

Contemporary Trends in the In-Service Training of Middle School Teachers: An Analytical and Applied Approach

¹Dr MUSTAPHA YOUNSI

Laboratory of Grammatical and Linguistic Studies between Heritage and Modernity in Algeria , Universty of Tiaret , Algeria .Corresponding author : m-younsi@cu-aflou.edu.dz

²Dr. Zabour Imen

Ibn khaldoune University, Department of Arabic Language and Literature

³Professor Hadouara Omar

Ibn khaldoune University, Department of Arabic Language and Literature

Received: 15/12 2025

Accept: 04/07/2026

Published: 14/07/2026

Abstract

This study seeks to shed light on the most prominent contemporary trends in the in-service training of middle-school teachers, through an analytical reading of their theoretical foundations and philosophical underpinnings. It adopts a descriptive-analytical method grounded in the analysis of relevant educational literature, linking theoretical frameworks to the reality of the training system in Algeria. The study finds that competency-based training represents an extension of an authentic pedagogical heritage, that the individual model emphasises personal differences, and that the skills-based orientation focuses on breaking teaching down into procedural components. The functional model, in turn, corrects the reductionism found in earlier orientations by introducing an ethical dimension. Micro-teaching emerges as a practical training tool, while the systems approach offers a comprehensive framework that has been adopted by the Algerian educational system. The study concludes that these trends are complementary rather than contradictory, and that deploying them jointly serves the development of teacher performance.

Keywords: in-service training; teacher training; middle-school education; competencies; functional model; micro-teaching; systems approach.

1. Introduction

Teacher training and professional preparation constitute one of the most important pillars underpinning modern educational systems, since the quality of educational outcomes is closely tied to teachers' competence and their command of the cognitive, practical, and affective tools needed to practise their profession fully. Amid the accelerating pace of knowledge that characterises the present era, and the continuous adaptation that digital transformation imposes on educational institutions, the field of in-service teacher training has undergone profound qualitative shifts, reflected in the emergence of multiple pedagogical models and orientations, each seeking to address the problem of teacher preparation from a different perspective.

The middle-school stage holds particular importance in a learner's educational trajectory, serving as the link between primary and secondary education, which requires a teacher who is scientifically and professionally qualified to meet the specific demands of this age and

cognitive stage. On this basis, the present research seeks to shed light on the most prominent contemporary trends in the in-service training of middle-school teachers, through an analytical reading of their theoretical foundations and philosophical underpinnings, in order to clarify the areas of convergence and divergence among them.

The research problem revolves around the following central question: what are the most prominent contemporary trends that have emerged in the field of in-service teacher training at the middle-school level, and to what extent does each contribute to the development of teachers' professional performance? Several sub-questions follow from this, most notably: what is the concept of competency-based training and its effect on teacher performance? What distinguishes the individual model from the functional model in teacher training? And what added value do micro-teaching and the systems approach bring to this field?

The significance of this research lies in its attempt to offer a comprehensive vision that brings together the various theoretical orientations in teacher training, of use to researchers and practitioners alike in designing more effective and realistic training programmes. The study adopts the descriptive method, based on the analysis of relevant educational literature, while attempting to connect theoretical references with the practical reality of the training system for middle-school education. The research is organised into two main axes: the first is devoted to an overview of teacher training in Algeria and its rationale, while the second addresses contemporary trends in teacher training — competencies, the individual model, skills, the functional model, micro-teaching, and the systems approach.

2. An Overview of Teacher Training in Algeria

Teacher training in Algeria has passed through several distinct phases. As one source notes, «¹ the higher authorities have concerned themselves with training educational cadres across their various tasks and responsibilities — teachers, professors, educational inspectors, as well as pedagogical advisors and others across the three teaching cycles — and have spared no effort in preparing and qualifying their teaching cadres since regaining sovereignty in 1962, treating this as one of their priorities. During the colonial era, teacher training took place in only three dedicated institutions: the Teachers' College in Bouzareah, founded in 1866; the Teachers' College in Constantine, founded in 1876; and the Teachers' College in Oran. Training was restricted to the children of the European community, and Algerians were not admitted until 1883; even so, the number of Algerian teachers who graduated from these three centres could be counted on one's fingers. Comparing the two periods shows how Algeria shifted education from its colonial function of "producing followers" to its liberating purpose of "preparing leaders." These centres continued operating until the 1950s, when three further centres were established specifically for training women teachers in the same three cities, though the door remained closed to Algerians for political and colonial reasons. Immediately after independence, these structures proved insufficient given the growing annual demand for teachers and professors, so the education ministry recruited groups of young people with no background whatsoever in pedagogy or education. To address this problem, the ministry established a special type of training — in-service training — as a

substitute for initial training, creating dedicated institutions known as the Centres for Cultural and Vocational Training.

Since regaining its sovereignty in 1962, the Algerian state has spared no effort in training and qualifying educational cadres of every category — teachers, professors, inspectors, and pedagogical advisors — across the three teaching cycles, placing this endeavour among its strategic priorities in order to meet the growing need of the education system for qualified personnel. Nevertheless, the trajectory of teacher training in Algeria has not been free of obstacles, particularly given the colonial legacy that long restricted training opportunities for Algerians.

Immediately after independence, Algeria faced a major challenge: existing structures were unable to absorb the surging demand for educational cadres. To address this shortage, the ministry was compelled to recruit cohorts of young people with no pedagogical background, which made in-service training necessary as a temporary substitute for initial training; specialised centres such as the Centres for Cultural and Vocational Training were established for this purpose. This trajectory reveals the scale of the historical and political challenges that accompanied the construction of a national education system, and the effort expended to develop teacher-training mechanisms despite harsh circumstances — reflecting a shift from the narrow, elitist training inherited from the colonial era to broad-based training that responds to the needs of post-independence society.

As for training in the current period — marked by the accelerating pace of change the world is witnessing in every domain — it too has undergone notable development at the level of curriculum and content. As one source observes, «² one of the salient features that gives teacher training its distinctive character compared with the training of employees and professionals in other sectors is that it concerns a category whose future role is itself to carry out a training process, since teachers educate pupils cognitively, affectively, and psychomotorically. It thus functions as a second-degree equation, being a training of trainers, which requires special pedagogical treatment, whether in the design of the training institution's programme and its administrative and pedagogical organisation, or on the part of the trainees themselves »

The features of the training process as a whole are further clarified by the observation that «³ the supervisory relationship linking trainees with training supervisors is of great importance. In the higher schools that train trainers, particularly in the social-science subjects, teaching and training methods have shifted from a traditional mode relying on simple instructional aids to a contemporary mode based on educational technology — including multimedia and computers — in order to advance the quality of training in these humanities disciplines, which are often seen as not requiring modern technologies for their instruction. There are also difficulties concerning who supervises this process in all its parts, from the availability of equipment to the supervisor or trainer of that subject. Here the effectiveness of educational technology in training trainers becomes evident, along with its importance for the educational process in reaching a standard of quality for an effective national school, one that produces

trainers competent in the teaching profession on scientific foundations grounded in modern technology and the ability to communicate, built on a genuine will to work »⁴.

The supervisory relationship linking trainees and training supervisors constitutes a fundamental pillar in any restructuring of the education system, particularly in the humanities and social-science disciplines, whose traditional programmes are frequently questioned regarding their alignment with the demands of the digital age. The shift from traditional instructional media to educational technology — multimedia, smart platforms, and educational-data analysis — represents a qualitative leap that seeks to dismantle the stereotype confining the social sciences to a framework that supposedly does not require advanced technical tools. Yet this transformation is not without obstacles, foremost among them weak technological infrastructure in some institutions, a shortage of qualified personnel able to integrate these tools into the educational process, and the resistance of some trainers attached to traditional patterns of change.

There thus emerges a need to design training programmes that qualify supervisors both pedagogically and technically, enabling them to lead the integration of technology into classroom practice as an organic component of the pedagogical structure rather than a mere supporting tool. Employing modern techniques in teaching the social sciences — through virtual-reality simulations of social issues or big-data analysis of social trends — would enrich educational content and make learning more interactive and better able to engage the complexities of reality. Realising this vision, however, depends on a supportive environment that includes the necessary equipment, the development of specialised digital content, and partnerships between educational institutions and technological research centres.

Adopting national standards for training quality remains an indispensable pillar for ensuring the graduation of trainers who combine scientific and technical competence, capable of viewing technology as a means of deepening critical thinking and creativity in the humanities rather than as an end in itself. This calls for reconceiving the role of the educational supervisor as a facilitator of innovation rather than a mere executor of rigid procedures, in the service of building a national school capable of indigenising knowledge and producing generations that engage with contemporary developments with awareness and professionalism.

3. The Rationale for Training

The training of trainers currently occupies a pivotal position in contemporary educational discourse, given the multiplicity of its objectives and the diversity of contexts in which it is invoked.

As one source explains, «⁵ the complexity of the training process is attributable to the fundamental transformations of the twentieth century, dubbed the "pedagogical century," in which training emerged as one of the governing pillars of the social system, surpassing in its symbolic and material dimensions such historic inventions as the computer and space exploration. Teacher training — as a prominent example — is no longer a phenomenon isolated from its historical and social contexts, but has become an institutional practice

intertwined with a network of cultural and political relations, to the point of becoming a defining feature of the second half of the twentieth century ». Over recent decades, training has become a comprehensive social obligation, imposing itself as a kind of "natural law" governing both professional and social recognition mechanisms, and has even transcended the professional domain to become an existential slogan encapsulated in the phrase "lifelong learning." This shift produced what has been termed the "permanent school," which entrenches the principle of continuous apprenticeship — a development that has provoked critical debate among psychologists, sociologists, and philosophers, who regard this expansion of the concept of training as a threat to individual freedom and an erosion of human spontaneity, given that the concept has come to resemble an "axiom" invoked as a ready-made solution to a range of individual and collective problems, from psychological anxiety to social disorders.

In this context, the semantic shift the concept of training has undergone cannot be separated from the scientific and technical revolutions that have marked the modern era, from genetic engineering to the spread of the internet, which underscores the interweaving of pedagogical development with the technical transformations that have contributed to reshaping collective consciousness. Training thus remains, at its core, a complex intellectual construct oscillating between being a civilisational necessity and the risk of drifting away from the human essence, within a historical context governed by the balances of knowledge and power.

The incentives for training are as follows: «1. The desire to learn: every individual has intrinsic motives such as curiosity and the desire to learn and to know, and those responsible for training must identify these desires and work to stimulate them. 2. Meeting social needs and self-affirmation: high wages are neither the sole nor the most important incentives used in industry; studies by Maslow, Herzberg, and McGregor have shown that the most important motivating factor is social standing and the respect and self-actualisation that follow from it, and linking the social standing a trainee can attain after the training period is capable of motivating trainees to make an effort, succeed, and acquire skills. 3. Providing suitable conditions: among the most important contributing factors is providing the material conditions necessary for success, along with attention to the training venue and the creation of a suitable environment. 4. Simplifying training methods: following appropriate training methods and using the necessary visual aids and physical models, among other approaches that take trainees' interests and needs into account, are all factors that help sustain effort and motivate trainees toward the success of the training »⁶.

It is thus clear that there is a close interaction between motivation and the training process, with studies showing that the effectiveness of training depends on the balance between intrinsic and extrinsic motives.

Facilitating knowledge of results: «the process of learning the results (feedback) and recognising them immediately after performance helps identify errors and work to avoid them, while recognising correct performances helps motivate trainees, leading to an increase in — and reinforcement of — such performances »⁷.

The researcher Lahmadaoui Wassila adds a further set of factors that motivate workers, namely: «1. Establishing the plan from the outset. 2. Formulating and publicising training policies and objectives. 3. Every training process aims to achieve specific objectives. 4. Encouraging managers' participation in implementing training operations. 5. Establishing a clear system of rewards. 6. Promotion, allowances, new responsibilities, and authority »⁸.

The process of pedagogical training is grounded in the need to respond to the education system's human requirements, by developing the competencies of its key actors — teachers, principals, and inspectors — enabling them to keep pace with the field's growing complexities. This development forms part of tracking developments in educational and psychological studies, which provide the scientific reference base enriching theoretical and field-based training systems and are integrated into training programmes to ensure their effectiveness.

The accelerating pace of knowledge, and the continual change in scientific content, impose a pressing need to renew knowledge and skills in step with research and technical developments. This renewal does not stop at cognitive content alone but extends to teaching methods themselves, which must be adapted to the diversity of pedagogical situations, ensuring their flexibility and capacity to confront field challenges such as some learners' weak academic level or some teachers' and administrators' professional shortcomings, in addition to emerging educational problems such as digital challenges and educational disparities, all of which call for the invention of suitable training solutions.

Successive revisions of educational curricula — whether concerning objectives or content — require that those working in the educational field be informed of these developments and qualified to apply them effectively, making training a dynamic link between educational policy and field practice, in pursuit of integration between theory and practice within the education system.

In sum, the training process constitutes a dynamic system aiming to develop individual and professional competencies through rigorous methodological mechanisms, resting on a three-way interaction linking the trainer, the trainee, and the context — namely, the educational and social environment surrounding them.

4. Contemporary Trends in the In-Service Training of Middle-School Teachers

In this second part of the research, we detail in-service training as the field most closely tied to the development of the practising teacher's professional performance. The accelerating transformations experienced by the education sector, along with the accompanying cognitive, technological, and pedagogical developments, have made it necessary to reconsider the methods of in-service teacher training. Training is no longer confined to occasional courses or traditional programmes but has become a continuous professional process aimed at developing teaching and pedagogical competencies in line with the requirements of the modern school. At the middle-school stage in particular, the importance of such training grows given the nature of learners at this stage and the renewed professional competencies required — enabling the teacher to employ modern teaching strategies, benefit from digital technologies, and adopt reflective and participatory practices to develop performance. On this

basis, contemporary trends have emerged in in-service teacher training, resting on the principle of lifelong learning, competency-based training, e-learning and blended training, professional learning communities, and action research, all in the service of sustainable professional development and the enhancement of educational quality and outcomes.

The accelerating knowledge revolution has led to fundamental reforms at the level of education systems, which has necessarily prompted the emergence of new pedagogical approaches and orientations in the field of teacher training. The most prominent of these trends may be summarised as follows:

a. Teacher Training in Light of the Concept of Competencies

It should be noted that the concept of competencies is not new to educational thought. Rather, adopting competence as a criterion for evaluating learners and granting them permission to practise teaching through the "scholarly license" (ijaza) is regarded as a pioneering contribution of Islamic civilisation in the field of ensuring the quality of education, intersecting with the philosophy of competency-based education in the modern era. As one source states, «the subject of competencies was not born of the modern age nor is it a recent development; rather, Muslim educators engaged with this dimension from the earliest centuries of Islam, preceding the emergence of the modern competency-based education movement. The clearest evidence of this is the scholarly license (ijaza) that a scholar would grant to the student who graduated under his tutelage, serving as a kind of license permitting him to practise the teaching profession »⁹.

In this context, it can be observed that discussion of competencies carries a broad, fundamental dimension centred on the nature of the teacher as such, through «equipping him with the skills that enable him to help the individual learner develop cognitively, affectively, socially, and psychologically. However, this orientation did not fully meet teachers' needs regarding how they should be prepared to fulfil this role, and so programmes emerged that focused on the nature of the teacher, personality type, and thinking style »¹⁰.

This shift reflects a growing recognition that the teacher's role is not confined to the mere transmission of knowledge or the application of ready-made teaching techniques, but is a complex interactive process requiring deep understanding of self and others and an ability to adapt to changing contexts. The objectives of teacher preparation have evolved considerably, as training programmes have moved from a narrow focus on cognitive aspects toward a more comprehensive and functional approach — one that no longer neglects the development of teaching skills and practical behaviours but instead focuses on integrating knowledge with application and linking outcomes to improved pedagogical performance in the classroom, ensuring that theoretical knowledge is embodied in effective practices that enhance the quality of education.

As one source notes, «this orientation began in the 1970s, and its core idea is that the teacher's competence, performance, and pre- and in-service training are fundamental, since the process of effective teaching can be analysed into a set of teaching skills; and the more a

student teacher masters these within faculties of education, the greater the likelihood that he becomes a successful teacher »¹¹.

Competencies play a prominent role in the transformation of the training process, particularly with regard to the teacher as the pivot of the educational process. As one source states, «this trend is considered one of the most important contemporary trends in educational circles for preparing teachers on a competency basis, representing a significant shift in the philosophy of teacher training and education. Educators' adoption of these programmes indicates that they are among the best solutions proposed for the problem of teacher preparation, since they reflect what the teacher actually does and what he ought to do at the highest levels in his field »¹².

Numerous studies have confirmed the superior performance of teachers prepared under competency-based programmes compared with those prepared under conventional programmes. As one source reports, «in a comparison between two programmes for preparing primary-school teachers, one competency-based and the other conventional, statistically significant differences were found in favour of the competency-based programme in terms of effectiveness, which helped develop learners' knowledge and information; teachers qualified under the competency programme were able to convey information to students better than their counterparts trained under the conventional programme »¹³.

This disparity in results reveals the considerable importance of adopting teacher-preparation models that focus on practical and applied competencies as a strategic entry point for improving the quality of educational outcomes, rather than being confined to abstract theoretical knowledge — which calls for reconsidering the design of training programmes so that they are more closely tied to the real needs of the classroom.

This trend is regarded as one of the most prominent contemporary orientations in teacher preparation, given the pressing need to acquire modern teaching skills linked to the effective use of technology in educational contexts, such as computers and the internet — a need that has required the fundamental re-engineering and development of teacher-preparation programmes to ensure theoretical and practical qualification before teachers take up their duties. In this regard, Cooper defines the competency-based programme as «the programme that specifies the competencies the student teacher is expected to demonstrate, and clarifies the standards used to evaluate his competencies, whereby it falls to the student teacher to attain a high level of competent performance in these programmes »¹⁴.

According to Fredrick, the competencies to be cultivated in the teacher's character and performance are classified into three main types: «Cognitive competencies: comprising the cognitive processes, mental abilities, awareness, and intellectual skills necessary for performing the tasks of competence. Practical competencies: comprising the observable behavioural performance represented in a set of actions and movements, such as reading, writing, discussion, drawing, and the use of instructional devices and aids, and lesson planning. Affective competencies: comprising the attitudes, values, ethical principles, and

positive stances connected to the tasks of performative competence, such as commitment, self-confidence, honesty, and precision in execution »¹⁵.

This threefold classification (cognitive, practical, and affective) constitutes a fundamental framework for understanding the nature of the professional competencies required of teachers, particularly in light of contemporary educational developments. Cognitive competencies focus on the intellectual and mental structure that underlies teaching practice, such as analysis and reasoning, and are necessary for understanding and applying pedagogical theories in diverse contexts. Practical competencies highlight the applied dimension of teaching through measurable and observable skills, such as the use of technical aids or lesson design, enhancing effectiveness within the classroom. Affective competencies, meanwhile, concern the professional values and ethics that frame professional conduct and ensure its quality.

b. Teacher Training in Light of the Individual Model

Proponents of the individual approach to teacher preparation start from the premise that the learner constitutes the central focus for designing professional education programmes. Their philosophy holds that such programmes must take into account the developmental characteristics and educational needs of both faculty-of-education students (trainee teachers) and school pupils (the ultimate beneficiaries of the educational process). In their view, these programmes should be built on a simultaneous analysis of the needs of both groups, focusing on the one hand on developing the trainee teacher's personal and professional skills — such as the ability to adapt to individual differences — and being designed, on the other hand, to meet the requirements of pupils in classrooms, such as supporting interactive learning styles or addressing behavioural challenges. As one source states, «some advocates of individualism hold that the teacher has three main roles: the teacher as natural scientist, the teacher as artist, and the teacher as researcher. As a natural scientist, the teacher is concerned with observing students' behaviour; as an artist, he is required to understand students' psychology well; and as a researcher, his role obliges him to attend to what happens in the classroom in order to draw on it in developing his future performance »¹⁶.

This orientation affirms that the success of teachers' professional training cannot be separated from an understanding of the real-world contexts they will face in the field, which requires that programmes include mechanisms linking theory to practice — such as field training grounded in a diagnosis of the school environment's needs — so that preparation programmes become a bridge between the needs of present learners (teachers in training) and future ones (school pupils), within an educational philosophy that privileges customisation and adaptability as tools for ensuring the quality of educational outcomes.

c. Skills-Based Teacher Training

The central idea of this trend revolves around treating teachers' competence and performance as the essential element of the educational process, viewing effective teaching as an activity that can be broken down into a set of specific teaching skills. As one source explains, «accordingly, if the student teacher masters these skills, this raises the likelihood of his

becoming a successful teacher able to manage the classroom competently, and this orientation also contributes to raising teachers' skill levels by training them systematically »¹⁷.

To ensure the success of this approach in preparing teachers, a number of basic conditions are required, foremost among them: «identifying the teaching skills that need to be included in preparation programmes in light of the objectives of schools and various professional bodies; linking preparation programmes with teacher-preparation institutions and in-service training programmes; linking the theoretical side of the programmes with field training within schools; and setting standards for evaluating the progress achieved by the student teacher »¹⁸.

The intent here is an integrated vision of teacher preparation, one that treats training as an interconnected system that does not merely furnish the teacher with theoretical knowledge but extends to developing his professional competencies and linking them to the reality of teaching practice. Identifying the required teaching skills helps direct preparation programmes toward meeting the actual needs of the educational field, while integration between preparation institutions and in-service training programmes ensures the continuity of professional development without interruption once employment begins. Likewise, alignment between the theoretical component and field training enables the student teacher to convert academic knowledge into effective classroom practices, while evaluation grounded in clear standards provides precise indicators for measuring the extent to which targeted competencies have been achieved, allowing for the continuous evaluation and development of programmes. The success of teacher-preparation programmes is therefore achieved only through the integration of all these elements, as they constitute the foundation on which the preparation of a teacher capable of keeping pace with educational change and meeting the demands of contemporary education is built.

d. Teacher Training in Light of the Functional Model

This trend adopts a holistic vision proceeding from the idea that teaching is not a technical process divisible into separate skills, but a complex human practice in which cognitive and existential factors intertwine. This view aligns with recent research trends confirming that the integrative model of teacher preparation — one combining practical competencies, theoretical knowledge, and value orientation — is the most effective in confronting the complexities of educational reality. Alongside the necessity of integrating disciplinary and pedagogical knowledge, this model requires the inclusion of the ethical and social dimension, which contributes to shaping a teacher capable of deploying knowledge in broader contexts rather than merely executing procedural tasks.

As one source puts it, «there is no doubt that competencies form part of the functions the teacher performs; however, the serious error lies in accepting the view that confines the concerns of teacher-education programmes to competencies alone, for the teacher performs other functions besides competencies, and needs theoretical insight in every task he undertakes, just as he cultivates in students the values the society believes in. It thus appears that the correct approach to designing teacher-education programmes lies in identifying all

the functions the teacher performs, without focusing on one aspect at the expense of another »¹⁹.

Successful teacher preparation should therefore proceed from a philosophical understanding of the nature of the profession — not as a purely technical craft, but as an ethical art reflecting an interactive process with the social context, which requires liberation from the reductionist view that empties the educational process of its human dimensions.

e. Teacher Training through Micro-Teaching

Micro-teaching represents a multidimensional pedagogical process in which the teacher assumes varied roles reflecting the complexity of classroom practice: he is a leader of classroom dialogue organising cognitive interactions, a technical expert in the use of instructional media, a diagnostician of learning difficulties, and a guide for individual and collective learning pathways, in addition to being a lesson planner and a guardian of classroom order. The effectiveness of this process is not confined to performing these roles but extends to the student teacher's acquisition of skills in precise time management, since completing the lesson within a limited timeframe requires meticulous preparation attentive to the precision of formulating objectives, choosing strategies, and controlling timing.

As one source notes, «micro-teaching also provides the student teacher with other professional experiences, including: individualising instruction, providing motivation, engaging pupils in the learning process, using varied instructional strategies, maintaining classroom order, evaluating pupils, achieving objectives, implementing school policies, and developing positive attitudes among pupils toward learning »²⁰.

Micro-teaching also affords the student teacher the opportunity to review his performance under the supervision of specialists, contributing to the improvement of the quality of his lesson plans, whether regarding clarity of objectives, diversity of methods, or the design of evaluation mechanisms. This approach thus constitutes a safe training environment that develops the foundational competencies of the novice teacher and prepares him to draw on these experiences in broader educational contexts in the future, while recognising that effective planning is not merely a technical skill but a strategic thinking process built on analysis, flexibility, and adaptability to classroom variables.

f. Teacher Training in Light of the Systems Approach

Teacher training is a complex process aiming to prepare the teacher professionally and intellectually to face the challenges of a changing educational environment, through the adoption of a holistic perspective that treats all elements of the educational process as an integrated system. In this framework, the systems approach represents a scientific entry point that focuses on designing teacher-preparation programmes as an interconnected system, in which inputs (such as theoretical knowledge and practical skills) interact with processes (such as field training and formative evaluation) to produce effective outputs — namely, qualified teachers. As one source explains, «the systems approach is an entry point for addressing complex human problems in order to arrive at the best, most logical, and most effective solutions at the lowest possible cost. This approach rests on the concept of a system, defined

as a set of interrelated parts working to achieve a specific goal according to a devised plan »²¹.

According to Mohsen Ali Attia, the integrated programme built on this approach consists of four main components: «Inputs: comprising all elements entering the system to achieve one or more specified objectives, such as objectives, content, methods, activities, students, faculty members, the library, equipment, and the educational environment in general. Processes: the set of interactions occurring among the system's input elements in order to obtain the required outputs, such as teaching processes, interaction between instructors and their students, activities, tests, and evaluation methods. Outputs: the final results achieved by the system as a consequence of the processes and interactions among the inputs, chief among them the emergence of a competent, skilled teacher possessing the specifications set out in the objectives. Feedback: the process of analysing outputs in light of the objectives set, to determine the extent to which they have been achieved and to identify the strengths and weaknesses in the various parts of the system »²².

This conception proceeds from the systems entry point, considered one of the most prominent contemporary trends in the design of educational programmes and teacher preparation, viewing the training process as an integrated system whose components interact dynamically to achieve specific objectives. This approach is characterised by comprehensiveness, in that it does not treat the elements of the programme separately but regards each element as both influencing and influenced by the rest, thereby ensuring the coherence and effectiveness of the training process.

The inputs consist of all the human, material, and cognitive resources on which the programme depends, including the educational objectives that define the desired aims, the scientific content presented to trainees, teaching strategies and educational activities, in addition to the trainees themselves, faculty members, and material resources such as libraries, laboratories, equipment, and instructional aids, as well as the educational environment in all its components. These inputs represent the foundation on which the quality of the programme is built, since any deficiency in them is directly reflected in the level of the outputs.

The processes embody the executive dimension of the programme, whereby inputs are converted into actual practices through teaching, field training, interaction between instructor and trainee, applied activities, and various evaluation methods. This stage constitutes the axis of the system, since it translates theoretical objectives into practical educational experiences that contribute to developing the teacher's professional and pedagogical competencies.

The outputs refer to the results the programme achieves once the processes have concluded, and are not limited to the acquisition of knowledge and skills but extend to building a professional character capable of practising teaching competently, making appropriate educational decisions, and adapting to educational developments. Arriving at a teacher possessing scientific, pedagogical, and technological competencies, and able to deploy them in varied classroom situations, is the true indicator of a training programme's success.

Feedback comes as the element that grants the system its capacity for continuity and development, since it is not confined to evaluating trainees but extends to evaluating all the programme's components — objectives, content, teaching methods, evaluation approaches, and material resources. By analysing evaluation results and comparing them against the stated objectives, strengths can be identified for reinforcement and weaknesses for remediation, ensuring the programme's continuous improvement and its capacity to keep pace with educational and epistemic changes.

This conception thus reflects a modern understanding of teacher-preparation programmes, resting on the principle of integration among the system's components and linking planning, implementation, and evaluation within a continuous cycle of improvement and development. It affirms that the quality of teacher training is not achieved through the quality of a single element, but through the harmony and interaction among all elements of the system — leading to the preparation of a teacher who possesses the necessary professional competencies and is capable of responding to the demands of the contemporary school and the rapid developments in the educational field.

The Algerian education system has adopted this latter orientation, regarding the training activity carried out with teachers as a self-contained, integrated system. Its inputs comprise the human and material components, instructional aids, the space designated for the training activity, and its defined time frame; its processes appear in the pedagogical practices and interactions among components, along with all activities occurring among the educational actors within this system; while its outputs are embodied in the desired results, chiefly the improvement of teachers' pedagogical performance and the enhancement of classroom-practice quality.

In light of current challenges, achieving qualitative development in the education system has become essential, and numerous contemporary trends have emerged that have contributed to developing teacher performance and enhancing scientific and professional competence, such as the focus on competency-based training or the integration of technology into training. This training approach confirms that change in any component of the education system inevitably affects the other components, which calls for dealing with the teacher according to his individual abilities, professional inclinations, and training needs, with the aim of improving educational outputs and making optimal use of training inputs in keeping with the demands of the age.

This integrative model thus highlights the importance of the functional interconnection among the elements of the educational system (inputs, processes, and outputs), while affirming that developing any one of them cannot be separated from reviewing the overall structure of the system — reinforcing the idea that effective teacher training should be a dynamic process attentive to the ongoing interaction between the educational context, societal requirements, and the strategic objectives of education.

5. Conclusion

From the foregoing, it is clear that the field of in-service training for middle-school teachers has undergone notable theoretical and practical development, reflected in the multiplicity of orientations and models that have attempted to answer the problem of preparing a competent teacher able to keep pace with the demands of the age. The analytical reading has shown that

competency-based training constitutes an extension of an authentic pedagogical heritage, viewing the teacher from a holistic perspective that brings together cognitive, practical, and affective competencies, while the individual model focused on accommodating the personal differences of both the trainee teacher and the learners, and the skills-based orientation was concerned with breaking teaching down into procedural components amenable to training and measurement.

The research also showed that the functional model came to correct the reductionism that may afflict the preceding orientations, affirming that the teaching profession extends beyond technical competencies to ethical, value-based, and social dimensions, while micro-teaching emerged as a practical training tool offering the trainee teacher an opportunity for experimentation and self-review of his performance in a safe environment. The systems approach, meanwhile, provided a comprehensive framework linking training inputs, processes, outputs, and feedback — the orientation adopted by the Algerian education system in designing its training programmes.

On this basis, it may be said that the problem posed at the outset of the research has found its answer in the multiplicity of theoretical approaches explaining the training process, and in their functional integration rather than their opposition. The research concludes that these trends, despite their differing philosophical and methodological starting points, are complementary rather than contradictory, and that effective training practice is one that draws on the merits of each trend and deploys them in an integrative manner that serves the development of the middle-school teacher's performance and meets the demands of the desired educational quality.

6. Recommendations

The following recommendations are offered at the close of this paper, in the hope that they may be developed further in future research:

1. Design integrated training programmes that combine cognitive, practical, and affective competencies, rather than being confined to a single dimension.
2. Intensify micro-teaching programmes as an effective practical tool for developing trainee teachers' teaching skills before they begin field work.
3. Link theoretical training to field training within educational institutions, ensuring the transfer of knowledge into actual classroom practices.
4. Adopt the systems approach as a reference framework for designing training programmes, ensuring coherence among inputs, processes, outputs, and feedback.
5. Take individual differences among trainee teachers into account when designing training programmes, in keeping with the principles of the individual model of preparation.
6. Strengthen the ethical and value-based dimension in teacher-training programmes, going beyond technical competencies to build the teacher's integrated character.
7. Integrate modern technology into in-service teacher-training programmes, in keeping with the demands and developments of the digital age.
8. Conduct periodic evaluation of in-service training programmes, relying on clear performance indicators that measure their impact on the development of classroom practice.
9. Encourage field-based educational research into the effectiveness of the various teacher-training trends, particularly in the Algerian context and more broadly in the Arab world.

10. Activate partnership between teacher-preparation institutions and educational research centres, to ensure that training programmes are kept up to date with scientific and technical developments.

References

¹Abd al-Rahman ibn Salem, *Al-Marja' fi al-Tashri' al-Madrasi al-Jaza'iri* (Reference on Algerian School Legislation), National Library, Algeria, 3rd ed., p. 313.

²Naji Tammar and Mohamed Roubi, "The Effectiveness of Educational Technology in Training Trainers: The Higher Teacher Training Schools as a Model," *Journal of Educational and Teaching Research*, No. 1, 2012, p. 131.

³Ibid., p. 131.

⁴See: Ibid., p. 132.

⁵Soumia Saadoun, *Lectures on Training Engineering and Training-Program Design*, Belhadj Bouchaib University, Ain Temouchent, 2022, p. 18.

⁶Ghiyath Boufeldja, *The Psychological Foundations of Training*, Dar Al-Gharb for Publishing and Distribution, Oran, 2006, p. 39.

⁸Hamdaoui Wassila, *Human Resource Management*, Publications Directorate, University of Guelma, Algeria, 2004, p. 102.

⁹Qassem Bousaada and Salem Boujemaa, "Teacher Preparation in Light of Contemporary Educational Trends," *Journal of Humanities and Social Sciences*, No. 2, Competency-Based Training in Education Forum, 2011, p. 245.

¹⁰Sanaa Ibrahim Abu Daqqa and Fathia Sobhi Al-Loulou, "An Evaluative Study of the Teacher Preparation Program at the Faculty of Education, Islamic University of Gaza," *Islamic University Journal, Humanities Studies Series*, Vol. 15, No. 1, 2007, p. 465.

¹¹Badriya Al-Mifrej et al., *Contemporary Trends in Teacher Preparation and Professional Development*, Educational Renewal Research Unit, Department of Educational Research and Development, Sector of Educational Research and Curricula, Ministry of National Education, 2007, p. 40.

¹²Ibid., p. 40.

¹³Adeeb Hammadneh, "The Extent to Which Arabic-Language Teachers Possess the Teaching Competencies Required for Teaching Literary Texts at the Secondary Level, and the Extent of Their Practice Thereof in Mafrq Governorate," *Al-Manara Journal*, Vol. 13, No. 1, p. 43.

¹⁴Mohamed Katesh, *The Philosophy of Teacher Preparation in Light of Contemporary Challenges*, Al-Kitab Publishing Center, 1st ed., Cairo, p. 252.

¹⁵Suhaila Mohsen Kadhim Al-Fatlawi, *Individualizing Instruction in Teacher Preparation and Qualification*, Dar Al-Shorouk for Publishing and Distribution, 1st ed., Amman, 2004, p. 22.

¹⁶Lakhdar Chelali, *Evaluation of the Primary-School Teacher Training Program from the Perspective of Students and Instructors*, Master's thesis in Educational Sciences, University of Biskra, Algeria, 2009, p. 58.

¹⁷See Ibid., p. 58.

¹⁸Mustafa Abdel Samie Mohamed and Suhair Mohamed Hawala, *Teacher Preparation*, Dar Al-Fikr, 1st ed., Amman, 2005, p. 27.

¹⁹Ibid., p. 59.

²⁰Mustafa Abdel Samie Mohamed and Suhair Mohamed Hawala, Teacher Preparation, Dar Al-Fikr, 1st ed., Amman, 2005, p. 27.

²¹Mohsen Ali Attia et al., Practical Education and Its Applications in Preparing the Teacher of the Future, Dar Al-Manahej for Publishing and Distribution, 1st ed., Amman, 2008, p. 198.

²²Ibid., p. 198.