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Reflective Training and Its Impact on Developing Professional Competencies of Pre-Service Teachers in Morocco's Regional Centres for Education and Training Professions

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ABSTRACT

This study examines the pedagogical design of the Regional Centres for Education and Training Professions (RCETP), focusing on three training dimensions: functional knowledge, professional competence, and reflective practice. In this study, particular attention is devoted to the reflective dimension because it provides an essential entry point for addressing conceptual and methodological challenges in pre-service teacher educational training. This research adopts a qualitative approach based on participatory observation of training sessions and activities within selected RCETP programs in different regional centres in Morocco. This method offers direct insight into the daily dynamics of teacher preparation and the ways reflective practice is woven into training processes. Drawing on a competency-based framework, the analysis explores how training modules encourage trainee teachers to develop reflective professional skills that move beyond routine classroom practice. These skills enable future teachers to examine their teaching critically, conduct interventional educational research, and design context-sensitive pedagogical materials and resources. Findings indicate that integrating the reflective dimension within training modules strengthens the relationship between theoretical knowledge and practical application. It fosters critical thinking, professional autonomy, and the ability to generate innovative solutions to classroom challenges. The study concludes that prioritizing reflective practice enhances the holistic development of

teacher professionalism and supports the continuous improvement of pre-service teacher education in Morocco.

Keywords
Interventional Action Research
Pedagogical Framework
Pedagogical Production
Workshop
Professionalisation
Reflective Practice

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Introduction

Educational policies across human societies have consistently emphasized the importance of enhancing the effectiveness of school education, improving instructional methods, and developing the competencies of teachers across all levels and disciplines. This focus is particularly significant in light of the growing demand for innovative approaches to the formation of future educators, which, in turn, contributes to the establishment of a pedagogical framework aligned with societal expectations regarding the teacher's effectiveness and central role in the educational process [1].

The examination of the training dimensions of the teacher necessitates a careful analysis of the various strategies adopted in Morocco's pedagogical framework, particularly within the RCETP. Among these dimensions, the reflective dimension is of paramount importance, complementing the functional and professional dimensions in shaping the teacher's personality and enhancing professional competencies [2]. This reflective dimension emphasizes the capacity of regional training centres to offer programs that respond to societal expectations while ensuring the professionalization of future teachers through formal, foundational, and continuous training. Moreover, it encourages teachers to engage in critical reflection on their professional practices, thereby reinforcing their strengths and reducing the incidence of randomness and uncertainty in diverse professional situations both during and after their formal training [3].

Focusing on the reflective dimension within the pedagogical design of the RCETP in Morocco necessitates a rigorous analytical examination of the pedagogical tools employed in these centres. These tools are fundamentally shaped by the personality and professional agency of the teacher as a reflective educational actor [4]. Through their periodic professional responsibilities, teachers develop their performance while simultaneously engaging in reflective understanding of their practice. This involves cultivating analytical perceptions and adhering to scientific standards that consolidate their position within the hierarchy of professional growth and transformation. Such perceptions encourage the teacher to adopt the

role of an impartial inquirer, seeking coherent professional judgments aligned with the objectives of the curriculum. This reflective process can be conceptualized in two primary stages: first, the formulation of multiple hypotheses and the proposal of a methodological framework for reading and analysing professional practice; second, the reconstruction of a new understanding of the analysed practice, to improve it and advance it toward mastery and excellence.

Interventional pedagogical research represents a core component of the reflective training framework of the RCETP. The educational environment is considered a fertile domain for professional research and reflection, aimed at generating practical, real-world solutions in the classroom rather than merely theoretical orientations. Such theoretical orientations, when disconnected from classroom application, risk remaining as personal interpretations or epistemological accumulations with limited impact on the teacher's professional practice [5]. Within this reflective dimension, educational research primarily examines the teacher's capacities, enhancing their ability to analyse the educational process holistically, identify challenges, and propose effective solutions [6].

In examining the reflective dimension of professionalizing future teachers, the domain of pedagogical production emerges as a key training area. The pedagogical framework of the regional centres emphasizes fostering pedagogical creativity among novice teachers, encouraging them to seek accessible and effective methods to deliver lessons clearly and engagingly. These methods are guided by pedagogical and didactic principles that consider learners' capacities and stimulate their cognitive curiosity. Accordingly, this training module actively promotes the development of analytical, critical, and reflective skills in professional classroom practice. Teachers are encouraged to identify learners' needs and design pedagogical methods and products through participatory approaches, aiming to enhance the quality and meaningfulness of the teaching–learning process. In light of the foregoing, pertinent questions could be raised:

- What are the convergences and divergences among these three modules in terms of objectives, content, and pedagogical strategies?
- To what extent can regional centres for education and training optimize the reflective dimension to enhance the professional development of future teachers?
- What demonstrable effects do these modules exert on the acquisition and advancement of professional competencies among trainee teachers?

Methods

The present study hypothesizes that the reflective functions of the professional practice analysis workshops, the educational research methodology workshops, and the

pedagogical production workshops share significant similarities, as all three modules emphasize the creative and self-reflective dynamics of the teacher within their educational practice. Furthermore, it is assumed that the RCETP places substantial emphasis on the reflective dimension in the professional training of trainee teachers, and that these modules have a measurable impact on the development of trainee teachers' professional competencies.

A. Research Approach

This study adopts a descriptive and analytical approach to examine the pedagogical framework of the RCETP. In addition, a comparative approach is employed to identify the similarities and differences among the reflective modules implemented across these centres. The study investigates the components of the training framework kit by monitoring the three training dimensions of pedagogical design, with particular emphasis on the reflective dimension. It further examines the roles of these components in fostering the professionalization of trainee teachers.

B. Study Sample

The research sample consists of a selection of training modules included in the reflective training framework in Moroccan RCETP. The primary modules examined include:

- Professional practice analysis workshops
- Interventional pedagogical research methodology workshops
- Pedagogical production workshops

C. Study Tool

The study employs content analysis as its primary research tool. This involves a systematic analysis of the pedagogical descriptions of all reflective dimensions within the RCETP, including the cognitive-functional, professional, and reflective dimensions. The analysis focuses particularly on the reflective functions within the professional practice analysis workshop, the interventional pedagogical research methodology workshop, and the pedagogical production workshop.

Results and Discussion

A. The training dimensions of the pedagogical framework in the RCETP

Qualifying training at the RCETP aims to develop a set of competencies for trainee teachers, especially those related to the subjects taught in primary and secondary education, in addition to providing teachers with some valuable and ethical qualities related to the teaching profession and familiarising them with school legislation to ensure their rights and knowledge of their duties. The stages of these modules are consistent in the first year of training at RCETP according to complementary formulas between in-person training, distance training, and self-facilitated training. These training modalities are also supported by periods of field training in school institutions. The trainee teacher is gradually immersed in the educational atmosphere

of the classroom and gradually immersed in the practical teaching task, starting from partial responsibility within the classroom to reach, at the end of the first training year and the beginning of the second training year, full educational responsibility for the semester [5].

Since the establishment of the RCETP in 2012, teacher training has undergone significant qualitative transformations. One of the most notable changes is the shift from a traditional model of basic training to a practical-theoretical-practical model. This model emphasizes professionalization and its direct impact on the quality of learning, aligning with the primary goal of teacher training: the professional preparation of teachers according to a structured pedagogical design. In this approach, basic training is oriented toward practical outcomes, focusing on the acquisition of essential professional skills required for effective teaching. It integrates multiple and diverse competencies, including subject-specific knowledge, pedagogical skills, and the ability to construct cognitive, analytical, and intervention frameworks. Such competencies enable teachers to mobilize their knowledge, skills, and behaviours consciously and insightfully in professional practice [7].

1. The cognitive-functional training dimension in the RCETP

The openness of the field of teacher training to contemporary scientific discourses and trends, such as cognitive psychology, economics, and labour sciences, has fostered the adoption of innovative training approaches grounded in the principle of professionalization. This principle seeks to enhance teachers' professionalism by equipping them with the competencies necessary to develop their instructional abilities. Consequently, the training and preparation process has shifted from a didactic logic, centred on the transmission of ready-made academic content, characteristic of traditional training prior to the decree establishing the RCETP, to a professional training logic that prioritises the development of essential teaching-related competencies across all training programmes, whether basic or continuing [8].

In this context, the cognitive dimension has become a critical component of teacher training. Cognitive psychology, in particular, focuses on understanding and analysing the internal mechanisms and pathways of information processing in the human mind, as well as their reproduction within the learning process. Learning activity is fundamentally based on information processing, as demonstrated by recent psychological studies on cognitive processes and their applications, particularly in relation to individual differences among learners. The training process thus rests on the core principle that a thorough understanding of the cognitive style that characterises each learner can significantly contribute to identifying the most appropriate pedagogical strategies, resources, and organisational conditions suited to specific learner profiles [9].

Table 1. Pedagogical and Epistemological Components in the RCETP Framework

Component/ Module	Key Ideas	Core Elements / Activities	Expected Competencies
Educational Sciences Module	Core module providing theoretical, methodological, and disciplinary resources for understanding and managing teaching–learning situations aligned with learner needs and national educational trends.	Study of educational sciences history; theoretical foundations; learning theories; adolescent psychology; curriculum design; sociology of education; roles of educational actors; ICT integration; diagnosing learner needs.	Mobilise educational sciences knowledge; interpret learner needs; align pedagogy with social, psychological, and intellectual profiles; integrate ICT; manage diverse educational contexts.
Andragogical Pedagogical Methods	Andragogy prioritises trainee needs and interests, using varied methods adapted to space, resources, and objectives, simulating authentic professional situations.	Interactive scenarios, contextual simulations, role-taking, strategy selection based on situational factors, participant-centred engagement.	Apply andragogical methods; adapt strategies to professional constraints; interact with contextual variables; demonstrate professional behaviour in simulated situations.
General Didactics and Functional Characteristics	General didactics structures teaching principles through the pedagogical triangle: knowledge–teacher–learner. Requires prior knowledge of educational science foundations.	Teaching–learning strategies; activation techniques; pedagogical approaches; developmental processes; learning theories; ICT ethics and principles.	Organise instruction based on didactic principles; select suitable teaching strategies; apply activation techniques; ensure ethical use of ICT; balance roles within the pedagogical triangle.
Basic Training Support Modules (Example: Arabic Language)	Support modules strengthen disciplinary and remedial competencies; for example, Arabic language for primary education.	Analysing curriculum; diagnosing linguistic difficulties; designing remediation programmes; strengthening linguistic proficiency; applying curriculum requirements.	Teach Arabic at the primary level; design and implement remediation; apply curriculum; assess and support the linguistic development of learners.
Cognitive–Functional Dimension (Epistemological Bases)	Grounded in cognitive psychology: knowledge is dynamic and depends on cognitive and metacognitive strategies; strategies complement knowledge.	Declarative, procedural, and conditional knowledge; metacognitive strategies; application of knowledge in new contexts; cognitive system development.	Use cognitive and metacognitive strategies; support learners' acquisition of different knowledge types; design learning activities fostering dynamic knowledge building.

Pedagogy and the transversal epistemological stakes. The Educational Sciences module constitutes a core component within the functional knowledge dimension of the pedagogical framework of the RCETP. According to the description updated by the Moroccan Ministry of National Education (MMNE) by the end of this module, trainees are expected to mobilise a range of theoretical, methodological, and disciplinary resources

from the field of educational sciences and apply them to the understanding and management of teaching–learning situations [10]. These situations should address the educational, pedagogical, psychological, intellectual, and social needs of learners, foster their openness, and support both their academic and social integration, while also aligning with current national developments and trends in education and training.

The objectives of this module include: identifying the historical context and evolution of educational sciences; understanding their theoretical and methodological foundations; studying adolescent psychology and learning theories; exploring approaches to curriculum construction; examining the sociology of education and the socio-cultural environment of educational institutions; analysing the roles of various educational actors; and applying the functional dimensions of educational sciences to the diagnosis and interpretation of learners' needs. In addition, the module seeks to develop the ability to integrate information and communication technologies into educational practice.

The pedagogical methods adopted for this module follow an andragogical approach. This approach prioritises trainees' needs and interests, aiming to enhance their professional practice both during and after training. Methodologically, it promotes varied modes of engagement selected according to the objectives, the available material and technical resources, the size and layout of the training space, and the number of participants. Training activities are designed to simulate authentic professional situations, requiring trainees to interact with contextual variables, assume specific roles, and employ strategies adapted to both their characteristics and the learning objectives [11].

Didactics and its functional characteristics. General didactics occupies a distinct position within teacher training due to its essential functional role in organising the general principles of teaching, which structure the relationship between the three poles of the pedagogical triangle: knowledge, teacher, and learner [12]. The general didactics module presupposes prior knowledge of core concepts in educational sciences, such as the processes of development and acquisition, learning theories, pedagogical approaches, activation techniques, teaching–learning strategies, and the principles and ethics governing the use of information and communication technologies in education [11].

Remedial mechanisms for the Basic Training Support Modules. To illustrate the scope of this module, the Arabic language subject in the Moroccan primary education track can serve as an example. By the end of the module, the trainee is expected to mobilise the linguistic and literary knowledge and skills outlined in the Arabic language curriculum for primary education, thereby qualifying them professionally to teach this track. Specifically, the Arabic language support module aims to enable the trainee teacher to analyse the

primary curriculum's components, diagnose linguistic difficulties, contribute to the design of support and remediation programmes, and strengthen their own linguistic proficiency to teach the core components of Arabic at the primary level [11].

The importance of the cognitive–functional dimension in teacher training is grounded in the epistemological framing of the human cognitive system. Cognitive psychology highlights that this system comprises not only static knowledge but also dynamic, evolving knowledge acquired through cognitive and metacognitive learning strategies. For the learner, these strategies are central to acquiring academic knowledge and applying it in novel contexts. Recent educational research has even suggested that the concepts of "strategies" and "knowledge" are complementary. In modern cognitive psychology, the term "strategies" is commonly used to refer to three types of school knowledge: declarative, procedural, and conditional (contextual) knowledge [10].

This underscores the need for a pedagogical framework that prioritises professionalisation and learning through practice over the traditional encyclopaedic model of teacher training, which focuses primarily on knowledge transmission. The new training toolkit reflects this shift, adopting a pragmatic, practical theoretical–theoretical-practical paradigm. Such an approach fosters independent learning, integrates diverse domains of professional knowledge and skills, and places strong emphasis on practice-based training [7].

2. The professional training dimension in the RCETP

Professionalisation remains the overarching objective of training at the RCETP. The preceding stage of teacher preparation, delivered through Bachelor of Education programmes, was largely characterised by a focus on the cognitive dimensions of education and training, emphasising theoretical concepts, pedagogical approaches, and initial field immersion experiences. In contrast, the training period at the regional centres seeks to promote substantial development in the teacher's professional identity and in competencies essential for effective lesson planning, classroom management, and evaluation. This stage also aims to ensure that teachers acquire the foundational skills needed to integrate technological, informational, and communication tools into their practice, using them to design engaging lessons and to expose learners to innovative and stimulating approaches that foster motivation and active participation.

Learning planning module. The training and education process is characterised by coherence and systematic organisation, making it a rational and normative endeavour that relies on pre-planning grounded in accurate anticipation and representation of the various stages and situations of the training act. This process also entails making educational decisions that are consistent with the intended learning objectives and strategies.

Table 2. Summary of Learning Management and Assessment Modules

Module/ Concept	Key Ideas	Core Components	Expected Competencies
Learning Planning Module	Teaching–learning is a coherent, systematic, and rational process requiring anticipatory planning and aligned educational decisions. Planning integrates curriculum, assessment, and support stages.	Understanding planning concepts and principles; analysing curricula to identify reference frameworks; designing learning, assessment, and support plans; using educational documents (digital/paper cumulative file); planning for self-development with ICT.	Master planning frameworks; analyse curricula; design instructional plans; integrate assessment and support; use digital/paper learner files; apply subject-specific pedagogy; plan for ICT-based professional development.
Learning Management Module	Management is viewed as the administrative coordination of institutions and as a set of processes executed by managers to implement educational activities.	Operational mechanisms, planning of learning tasks, selection of methods and resources, reliance on specific competencies and objectives.	Ability to design, plan, and organise learning activities within defined temporal and spatial contexts using appropriate pedagogical techniques.
RCETP Training Management	Training management involves preparing trainee teachers through structured compulsory and complementary modules.	Updated knowledge in educational sciences, school legislation, ethics, and tools for educational research; exposure to diverse teaching methods; continuous assessment.	Develop pedagogical professionalism, conduct educational research, apply methodological tools, and use diverse instructional strategies throughout the training year.
Pedagogical & Didactic Management	Uses modern activation techniques and team-based approaches grounded in social psychology; didactic management structures teaching–learning processes.	Classroom management, instructional organisation, competencies-based and objectives-based approaches; multiple intelligences, differentiated instruction, and error-based pedagogy.	Construct effective teaching situations, align instruction with curricula, and select suitable pedagogical approaches based on learner needs and context.
Assessment of Learning Module	Evaluation is essential for guiding learning, improving instruction, supporting managerial decisions, and informing policy.	Foundations of assessment, measurement tools, diagnostic, formative–summative evaluation, ICT integration in assessment, and interpretation of evaluation results.	Define types of evaluation, construct assessment tools, analyse results, distinguish criteria and indicators, classify learner errors, apply remediation strategies, and use ICT in evaluation.

By the end of the Learning Planning module, trainee teachers should be able to address complex planning-related situations by mastering the conceptual framework of planning, understanding educational guidelines and curricula, applying learning-planning methodologies, integrating assessment and support stages, and using key educational

documents, including the digital and paper-based cumulative learner file, within the instructional process. They should also be capable of planning for self-development through the integration of information and communication technologies, mobilisation of general knowledge, and application of subject-specific pedagogy within their assigned educational cycle.

The module aims to familiarise trainee teachers with the concept, importance, and conditions of planning; to identify the different types, tools, and principles of planning; to develop the ability to analyse curricula to identify reference frameworks for planning; and to design models for learning, assessment, and support planning based on curriculum requirements. In addition, trainees should be able to define the concept and significance of educational documents, analyse examples of both digital and paper-based cumulative files, and plan the stages of self-configuration while mastering the use of information and communication technologies in designing educational situations [13].

Learning management module. The concept of management can be approached from two distinct perspectives. The first considers management as the practical administration of educational institutions through the unification of operational mechanisms to achieve shared objectives. The second understands management as a set of processes, techniques, and procedural mechanisms used by the manager to implement activities, learning tasks, and educational projects within a defined temporal and spatial framework. This perspective emphasises reliance on specific competencies and objectives, careful planning of learning activities, and the selection of appropriate methods and resources to achieve intended outcomes [14].

Within the RCETP, the management of training involves designing a comprehensive plan to prepare trainee teachers through compulsory and complementary modules that strengthen their pedagogical and educational professionalism. This is achieved by equipping them with updated knowledge in educational sciences, legislative information on school life, and principles of professional ethics; providing them with methodological and practical tools for conducting interventional educational research; familiarising them with diverse teaching methods; and ensuring continuous assessment throughout the training year [15].

Effective pedagogical management relies on a repertoire of methods that teachers employ during the training process to achieve predetermined professional objectives and competencies. These methods enable them to manage professional situations of varying complexity by adopting modern activation techniques and team-based management approaches informed by the epistemological foundations of social psychology. Didactic

management, as a specific dimension, addresses the teaching–learning process from its inputs through the processes of instruction, to the outputs in terms of learning outcomes.

Its vocabulary is closely related to concepts such as the art of teaching, classroom management, classroom leadership, and instructional organisation. Didactic management focuses on constructing applied teaching–learning situations for a target group within a specified timeframe, aligned with official educational calendars, curricular documents, and theoretical frameworks of pedagogical approaches. This includes the competencies-based approach, the objectives-based approach, and the integration of synergistic pedagogies, such as multiple intelligences pedagogy, differentiated instruction, and error-based pedagogy, selected according to the needs of learners and the nature of the educational situation [5].

Assessment of learning. Educational evaluation constitutes a fundamental component of the educational system, playing a pivotal role throughout the teaching-learning process. By measuring learners' achievements and the acquisition of essential skills and competencies, evaluations guide learning, support teachers in improving instructional practices, inform educational managers in making data-driven decisions, and enable policymakers to assess the effectiveness of educational programmes. Evaluation is thus a systematic process that aims at objectively and accurately judging the inputs and outputs of any educational system, identifying strengths and weaknesses, and informing appropriate reform measures.

Trainee teachers are expected to master the conceptual framework of assessment, including its foundations, functions, and methodological procedures for designing measurement tools and utilising results to support learning and remediation [16]. Leveraging ICT and the skills acquired through this module, trainees will develop the ability to define evaluation concepts, identify their types and tools, distinguish their functions and characteristics, and understand self-evaluation, including its objectives and methods. They will also become proficient in the procedures and activities associated with diagnostic, formative, and summative evaluation, as well as the stages of constructing assessment tools to measure skills, abilities, and competencies [17].

Assessment competency within the RCETP requires trainees to analyse certification exam frameworks and official directives governing continuous monitoring. This entails distinguishing between criteria and indicators, applying methodological procedures for correction, analysing and interpreting evaluation results for decision-making, mastering the construction of grids for classifying learners' errors and difficulties, and identifying support and remediation strategies during the teaching–learning process. Additionally,

trainee teachers are expected to integrate information and communication technologies across all forms of evaluation.

3. The reflective dimension in the Moroccan teacher training framework

The reflective dimension in the framework of teacher training in the RCETP falls within a reflective operation in classroom practice, during which we rely on the role of the trainee teacher in analysing the educational and educational reality and stimulating the creative sense in their practice of the teaching profession. Perhaps this is what makes us in front of the real concept of "professionalism". In this context, the pedagogical framework of the RCETP focuses on three components that aim to create a reflective and creative training space for trainee teachers by working on professional practice analysis workshops, pedagogical production workshops in the primary level, for example, and then the intervention research methodology component.

Table 3. Reflective Dimension in the Moroccan Teacher Training Framework

Component/ Module	Key Ideas	Core Elements/ Activities	Expected Competencies
Professional Practice Analysis Workshops	Training relies on reflective mechanisms to analyse teaching processes and develop insight into professional practices.	Observation, accountability, problem-solving, modification, development; using tools and techniques for APP; applying ICT; supporting the establishment of APP in schools.	Analyse own and peers' practices; apply APP methodology; use ICT for analysis; develop reflective capacity; manage pedagogical, relational, and personal dimensions.
Interventional Educational Research Methodology	Interventional research transforms educational practice through applied, collaborative, critical inquiry.	Systematic classroom inquiry, teamwork for critique and reflection, developing pedagogical autonomy, analysing strategies and challenges, and connecting theory and action.	Conduct interventional research; critically examine teaching strategies; develop new professional skills; link action and knowledge; adopt reflective attitudes.
Pedagogical Production Workshops	Aims to strengthen trainee teachers' competencies in planning, producing, and evaluating pedagogical tools and resources.	Designing instructional aids, digital resources, assessment tools; producing mind maps, concept maps, tables, scenarios, models, videos, websites, games; analysing peer productions.	Design and produce pedagogical materials; select appropriate pedagogical tools; use assessment results for instructional decisions; innovate using digital and physical resources.

Professional practice analysis workshops. Training through practice is linked to reflective mechanisms for analysing the educational process [17], making teacher trainees able to analyse their professional practices and those of their peers in the subject and its components, and to develop the insight dimension by mobilising the tools of the professional practice analysis methodology, mainly based on observation, accountability,

problem-solving analysis, modification and development, and employing appropriate tools and techniques for insightful professional practices, taking into account the pedagogical, relational and personal dimensions. This is achieved through a set of objectives for the educational practice analysis workshops, which can be summarised as follows [7]:

- Define the conceptual apparatus for analysing professional practices based on observation.
- Know the methodology of analysing professional practices.
- Know the tools and techniques for analysing professional practices.
- Exploit the methodology of professional practice analysis to analyse teachers' professional practices.
- Use ICT tools to analyse the practices of the teacher and his/her peers.
- Develop the reflective dimension in professional practices.
- Accompanying the establishment of APP (Analysis of Professional Practices) in the school organisation.

It is widely recognised that the teaching profession demands the serious commitment of all stakeholders in the educational sector. The role of the teacher has long been characterised by considerable complexity, as educational practice requires mastery of diverse knowledge and precise skills to facilitate effective teaching. In addition, teachers must establish constructive communication and harmonious relationships both with colleagues and with learners' parents, as well as engage with the broader socio-cultural environment. In such a context, teachers are expected to respond effectively to emergent situations, adapt to change, address learning challenges, and understand the multifaceted conditions of learners' lives. A professional teacher must therefore be capable of navigating complex situations, assuming full responsibility, and acting insightfully according to the principles of professional analysis [7].

Interventional educational research methodology. Interventional research represents an ideal methodological approach for transforming educational practices. As a form of applied research, it is closely linked to proposing practical solutions to address concrete educational challenges. This type of research encourages collaborative work, providing opportunities to develop educational practice, while also serving as a critical study that fosters professional insight through systematic examination of classroom realities. Additionally, it promotes teachers' pedagogical autonomy by freeing them from beliefs and prejudices that may hinder adaptation or innovation in teaching methods and techniques.

Interventional research operates as a dynamic system, involving both classroom realities and educational strategies on one hand, and educational actors on the other. The

research team thus functions as a shared space for constructive criticism, professional reflection, and the development of insight during professional practice. Its primary objective is to cultivate insightful practice rather than merely transferring or generalising methodological prescriptions. According to McKernan's model, interventional research progresses through the following stages [18]: Define the problem, Select the intervention, Implement the intervention, Reflect on the intervention, and Revisit the issue.

Within the pedagogical framework of the RCETP, interventional research enables teachers to critically examine their classroom practices, adopt reflective attitudes through analysis of educational strategies, and develop new skills by systematically questioning emerging educational challenges. This methodology establishes an intentional interaction between two essential functions of the teacher: mastering the methodology of interventional research and executing practical actions in the field, following the principle that "action generates knowledge, and knowledge generates action" [19].

Pedagogical production workshops. The pedagogical production workshop module is organised as part of the training at the RCETP for trainee teachers in Morocco and aims to develop their professional competencies. The Pedagogical Production Workshop module gives the trainee teacher access to the real meaning of planning learning, producing appropriate aids, tools, and supports to help manage learning, making appropriate pedagogical choices, helping the trainee teacher to produce tools and instruments to evaluate learning, and using the results obtained to choose the necessary pedagogical tools for an informed teaching practice.

The trainee teacher is expected to be able to design, develop and produce pedagogical materials related to teaching and learning in the subject of specialisation, by mobilising his/her knowledge, observations and gains in field training, in addition to the various steps and means available and digital resources, to contribute to the development of educational innovation that enhances students' learning [5].

The activities and tasks of teacher trainees who benefit from the pedagogical production workshops are to participate in group workshops by designing and producing pedagogical resources that may take the form of mind maps, concept maps, comparison tables, pedagogical layouts and scenarios, assessment tools, models, resources, and digital tools. In addition to capsules, videos, websites, games, and episodes for physical education, analysing peer production and proposing new ways of development and improvement [20].

B. Designing teacher training: from a reflective perspective to an andragogical identity

While the reflective dimension constitutes a pivotal component within the pedagogical design framework of teacher training centres, its significance is largely attributable to the ascendancy of modern utilitarian educational philosophies in international educational

discourse. These philosophies underscore the importance of equipping teachers with mechanisms and methods that transcend the purely theoretical, "Platonic ideal" dialogue concerning what teachers ought to be and instead promote their professionalisation through the enactment of authentic tasks in real school environments. In this sense, the teaching profession evolves from abstract theorisation into a domain where teachers' pedagogical and didactic competencies are cultivated and exercised, ultimately transforming the classroom into a creative space for professional growth [21].

Equally important is the development of educational research skills, which open a broad field for exploring synergistic pedagogical methods and solutions among teaching professionals. Professional practice analysis workshops, pedagogical production workshops, and intervention-oriented educational research are specifically designed to support trainee teachers in overcoming professional dilemmas and addressing classroom challenges that might otherwise remain unresolved without such a reflective approach. This approach, in turn, presupposes the psychological and social formation of teachers as professionals capable of self-criticism and committed to reflective practice, with the overarching aim of enhancing all dimensions of the teaching–learning process [22].

1. Professional practice analysis workshops as a reflective model of professionalism

   The analysis of professional practices, which has been developing for approximately fifteen years, seeks to move from practice to professionalisation (accountability). By fostering teacher trainees' specialisation in their professional tasks, this analytical approach has played a pivotal role in the radical transformation of teachers' professional identity, contributing to the construction of a renewed and specialised professional self. Given the inherent complexity and specificity of the teaching profession, it is essential to train teachers in ways that enable them to construct reflective attitudes toward their own practice. In this sense, the professionalised teacher is understood as a reflective practitioner who manages educational situations through a reflective stance—seeking to understand to adapt. Reflective practice is thus indispensable in contexts where the profession itself is complex or undergoing crisis [21] [23].

   This perspective raises critical questions regarding the methodologically and theoretically appropriate forms of professional foresight in educational practice. The rationale for these questions lies in the fact that the analytical approach to professional practices relies on methods that necessarily vary according to the diversity of professional situations and pedagogical disciplines. It is therefore not surprising that the analysis of professional practices draws its epistemological foundations from a multiplicity of theoretical references and approaches [7].

2. Interventional educational research to improve teachers' productivity

If training at the RCETP traditionally aims to develop professional competencies in planning, classroom management, and evaluation, it has become increasingly urgent to integrate a fourth competency: interventional educational research. This competency entails enabling trainee teachers to grasp the concept, types, and objectives of educational research, while recognising the specific features and domains of intervention research. Through this process, trainees are expected to translate educational problems into researchable questions, design and implement research projects, and utilise their findings to improve practice. Moreover, they are trained to apply appropriate scientific methods and research techniques, thereby fostering the professionalisation of teaching through inquiry-based practice.

It has been observed that, within teacher training, a significant number of educational research projects fail to exert a meaningful impact on classroom practice. This is often because teachers do not find the research convincing or directly relevant, particularly when it does not address their questions or professional needs. In response, interventional educational research has emerged as a critical entry point for novice teachers, enabling them to improve their practice by collecting and analysing data from real classroom and school environments. Such research empowers teachers to make informed decisions and to integrate the effectiveness of their interventions into the process of enhancing student learning outcomes [24].

Unlike basic educational research, which may be conducted in contexts dissimilar to teachers' realities, interventional research engages directly with the challenges of educational reform and embeds problem-solving within the culture of professional practice. It operates on the principle that teachers are not merely transmitters of knowledge, as in traditional models, but are teacher-researchers who actively learn and refine their practices to improve teaching and learning outcomes. This requires teachers to confront educational issues without relying on ready-made solutions, adopting action research as a methodological framework. Such engagement strengthens teachers' self-confidence, develops their capacity to manage classroom challenges, and fosters the formation of a professional identity in which they serve as central actors in educational reform. Through reflective observation, analysis, and the systematic application of action research tools, teachers cultivate continuous self-learning and ongoing professional development [18] [25].

Recommendations

If the research dimension aims to enhance the quality of education by improving teachers' professional practices, a central question concerns the feasibility of activating

research practice and the conditions required to support the teacher's training development. Professional research presupposes that teachers possess the capacity for reflective practice, including the analysis of educational situations, the design and implementation of effective interventional research plans, and the innovation and adaptation of pedagogical methods and tools to specific teaching contexts. The research dimension in teacher professionalisation extends beyond the completion of initial training, influencing the ongoing development of the teacher's professional identity and shaping their career trajectory. This raises critical questions regarding the conditions under which reflective and research-based practices can be effectively implemented: (1) To what extent can the components of the reflective dimension contribute to the development of professional competencies? and (2) What conditions are necessary to support the integration of reflective plans into educational practice?

Conclusion

The relationship between the modules within the pedagogical architecture of the RCETP is established as a set of training units that seek to develop the reflective and critical dimensions of educational practice. This framework is closely aligned with the evolving andragogical and pedagogical identity of the Moroccan educational system. The succession of multiple, innovative pedagogical experiences and approaches has led the Moroccan model to adopt a set of standards and controls designed to ensure that future teachers acquire professional skills and competencies that extend beyond the traditional role. This role, historically characterised by recitation and rote instruction, is now complemented by a competency-based approach that encourages meaningful learning, motivates learners, fosters critical engagement with knowledge, and links learning to social contexts and lived realities.

The integration of the three core modules reinforces this transformative vision. Analysis of educational practice workshops cultivates the trainee teacher's critical abilities, enabling them to interpret the educational process both subjectively and relationally. Educational research methodology fosters the development of a reflective and proactive teacher, capable of addressing psychological, social, educational, and material challenges. Meanwhile, pedagogical production workshops nurture the teacher's creative dynamism, allowing them to contribute innovatively to the design of pedagogical tools and resources that structure learning situations and academic concepts. Collectively, these modules constitute a training process that establishes an andragogical and pedagogical identity grounded in competencies for both teachers and learners.

The synergy among these modules is evident in the regional centres' emphasis on professionalisation through reflective practice, operationalised via a training model that integrates experiences across both training centres and school institutions, in accordance with

the "practical–theoretical–practical" paradigm. This integrated, experiential approach positions the visual and practical dimensions of training at the centre of teacher development, with a demonstrable impact on professional competencies and the enactment of pedagogical tasks.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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