, 2021. Available: <https://doi.org/10.1016/j.compedu.2021.104131>

[29] UNESCO, Reimagining our futures together: A new social contract for education. Paris, France: UNESCO Publishing, 2023.

[30] World Bank, Digital transformation of higher education in developing countries. Washington, DC, USA: World Bank Group, 2022.

[31] E. Wenger, *Communities of practice: Learning, meaning, and identity*. Cambridge, U.K.: Cambridge Univ. Press, 1998.

[32] L. S. Vygotsky, *Mind in society: The development of higher psychological processes*. Cambridge, MA, USA: Harvard Univ. Press, 1978.

[33] D. A. Kolb, *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ, USA: Prentice Hall, 1984.

[34] CADRE21, "Professional development and structured teacher growth," CADRE21, Québec, Canada. [Online]. Available: <https://www.cadre21.org>