

Pedagogical Reforms in the Initial Training of Moroccan Teachers: The Emergence of a New Training Paradigm and New Concepts

El Yadari Abdelbasset, Research teacher

PhD in Education Sciences

Regional Centre for Education and Training (CRMEF), Rabat, Morocco

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Abstract

In recent decades, countries around the world, including Morocco, have undertaken far-reaching reforms of their education systems to improve performance and efficiency. The initial training of future Moroccan teachers has been the subject of an innovative reform, introducing a new paradigm conveying concepts conducive to change. This article examines why the change envisaged by the reforms has not taken place, focusing on the epistemological dimension. It analyzes the relationship between the signifier and the signified of three key concepts: professionalization, integrative alternation, and reflexivity. The reforms failed to bring about the desired changes because of epistemological drifts caused by semantic distortions and cognitive biases in the implementation of the transformation project. The success of the new educational paradigm depends not only on the intrinsic quality of the concepts but, above all, on their understanding, assimilation, and translation into practice. The major challenge lies in the ability to preserve the integrity of the paradigm throughout its deployment, from its theoretical conception to its application in the field.

Keywords: Recent reforms, New training paradigm, New concepts, expected changes

Introduction

In response to the growing needs of Moroccan society, educational reforms have been introduced to improve the education and training system. These reforms aim to introduce a new training paradigm that emphasizes professionalization, alternation and reflexivity. Professionalization aims to produce competent and qualified teachers, while alternation involves collaboration between training in the university environment and training in the workplace. Reflexivity aims to encourage teachers to reflect on their own practice and adapt to the needs of their pupils. The aim of these innovative concepts is to enhance the quality of teaching and improve educational outcomes for Moroccan pupils.

Two decades have passed since the introduction of the National Education and Training Charter (CNEF), and a decade since the launch of the Emergency Plan; both reforms led to strategic decisions being taken to create both university education streams (FUE) and regional education and training centers (CRMEF).

In this respect, we ask ourselves the following question : how much have we gained from the new training policy, and what is its added value ? Bouzidi, H., Belghiti, K., & Errami, H. (2020)

Most reforms introduced by the Moroccan government fail to bring about the envisioned changes. Is this due to the ideas put forward by the reform itself, or rather because users are not prepared to mobilize the desired change ?

It is possible that the reforms driven by the Moroccan state do not succeed in introducing the envisioned changes due to several factors. Firstly, it is likely that the ideas brought forth by the reform itself are not sufficiently well-defined or are not adequately adapted to the real needs of the Moroccan educational environment. It is also possible that the reforms are not sufficiently supported by the relevant authorities, or that the human and financial resources needed to implement them are insufficient.

Moreover, users may not be well-prepared to mobilize the desired change. Teachers, school administrators, and students may not be sufficiently trained to use the new ideas and tools proposed by the reform or may not be sufficiently motivated to change their existing practices. Reforms can also face resistance, particularly when they deviate from established norms and practices.

It is therefore important to take all these factors into account when introducing educational reforms and to integrate them into a comprehensive approach that considers the real needs of the educational environment. It is also important to implement a monitoring and evaluation system to measure the results of the reform and to adjust policies and practices accordingly.

It is vital to encourage the active participation of key education stakeholders, such as teachers, school principals, and students, in all stages of

the reform, from planning to implementation and evaluation. This will ensure that the ideas and practices proposed by the reform align with the real needs of the educational environment and that key players are committed and empowered to implement them.

Training mechanisms should be provided for key education stakeholders to enable them to adapt to the new ideas and tools proposed by the reform. This will certainly provide ongoing support for the active education players involved in implementing the reform reliably and without deviation.

In summary, reforms must be planned based on the real needs of the educational environment, and education stakeholders must be involved and supported throughout the reform process. Bakkali, S. (2018).

1. Emergence of a new training paradigm

Current educational reforms prescribe the development of training programs with new epistemological frames of reference: there is currently a trend in training that emphasizes the development of skills rather than specific objectives, an approach that opts for constructivism rather than behaviorism, meaningful learning situations rather than decontextualized subject content, and a focus on the learner rather than the teacher.

This new training paradigm also emphasizes active learning, aiming to encourage learners to be the authors of their own learning and to prepare them to meet the challenges of their professional and personal lives. Current educational reforms seek to promote a more flexible and personalized approach to teaching, with an emphasis on cross-curricular skills such as problem-solving, critical thinking and collaboration. (Errami, H., & Elqorchi, M., 2018)

1.1. Modernizing training curricula.

For the new training paradigm to be effective, it requires curricula to be modernized. Indeed, curricula need to be updated to include the latest skills and knowledge to prepare students for success in their future careers. This may include skills in digital technologies, complex problem-solving and critical thinking, as well as opportunities for in-company training for practical work experience. (Boukhatem, A., & Belghiti, K., 2020)

1.2. Conceptual renewal

The new training paradigm involves a change in the way learning is approached and organized. It is increasingly focused on practical skills and knowledge rather than on the transmission of theoretical knowledge. This involves more active learning methods, such as project-based learning, problem-based learning and peer learning. It also focuses on the needs of

students and the skills they will need to succeed in their future careers. Finally, it is increasingly focused on lifelong learning to enable individuals to continue to develop their skills throughout their working lives. (Ben Jaafar, S., & Elmeski, M., 2018)

1. 3. Focus on the learner as an individual rather than on the teacher

The new training paradigm focuses on the learner as an individual rather than the teacher (source of knowledge). This means that learning methods are designed to adapt to the unique needs of each student, taking into account their interests, learning styles and long-term goals. This can involve learning tracking tools to assess each student's progress, as well as personalized pathway options to allow students to choose the courses and experiences that best meet their needs. In addition, learners are seen as active participants in their own learning, rather than passive recipients of knowledge.

1. 4. Integrating new approaches into existing practices

The new education paradigm involves rethinking teaching practices to adapt to the needs of students in a constantly changing learning environment. This may involve approaches such as project-based teaching and competency-based teaching to enhance learning. Teachers can also renew their assessment methods by inventing alternative ways of assessing students' skills. In addition, teachers can become social actors or agents of development rather than just sources of information, helping students develop skills in critical thinking, problem-solving and teamwork.

New concepts have emerged, and their emergence is certainly helping to bring about the desired change. The new training paradigm based on the competency approach requires a change of mindset and mentality if it is to be feasible and achievable. At present, the traditional approach is no longer adequate, which is why the integration of a new approach into teaching practices is of paramount importance. (Lamati, B., & El Akhrasse, A., 2020)

1. 5. The desired change cannot be improvised, nor can it be decreed

Introducing a new training paradigm requires careful planning and implementation. It is important to consult stakeholders, gather data and test approaches before rolling them out on a large scale. In addition, it is best to continue to evaluate the effectiveness of new methods and adjust them accordingly.

Implementing the training paradigm is difficult, if not impossible, with the current use of concepts from the old paradigm

It is true that adopting a new training paradigm can be difficult because of the ideas and concepts that were embedded in the old paradigm. Teachers, administrators and other stakeholders often have years of experience using the

methods and tools of the old paradigm, so they may find it difficult to adapt to the new approaches. It is important to provide resources and support to help people understand and adapt to the benefits of the new paradigm. It is also important to create opportunities for teachers and administrators to explore and experiment with the new methods before adopting them on a large scale. (Bouguerra, A., & Ouakrime, M., 2019)

The new training paradigm can only be achieved through the use of new concepts, but not in the wrong way

It is true that adopting a new training paradigm may require the use of new concepts and methods to be effective. However, it is important to ensure that these new concepts and methods are based on research and evidence to guarantee their effectiveness. It is also important to consult with stakeholders, including teachers and students, to ensure that new concepts and methods are appropriate and relevant to the needs of the learner. Continuously evaluating the effectiveness of new concepts and methods and adjusting them accordingly would undoubtedly ensure their desired effects. (Ouakrime, M., & Kharbouch, A., 2021)

2. Appearance of new concepts

Epistemological mistrust or even caution should be exercised with regard to the concepts evoked; signifiers and signified should be consistent. Their attributes should all be respected.

The concept is a fundamental element of human thought. It represents an idea, a notion or an abstract category that enables us to group and organize the information and experiences we encounter in our environment. Some concepts may simply be abstractions used to describe existing phenomena or realities, without necessarily having any effect on the real world. The notion of a concept is closely linked to the way in which we apprehend reality and construct our knowledge. Concepts form the basis of the meaning of words and sentences. Words are signs that refer to concepts.

The relevance of concepts lies in their ability to organize and give meaning to our experience of the world, as well as their potential to trigger transformations in our understanding and action.

If these concepts are foreign to the education system, an effort to objectify and adapt them is the best guarantee of maximizing good results. Some poorly chosen concepts have no impact on teaching practice and add almost nothing to what already exists, while others, on the contrary, are conducive to change, but their use is somewhat clumsy.

A concept that has a strong impact on practice comes down to the effects of its associated attributes. Without them, it becomes an empty word; the concept is only truly powerful when the attributes attached to it and those

that give it meaning are respected. By ignoring one of its attributes, we run the risk of emptying the concept of its deepest meaning. (Khodabandeh, F., 2018)

2. 1. Reforms

Reform is a form of social change that is particularly characteristic of the civilization of modern democracy. It is a planned form of social change that takes the form of a project.

Three conditions must be met for any change to take place:

- The curriculum change process should be designed and implemented using a participatory and pluralist approach.
- Replace these reforms in their own social, cultural, political, ethical and economic contexts.
- A systemic approach to curriculum reform processes would seem to be of interest today. (Fullan, M., 2007)

2. 2. Curriculum

A curriculum is a plan of action. It is inspired by the values that a society wishes to promote; these values are expressed in the aims assigned to the education system as a whole.

The curriculum provides an overall, planned, structured and coherent vision of the pedagogical guidelines according to which learning is organized and managed in terms of expected outcomes.

The curriculum refers to the design, organization and programming of teaching/learning activities along an educational pathway. It brings together the statement of aims, content, activities and learning approaches, as well as the methods and means of assessing student learning. (Taba, H., 1962)

2. 3. Professionalization

The initial training of future Moroccan teachers has undergone a supposedly innovative reform. The aim was to use professionalization to train competent people capable of dealing with the many challenges and issues of the day.

The professionalization of teachers is based on the following principles:

- Teacher training is professional training,
- Professional training is based on an analysis of teachers' actual activities with a view to their future development.
- Professional training involves learning in real-life work situations.

Recent educational reforms driven by the relevant authorities have given rise to new concepts that are closely linked to the workplace. One of these concepts is professionalization.

The professionalization of the initial training of future teachers is one of the new concepts.

How much has teacher training gained from the advent of this concept and its pedagogical use? What is its added value ?

According to the sociology of professions, it took 4 key periods for the professionalization of initial teacher training to be achieved. (Bouderballah, M., 2015)

2.3.1. Four key periods :

Stage 1 : Universitarisation ;

This first stage took place mainly in the 1960s and 1970s. It consisted of placing the initial training of teachers in universities in order to raise the level of training and guarantee a solid theoretical basis for the practice of the profession. This development was accompanied by a significant increase in academic requirements, particularly in terms of qualifications (masters, doctorate).

Stage 2 : Standardization and normalization ;

The second stage, which took place between 1980 and 1990, was characterized by a desire to standardize teacher training. The aim was to define the skills and knowledge that needed to be mastered in order to be considered a good teacher and to incorporate them into codified training programs. This standardization of training was supported by professional bodies (for example, training programs had to be validated by the Ministry of Education).

Stage 3: Rapprochement and Proliferation;

The third stage, which began in the 2000s, was marked by a rapprochement between those involved in teacher training and a proliferation of training schemes. The range of courses was diversified, with professional master's degrees, continuing education schemes, sandwich courses and so on. This proliferation of training courses raises questions about the notion of skills and calls for reflection on the professionalization of training.

Stage 4: Professionalization

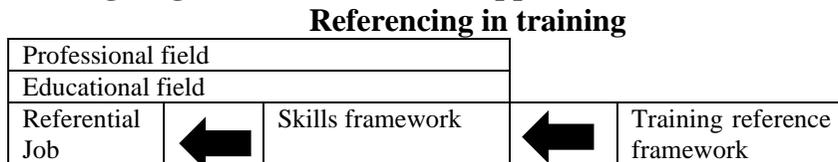
The fourth and final stage is professionalization, which is currently being developed. This stage involves recognizing initial teacher training as a genuine profession, requiring specific skills and ongoing professional training throughout the teacher's career.

In particular, this professionalization involves recognizing the practical dimension of teaching and taking account of professional experience in the assessment of skills. It is also accompanied by a reflection on the place of teachers in society and their role in transmitting knowledge and values. (Bourdoncle, R., 1991)

2.3.2. Aims of Professionalizing Training

The professionalization of training requires a shift from fixed, conventional disciplinary training to vocational training that seeks the best training/employment fit, and from a training program that is disconnected from the workplace to a contextualized program that contributes to professional integration right from the start of the training course. (Wittorski, R., 2008)"

The following diagram summarizes this approach.



Bourdoncle, R., & Demailly, L. (1998).

In the socio-educational field, referencing has led to the development of three reference frameworks : Employment, Skills and Training.

Professionalization, which aimed to bring together the worlds of training and actual employment, illustrates well the idea of establishing a new training paradigm.

The job reference framework allows for identifying the purpose, meaning, and activity of the job.

The skills reference framework is derived directly from the activity reference framework. It sets out all the professional knowledge and attitudes required to do a job.

Professionalization has not only led to the emergence of new concepts but also to the introduction of a new epistemological paradigm known as the empiricist paradigm. (Bourdoncle, R., 1993)

2.4. Alternation

Work-linked training is not just a way of organizing teaching; it is also a training method that allows "recourse to work situations as a means of acquisition". It is an approach that brings together two seemingly separate worlds: the academic world and the professional world.

2.4.1. Juxtaposition or false alternation

In this juxtaposition scheme, the work placement appears as a field of application. The knowledge acquired at the educational institution should be put to the test in the workplace. Malglaive speaks of a false alternation, which may indeed be the case in a training program that claims to offer an alternation approach by suggesting that there is support for this alternation. (Malglaive, G., 1990)

2.4.2. Integrative alternation or real alternation

The ideal form of real alternation recommends a so-called iterative approach linking the two training areas, where links are ensured by the use of mutual experiences. In contrast to this form of alternation, real alternation would be an engineering approach where theory and practice have been developed around activities organized in such a way that, on the one hand, the experiences gained in the professional field can be worked on in the classroom and, on the other hand, they encourage practical use of the classroom input in light of the professional field.

The prescribed integrative alternation values iteration and the clinical approach; it prepares the subject to be both consumer and producer; it ensures that the subject is a learner at school and then a producer and mediator in the workplace. The knowledge acquired at the training center must be put to the test in the teaching profession.

The relevant authorities have prescribed a new approach to teaching placement, based on an integrative alternation approach and accompanied by a new spirit of professional socialization. The added value of the new concept is explained by a new approach to improving the training/job match. It involves adopting a reflective posture to maximize the relationship between theoretical foundations and teaching practices.

The training includes both deductive activities aimed at applying the knowledge acquired from the courses given by the educational institution and inductive activities acquired from professional action and knowledge gained from experience. (Malglai, G., 1990)

2.4.2.1. Rationalist paradigm

Teacher training based on the rationalist paradigm has always valued the primacy of learned knowledge acquired by giving great importance to learned doctrines over experience and its accumulation.

2.4.2.2. Empiricist paradigm

Conversely, teacher training according to the empiricist paradigm favors investment in experience by relying on professional knowledge much more than on academic knowledge. (Schön, D. A., 1994)

2.5. Reflexivity

The added value of the new concept of teaching practice placement is explained by a new way of going about improving the training/job match. This involves adopting a reflective stance to maximize the relationship between theoretical foundations and teaching practice.

Developing reflective practice means adopting a reflective stance regularly and intentionally, with the aim of becoming aware of the way you act.

In the human professions, professional practice is not reflective simply because the practitioner reflects. It becomes reflective when the practitioner (the professional) takes himself as the object of his reflection. (John Dewey)

2.5.1. Complexity

Teachers are faced with tasks of increasing complexity, requiring a high level of skills to deal with situations that are not always controllable.

2.5.2. Systemic approach

In an uncontrolled environment where there is complexity, the systemic approach encourages understanding and the adoption of an appropriate solution. (Edgar Morin, 1990)

2.5.3. Reflection on action

Recourse to the rationalist paradigm is an absolute requirement, but in the presence of complexity, it remains insufficient, which is why recourse to the empiricist paradigm is essential.

2.5.4. Recourse to a new epistemological paradigm

Teachers are faced with tasks of increasing complexity, requiring high-level skills to deal with situations that are not always controllable.

Reflective practice involves a dual process described by Schön (1994): reflection in action, which enables a subject to think consciously as events unfold and to react in the event of an unforeseen situation, and reflection on action, during which the subject analyses what has happened and evaluates the effects of his or her action. (Chris Argyris et Donald Schön, 1996)

The term reflective practitioner was put forward by Schön (1994) in order to construct an epistemology of professional action aimed at identifying all the tacit or hidden knowledge that structures the subject's thinking. The aim is to analyze, within the framework of science-action (Argyris, 1990), the relationship between academic knowledge and professional practice.

The two authors put forward the idea that practitioners often proceed by trial and error, their professional activity being totally removed from scientific activity.

- The workplace is no longer a place for applying knowledge gained through training. Work situations are also formative.
- Iteration between two types of training : one academic and the other professional.
- A new spirit of professional socialization.

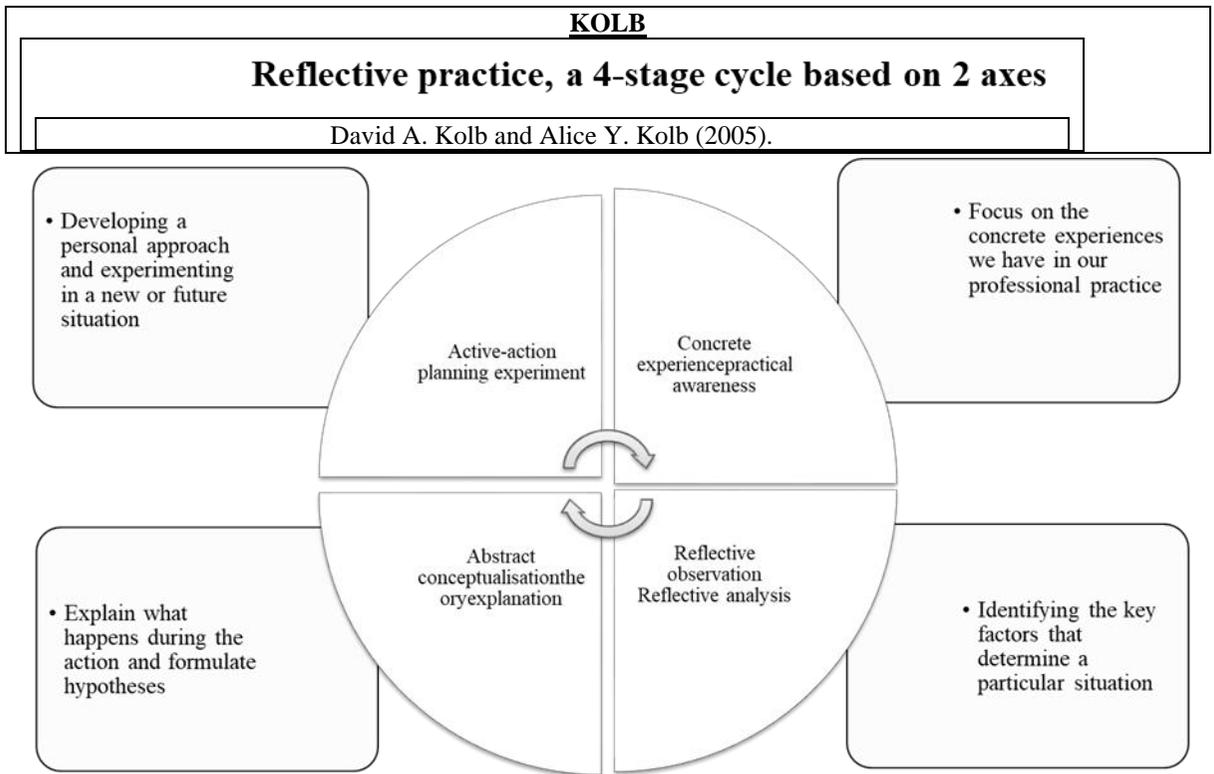
2. 5. 5. Universal models expressing reflexivity

J.DEWEY (1983)	
The indeterminate situation	The situation determined
The investigation begins when the subject is confronted with phenomena, objects or processes that he or she cannot immediately explain and which make the situation dubious, unstable or disturbing.	The next step is to determine the nature of the problem, embarrassment or disturbance. This involves defining not only the type of confusion or indeterminacy that arises, but also the causes of the disorder.
Determining the solution to the problem.	Reasoning.
One or more suggestions likely to provide a possible solution to the problem encountered are drawn up. The function of the suggestion is to suggest a response, to link the elements present to the elements that are missing or deficient.	This process, sometimes referred to as "suggestion experimentation", involves a series of tests designed to assess the degree of relevance and appropriateness of the proposed suggestion(s). The test consists of identifying the implications of a given suggestion or problem-solving hypothesis in relation to other possible proposals.
The operational nature of the facts and their significance.	
If the experimentation with a suggestion or action plan is conclusive, a judgment can then be formulated. This provides a solution to the problem encountered and enables the situation to be converted into a unified whole. The investigation ends when the suggestions are sufficiently corroborated to allow a conclusion to be drawn and a practical judgment to be formulated.	

Theories de l'enquette de J : Dewey

This problem-solving methodology, based on Dewey's reflective inquiry, offers a structured framework for tackling complex situations. It emphasizes the importance of systematic and critical reflection at every stage of the process, from the initial recognition of the problem to the final evaluation of the results. This approach is perfectly aligned with the principles of the new training paradigm, encouraging learning that is active, contextualized and deeply rooted in critical reflection. In each of the stages of J. Dwey's model, reflective thinking plays a central role:

- It enables people to step back from the situation and their own thoughts.
- It encourages constant critical examination of ideas, hypotheses and actions.
- It facilitates the link between theory and practice, between thought and action.
- It promotes continuous learning by encouraging us to learn from each experience.



Cycle d'apprentissage experientiel de Kolb

Kolb's model, analyzed from the perspective of reflective thinking, offers an enriching perspective on the experiential learning process, presenting learning as a dynamic and iterative process of critical reflection on experience. Reflexivity is not confined to a single stage but permeates the entire cycle, enabling a deep integration of experience and theory. This reflective approach to experiential learning aligns perfectly with the objectives of the new training paradigm, emphasizing learning that is active, contextualized, and deeply rooted in ongoing critical reflection.

3. Analysis and discussion

As a reminder, our research problem focuses on the recent pedagogical reforms in Morocco aimed at implementing a new paradigm for teacher training. This new paradigm involves shifting from an objective-based pedagogy to a competency-based approach, from behaviorism to constructivism, from teacher-centered to learner-centered education, and from

decontextualized to socially meaningful learning situations. However, the expected changes have not fully materialized, and the reforms have not achieved their intended goals.

The fundamental idea underlying our research problem can be articulated as follows :

The gap between the intention of pedagogical reforms and their effective implementation in Morocco can be largely attributed to epistemological drifts and cognitive biases that occur in the process of transmitting and interpreting new educational paradigms.

This fundamental idea is supported by several key elements from recent literature :

3.1. Complexity of paradigm shift :

Studies by Kuhn (revised 2022), Biesta and Priestley (2023) highlight the inherent difficulty in changing educational paradigms. The transition from objective-based pedagogy to a competency-based approach, from behaviorism to constructivism, involves a profound transformation of pedagogical conceptions and practices.

This shift is not merely a superficial change in teaching methods, but a fundamental reimagining of the entire educational process. It requires educators to reconsider their roles, moving from being transmitters of knowledge to facilitators of learning experiences. Students, in turn, are expected to evolve from passive recipients to active constructors of their own understanding.

The challenges of this paradigm shift are multifaceted :

1. Cognitive restructuring : Teachers and administrators must undergo a significant cognitive shift, questioning long-held beliefs about learning and teaching.
2. Institutional inertia : Educational institutions, often slow to change, must overcome systemic resistance to new approaches.
3. Assessment recalibration : Traditional assessment methods may no longer be suitable, necessitating the development of new evaluation tools that align with competency-based learning.
4. Resource reallocation : New paradigms often require different resources, both material and human, which can strain educational budgets.
5. Stakeholder buy-in : Parents, policymakers, and the broader community need to understand and support these changes for them to be effective.
6. Teacher training : Extensive professional development is necessary to equip educators with the skills and knowledge to implement new pedagogical approaches.

This paradigm shift represents a complex, long-term process that requires patience, persistence, and a willingness to embrace uncertainty and experimentation in the pursuit of more effective educational practices.

3.2. Cognitive biases in reform implementation

Research by Kahneman and Tversky (2022) and Fullan and Hargreaves (2023) illuminates the significant impact of cognitive biases on the perception and interpretation of educational reforms. These biases can lead to distortions between reformers' original intentions and practitioners' understanding.

The influence of cognitive biases in the implementation of educational reforms is a critical factor that is often overlooked. These mental shortcuts or tendencies can significantly affect how reforms are perceived, interpreted, and ultimately implemented. Some key biases identified in this context include :

1. **Confirmation bias** : Educators may selectively interpret reform initiatives in ways that confirm their pre-existing beliefs about teaching and learning, potentially overlooking crucial aspects of the reform.
2. **Status quo bias** : There's often a preference for the current state of affairs, leading to resistance to change even when reforms promise improvements.
3. **Anchoring bias** : Initial impressions or information about a reform can disproportionately influence subsequent judgments, potentially skewing the understanding of the reform's full scope.
4. **Optimism bias** : Reformers might overestimate the ease of implementation and underestimate potential obstacles, leading to unrealistic expectations.
5. **Dunning-Kruger effect** : Some educators might overestimate their understanding of the reform, leading to flawed implementation.
6. **Availability heuristic** : Recent or vivid experiences with past reforms (successful or not) may disproportionately influence perceptions of new initiatives.

These biases can create a significant gap between the intended outcomes of educational reforms and their actual implementation. For instance, a reform aimed at promoting student-centered learning might be interpreted through the lens of existing teacher-centered practices, resulting in a hybrid approach that doesn't fully achieve the reform's goals.

To mitigate these effects, Fullan and Hargreaves (2023) suggest :

- Comprehensive training programs that explicitly address cognitive biases
- Creating opportunities for collaborative sense-making of reforms

- Establishing feedback loops between policymakers and practitioners
- Encouraging reflective practice to help educators recognize and challenge their own biases

Understanding and addressing these cognitive biases is crucial for bridging the gap between reform intentions and classroom realities, ultimately enhancing the effectiveness of educational change initiatives.

3.3. Preserving paradigm integrity

Work by Tardif and Lessard (2024) on resistance to fragmentation of educational paradigms, and by Perrenoud and Gather Thurler (2024) on the role of "paradigm guardians," underscores the challenges in maintaining the conceptual integrity of reforms throughout their implementation.

The preservation of paradigm integrity during educational reforms is a critical yet often overlooked aspect of change management in education. As reforms are implemented across diverse educational contexts, there's a risk of fragmentation, dilution, or misinterpretation of the core principles underlying the paradigm shift.

Tardif and Lessard (2024) highlight several key factors contributing to paradigm fragmentation :

1. Contextual adaptation : As reforms are adapted to local contexts, there's a risk of losing sight of the fundamental principles driving the change.
2. Selective implementation : Educators may cherry-pick aspects of the reform that align with their existing practices, potentially undermining the holistic nature of the paradigm shift.
3. Misinterpretation : Without proper training and support, educators may misunderstand key concepts, leading to inconsistent implementation.
4. Resource constraints : Limited resources may force compromises that deviate from the intended reform model.
5. Resistance to change : Deep-seated beliefs and practices can lead to resistance, resulting in a superficial adoption of new paradigms.

To combat these challenges, Perrenoud and Gather Thurler (2024) introduce the concept of "paradigm guardians." These are individuals or groups within the educational system who take on the responsibility of maintaining the integrity of the reform paradigm. Their roles include :

1. Clarification : Continuously articulating and reinforcing the core principles of the paradigm.
2. Training and support : Providing ongoing professional development to ensure deep understanding of the reform.

3. Monitoring : Observing implementation and identifying deviations from the intended paradigm.
4. Adaptation guidance : Helping educators adapt the reform to their contexts while preserving its essential elements.
5. Feedback loops : Creating channels for educators to share challenges and successes, allowing for refinement of the implementation process.
6. Mediation : Bridging the gap between policymakers and practitioners to ensure mutual understanding.

The authors argue that effective paradigm guardians are not rigid enforcers but rather facilitators who help the educational community navigate the complexities of paradigm shifts. They emphasize the importance of balancing fidelity to the core principles with the flexibility needed for successful implementation across diverse educational settings.

This work highlights the need for a more nuanced approach to educational reform, one that recognizes the importance of preserving the integrity of new paradigms while allowing for necessary adaptations. It suggests that successful reform implementation requires not just the introduction of new ideas, but also the cultivation of a community of practice dedicated to understanding, protecting, and evolving these ideas in authentic educational contexts.

3.4. Adaptation to the Moroccan context

Studies by Akkari and Dasen (2023, 2024) on adapting international models to the Moroccan context highlight the challenges of "cultural translation" of pedagogical approaches. These challenges can contribute to epistemological drifts when adapting new paradigms to the local context.

The process of adapting international educational models to specific national contexts, such as Morocco, is complex and fraught with potential pitfalls. Akkari and Dasen's work (2023, 2024) sheds light on the intricate nature of what they term "cultural translation" in education, particularly in the context of Morocco's efforts to reform its educational system.

Key aspects of their findings include :

1. Cultural dissonance : International models often embody cultural assumptions that may not align with Moroccan values, traditions, and social structures. This misalignment can lead to resistance or misinterpretation of reforms.
2. Linguistic challenges: The translation of key educational concepts from their original language (often English or French) to Arabic or Berber languages can result in subtle but significant shifts in meaning.

3. Socioeconomic realities : Models developed in more affluent countries may not account for the resource constraints and socioeconomic disparities present in Morocco.
4. Historical and political context : Morocco's colonial history and current political landscape influence how international models are perceived and implemented.
5. Educational traditions: Existing pedagogical practices in Morocco, some deeply rooted in religious and cultural traditions, may conflict with imported models.
6. Teacher preparation: The level and nature of teacher training in Morocco may differ from what is assumed in international models, affecting implementation.

These factors can contribute to what Akkari and Dasen term "epistemological drift" - a gradual shift away from the original principles and intentions of the educational paradigm as it is adapted to the Moroccan context. This drift can manifest in several ways :

1. Superficial adoption : Reform principles may be adopted in name only, without substantive changes in practice.
2. Hybrid practices : Educators might blend new approaches with existing methods in ways that dilute the intended impact of the reform.
3. Misinterpretation : Key concepts may be understood and implemented in ways that diverge from their original intent.
4. Selective implementation : Parts of the model that align more closely with existing practices may be emphasized, while more challenging aspects are downplayed.

To address these challenges, Akkari and Dasen (2024) propose several strategies :

1. Collaborative model development : Involving Moroccan educators and policymakers in the early stages of adapting international models.
2. Contextual analysis : Conducting thorough analyses of the Moroccan educational, cultural, and socioeconomic context before implementing reforms.
3. Pilot studies : Implementing small-scale pilot projects to identify and address potential issues before large-scale rollout.
4. Continuous dialogue : Establishing ongoing communication channels between international experts and local practitioners.
5. Cultural mediators : Employing individuals with deep understanding of both the international models and the Moroccan context to facilitate adaptation.

6. Flexible implementation : Allowing for local adaptations while maintaining the core principles of the reform.

The authors emphasize that successful adaptation of international educational models in Morocco requires a delicate balance between fidelity to the original paradigm and sensitivity to local contexts. This process of "cultural translation" is not merely linguistic, but involves a deep engagement with the cultural, historical, and socioeconomic realities of Morocco.

3.5. Teacher training and understanding of new paradigms

Research by Benmansour and Bennani (2023) on continuous teacher training in Morocco emphasizes the crucial importance of teachers' deep understanding of new paradigms for effective reform implementation.

Benmansour and Bennani's (2023) study highlights the central role that teacher training plays in the success of educational reforms in Morocco. Their work reveals several key aspects :

1. Conceptual understanding : The authors found that many teachers had a superficial or fragmented understanding of the new pedagogical paradigms introduced by the reforms. This gap often hinders the effective implementation of new approaches in the classroom.
2. Resistance to change : The lack of deep understanding of the theoretical foundations and potential benefits of new paradigms can generate resistance to change among some teachers.
3. Mismatch between theory and practice : Even when teachers intellectually adhere to new paradigms, they may experience difficulties in translating them into concrete pedagogical practices.
4. Variability in training : The study revealed significant disparities in the quality and intensity of continuing education offered to teachers across Morocco, leading to uneven implementation of reforms.
5. Socio-cultural context : The researchers emphasize the importance of contextualizing teacher training to align with Moroccan socio-cultural realities.

To address these challenges, Benmansour and Bennani (2023) propose several recommendations :

1. In-depth training : Implement more intensive and long-term continuing education programs, allowing teachers to explore in depth the theoretical and practical foundations of new paradigms.
2. Reflective approach : Encourage teachers to critically reflect on their current practices and relate them to new paradigms.

3. Learning communities : Create spaces for sharing and collaboration among teachers to promote the exchange of experiences and best practices in implementing new paradigms.
4. Continuous support: Implement a mentoring and coaching system to support teachers in applying new approaches in the classroom.
5. Contextual adaptation : Develop training modules that demonstrate how to adapt new paradigms to the specific context of Moroccan schools.
6. Evaluation and feedback : Establish mechanisms for continuous evaluation of the effectiveness of training and its impact on classroom practices, with feedback loops to constantly improve training programs.
7. Teacher involvement : Involve teachers in the process of designing and evaluating training programs to ensure their relevance and effectiveness.

The authors conclude that investing in high-quality teacher training, focused on a deep understanding of new paradigms, is essential for the long-term success of educational reforms in Morocco. They emphasize that this training should not be seen as a one-time event, but as an ongoing process of learning and professional development throughout teachers' careers.

3.6. The gap between theory and practice :

There is often a gap between the theoretical conceptualisation of a reform and its practical implementation in the classroom. This gap can be exacerbated by epistemological drift. Teachers, faced with the day-to-day reality of the classroom, may unconsciously reinterpret new concepts to fit in with their existing practices, rather than fundamentally transforming their pedagogical approach.)

This phenomenon, often referred to as the "theory-practice gap," is a persistent challenge in educational reform efforts worldwide, and Morocco is no exception. The gap manifests in several ways :

1. Conceptual misalignment: Teachers may grasp the theoretical concepts of a reform but struggle to translate them into concrete classroom practices.
2. Contextual constraints: The idealized conditions assumed in theoretical models often don't match the realities of overcrowded classrooms, limited resources, or diverse student needs.
3. Cognitive dissonance : New pedagogical approaches may conflict with teachers' deeply held beliefs about teaching and learning, leading to resistance or superficial adoption.

4. Implementation challenges : Practical obstacles such as time constraints, assessment pressures, or lack of support can hinder the full implementation of new approaches.
5. Epistemological drift : As mentioned, teachers may unconsciously adapt new concepts to fit their existing mental models and practices, rather than fully embracing the intended paradigm shift.

The concept of epistemological drift, in particular, deserves closer examination. This phenomenon occurs when :

- Teachers interpret new concepts through the lens of their existing knowledge and beliefs, potentially distorting the original intent.
- The practical constraints of the classroom environment lead to compromises in implementation that gradually shift away from the reform's core principles.
- The lack of ongoing support and reinforcement allows teachers to slowly revert to more familiar practices while believing they are implementing the new approach.

To address these challenges and narrow the theory-practice gap, several strategies can be considered :

1. Practice-oriented training : Provide teachers with concrete examples, demonstrations, and opportunities to practice new approaches in realistic settings.
2. Ongoing support : Implement mentoring programs, peer observation, and professional learning communities to help teachers navigate the challenges of implementation.
3. Contextual adaptation : Work with teachers to adapt theoretical models to the specific contexts of their classrooms, acknowledging and addressing practical constraints.
4. Reflective practice : Encourage teachers to regularly reflect on their implementation efforts, identifying areas where they may be drifting from the intended approach.
5. Gradual implementation : Allow for a phased approach to reform implementation, giving teachers time to adjust their practices and beliefs incrementally.
6. Feedback loops : Create mechanisms for teachers to provide feedback on implementation challenges, allowing for iterative improvements to the reform strategy.
7. Address underlying beliefs : Engage teachers in exploring and potentially challenging their fundamental beliefs about teaching and learning that may conflict with new approaches.

8. **Realistic expectations :** Recognize that perfect fidelity to theoretical models is often unrealistic, and allow for some level of adaptation as long as core principles are maintained.

By acknowledging and actively addressing the theory-practice gap and the potential for epistemological drift, educational reforms in Morocco can better bridge the divide between ambitious theoretical models and the complex realities of classroom implementation. This approach can lead to more sustainable and effective changes in pedagogical practices, ultimately benefiting student learning outcomes.

3.7. Resistance to change as a cognitive protection mechanism :

Resistance to change is not simply a matter of active opposition, but often the result of cognitive mechanisms to protect against uncertainty and complexity.

These protective mechanisms can lead to a selective interpretation of new paradigms, where the most familiar aspects are retained and amplified, while the most innovative or destabilising elements are minimised or ignored, leading to a partial or distorted implementation of the reform.)

This perspective on resistance to change in the context of educational reforms in Morocco highlights several important aspects :

1. **Cognitive nature of resistance :**
 - Resistance to change is not always conscious or intentional.
 - It can be the result of automatic cognitive processes aimed at maintaining stability and reducing stress related to uncertainty.
2. **Protection against uncertainty :**
 - New educational paradigms often introduce considerable uncertainty into teachers' professional practice.
 - Cognitive protection mechanisms allow teachers to manage this uncertainty by clinging to familiar elements.
3. **Complexity management :**
 - Educational reforms typically involve complex changes in pedagogical approaches and classroom practices.
 - Cognitive simplification can be a strategy to cope with this complexity, even if it leads to an incomplete or distorted understanding of new approaches.
4. **Selective interpretation :**
 - Teachers may unconsciously filter information about new paradigms, retaining what matches their existing beliefs and practices.
 - This selectivity can lead to a partial or biased understanding of reforms.
5. **Amplification of the familiar :**

- Aspects of new approaches that resemble existing practices may be exaggerated or overestimated.
- This can give teachers the illusion of implementing the reform while largely retaining their old methods.
- 6. Minimization of innovation :
 - The most innovative or destabilizing elements of reforms may be unconsciously ignored or minimized.
 - This can lead to superficial implementation that misses the essential transformative aspects of the reform.
- 7. Partial or distorted implementation :
 - As a result of these protection mechanisms, the implemented reform may differ significantly from what was initially intended.
 - This can create a gap between the objectives of the reform and actual classroom practices.

To effectively address these challenges in the Moroccan context, several strategies can be considered :

1. Self-awareness training : Help teachers recognize their own cognitive protection mechanisms and reflect on their reactions to change.
2. Gradual approach to change : Introduce reforms in stages, allowing for gradual adaptation and reducing the sense of overwhelming uncertainty.
3. Creation of safe environments for experimentation : Provide spaces where teachers can try new approaches without fear of failure or negative evaluation.
4. Psychological support : Offer coaching that addresses not only the technical aspects of reforms but also the emotional and psychological reactions to change.
5. Modeling and demonstration : Concretely show how new paradigms work in practice, thus reducing perceived uncertainty and complexity.
6. Communities of practice : Encourage sharing of experiences among teachers to normalize challenges and promote collective learning.
7. Constructive feedback: Implement feedback systems that help teachers identify areas where their interpretation or implementation of reforms might be partial or distorted.
8. Cultural adaptation : Ensure that reforms are presented in a way that resonates with Moroccan cultural values and practices, thus reducing the sense of threat to professional identity.

By recognizing and addressing resistance to change as a complex cognitive phenomenon rather than simple opposition, educational leaders in Morocco can develop more nuanced and effective strategies for implementing

reforms. This approach can lead to a deeper and more sustainable transformation of educational practices, in harmony with the objectives of reforms while respecting the psychological needs of teachers.

Conclusion

The pedagogical reforms of Moroccan initial teacher training were introduced to improve the quality of teaching and adapt training to the real needs of Morocco's educational environment. These reforms introduced a new training paradigm based on professionalization, alternation, and reflexivity.

Professionalization aims to train competent, qualified teachers capable of meeting today's educational challenges. Integrative alternation, combining training in a university environment with training in a professional environment, enables future teachers to acquire both academic knowledge and practical skills. Reflexivity encourages teachers to reflect on their own practice, adapt to students' needs, and constantly improve their teaching.

However, implementing these reforms does not automatically guarantee success. Several factors can hinder the process of change, such as ill-defined ideas, a lack of support from relevant authorities, insufficient resources, and resistance to change from those involved in education. It is therefore important to consider these factors when planning and implementing reforms.

It is also crucial to actively involve key education stakeholders, such as teachers, headteachers, and students, throughout the reform process. Their participation helps ensure that the proposed ideas and practices align with the real needs of the Moroccan education system and fosters their support and motivation to implement the changes.

Additionally, it is essential to provide ongoing training mechanisms for those involved in education to help them adapt to the new ideas and tools introduced by the reform. This will help overcome difficulties encountered during implementation and ensure ongoing support to guarantee the success of the reforms.

In summary, the pedagogical reform of Moroccan initial teacher training represents an important step towards improving education in Morocco. However, for these reforms to fully achieve their objectives, it is necessary to consider potential challenges and actively involve all education stakeholders in the process. This will create a quality educational environment, encourage innovative teaching practices, and help to improve the educational outcomes of Moroccan pupils.

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