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The Algerian School and the Challenge of Digitalisation: Towards Reconstructing the Educational Model

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Abstract

This article examines digitalisation in the Algerian school beyond the mere introduction of digital technologies, focusing on its implications for the reconstruction of the educational model. It explores how changes in knowledge, learning, and artificial intelligence require reconsidering the curriculum, learning pathways, assessment, school space and time, and the roles of educational actors. The study adopts a descriptive-analytical methodology with a critical approach, drawing on relevant academic literature, institutional reports, and studies, with particular attention to the Algerian context. The findings indicate that meaningful digital transformation requires moving from fixed curricula to dynamic ones, from uniform learning pathways to differentiated learning, and from content memorisation to competence development and performance-based assessment. It also requires reorganising school space and time, redefining the teacher's role, and establishing conditions for continuous training, digital equity, and ethical governance. The article proposes a flexible, multi-spatial educational model in which digitalisation serves educational purposes.

Keywords: Algerian school; digitalisation; educational model; artificial intelligence; curriculum; differentiated learning; teacher training; digital equity; ethical governance.

Introduction

The school is entering a context in which the conditions governing access to knowledge are undergoing profound transformation. In the age of digitalisation, artificial intelligence, and the unprecedented expansion of information, knowledge is no longer accessed primarily through the institutional channels that traditionally mediated its acquisition. It is increasingly available through diverse digital environments, at different times and in forms that allow learners to encounter, retrieve, exchange, and even generate information beyond the conventional boundaries of the classroom. This transformation does not merely concern the means through which knowledge is accessed; it also raises questions about the conditions under which learning takes place and about the functions historically assigned to the school.

The changing relationship between learners and knowledge consequently places the school before a problem that cannot be reduced to the adoption of digital technologies. When access to information becomes increasingly extensive and immediate, questions arise concerning the organisation of learning, the structure of the curriculum, the distribution of educational time and space, the role of the teacher, and the forms through which learning is assessed. The emergence of artificial intelligence further complicates this situation by introducing technological systems into activities related to the production, processing, and circulation of knowledge. The issue, therefore, is not simply whether schools should adopt

these technologies, but how their emergence may require a reconsideration of the educational arrangements through which schooling is organised.

From this perspective, the present study is concerned with the relationship between digitalisation and the reconstruction of the educational model. It starts from the observation that technological transformation may affect not only educational tools but also the relationships among knowledge, learner, teacher, curriculum, assessment, time, and space. The question is consequently one of educational organisation as much as one of technological adoption.

Accordingly, the study addresses the following central research question:

How do digitalisation and artificial intelligence call for a reconsideration of the educational model in the Algerian school, and what transformations might this entail for its functions, curriculum, learning pathways, assessment, and educational actors without reducing education to a technological process?

This central question gives rise to a number of subsidiary questions:

- How might the expansion of digital learning environments affect the spatial organisation of schooling?
- How might digitalisation transform the organisation and use of educational time?
- How might the functions of the curriculum and learning pathways be reconsidered under changing conditions of knowledge access?
- How might the role of the teacher be redefined without reducing education to technological mediation?
- What forms of assessment may be required when learning increasingly involves differentiated pathways and digital environments?
- What institutional conditions are necessary for such a transformation within the Algerian educational system, particularly with regard to teacher preparation, digital infrastructure, equity, governance, ethics, and policy adaptability?

To address these questions, the study adopts a critical and analytical philosophical approach with a prospective orientation. The analytical dimension is used to examine the transformations affecting the relationship between school, knowledge, learner, and technology; the critical dimension is directed towards questioning the assumptions underlying established educational arrangements; while the prospective dimension considers possible principles for reconstructing the educational model under emerging epistemic and technological conditions. The study does not seek to formulate a ready-made technological programme, but to examine the conceptual and educational conditions under which the Algerian school might reconsider its organisation and functions.

The study therefore proceeds from the premise that the significance of digitalisation for education cannot be determined solely by the number of technologies introduced into schools. What requires examination is whether changing conditions of knowledge and learning call for corresponding changes in the organisation and purposes of schooling. The subsequent analysis accordingly moves from the educational space, to educational time, then to the distribution of educational functions, the role of the teacher, and finally to the institutional conditions of transition within Algeria. The aim is to consider whether these transformations can contribute to the reconstruction of an educational model capable of responding to contemporary conditions while retaining the human and ethical dimensions of education.

I. From the Transformation of Knowledge to Redefining the Function of the School

1. From the Information Society to the Knowledge Society

The transition from the information society to the knowledge society is not simply a shift from scarcity to abundance, or from slow to rapid information circulation. It represents a transformation in the relationship between human beings and information, and in the role that knowledge plays in shaping individuals and societies. Access to information does not, in itself, constitute knowledge; information acquires the status of knowledge only when it is understood, organised through reflection, and situated within meaningful contexts. The knowledge society therefore extends beyond the possession of information to encompass the capacity to produce, process, and use knowledge for human development (UNESCO, 2005, p. 27).

The information society, in this sense, is characterised by the expansion of processes through which information is produced, circulated, and made accessible, thereby turning it into a significant resource across social and economic life (Tala, 2021, p. 176). The knowledge society, by contrast, is not defined by the abundance of information alone, but by the capacity to produce, mobilise, and reconstruct knowledge in ways that open possibilities for generating further knowledge (Waer, 2023, p. 218). The distinction between the two societies therefore lies not in the volume of available information, but in the nature of the human activity directed towards it: does one merely acquire information, or does one transform it through understanding, critique, and production?

Yet when knowledge becomes embedded in economic imperatives, education itself is increasingly drawn into their logic. Learning is partly construed as an investment in human capital, while learners are expected to renew their competencies continuously in order to remain adaptable to rapidly changing labour markets (Popow, 2026, p. 12). This creates a tension that merits critical examination: learning may risk being reduced from an activity concerned with cultivating the human capacity for thought and judgement to an instrument for sustaining adaptability to market demands.

This tension becomes more pronounced with generative artificial intelligence, as the production of educational content is increasingly accessible through systems operating beyond the boundaries of the school, thereby raising new questions about the school's function in digital environments (García-Peñalvo, 2024, p. 2). The issue, therefore, is not simply whether the school can transmit what technology can retrieve or generate, but whether it can cultivate the capacity to

question, understand, distinguish, criticise, judge, and assume responsibility for knowledge and its uses. The significance of the school consequently lies not in its ability to compete with machines in producing information, but in its capacity to educate human beings capable of directing knowledge and determining the purposes for which it is used.

2. From Acquiring Knowledge to Producing Knowledge

Learning does not reach its educational purpose merely when learners have acquired the body of knowledge prepared for them. Received knowledge acquires educational significance insofar as it becomes, within the learner, a capacity for reflection, action, and contribution. What matters, therefore, is not simply an increase in the learner's stock of information, but a movement from consuming knowledge towards engaging in the epistemic activity through which knowledge is reconstructed and new possibilities of understanding are opened.

This movement begins with critical thinking. Knowledge becomes productive only when learners are able to examine what they encounter, distinguish its strengths and limitations, and ground their judgements in reflection rather than mere acceptance. The study by Hagrais et al. (2015, pp. 348–349) shows that the Creative Problem Solving model brings critical and innovative thinking together and directs learners towards analysing problems and generating alternatives.

Yet knowledge production does not stop at criticising what already exists. It also requires the capacity to generate what is new and to develop alternatives that move beyond familiar solutions. Creativity, alongside critical thinking, problem-solving, and learning to learn, has consequently acquired increasing significance within contemporary conceptions of lifelong learning (Lucas & Venckutė, 2020, p. 7).

This transformation is completed when learners learn how to learn—that is, when they acquire sufficient agency over their own learning to renew their knowledge as its conditions change, rather than remaining confined to what they encountered at an earlier stage. Contemporary curriculum thinking gives particular importance to critical thinking, problem-solving, and learning to learn as capacities needed to respond to an uncertain future (OECD, 2020, p. 9).

Lifelong learning thus becomes a condition for knowledge production rather than merely a temporal extension of education. The learner who learns how to learn does not bring their relationship with knowledge to an end when formal schooling ends; rather, they continue to construct and renew it in response to emerging questions and problems. The school consequently moves from forming a holder of knowledge to forming an agent within knowledge: from teaching what ought to be known to enabling human beings to know how to know, how to learn, and how to produce.

3. The School's New Function

The transformation of the school no longer depends on introducing new digital tools into its institutional structure, but on redefining its function in light of the changing conditions of knowledge and learning. If artificial intelligence is capable of generating answers and processing content, the educational value of the school cannot be measured by the quantity of answers it produces, but by the extent to which it creates the conditions for understanding, judgement, and responsibility. The centre of educational activity should therefore shift from delivering content to organising the learner's relationship with it, and from training learners to retrieve information to enabling them to examine the outputs of intelligent systems and assess their validity. Recent research in the Algerian context indicates that excessive reliance on artificial intelligence may be associated with superficial learning, diminished creativity, and reduced collaborative learning, suggesting that the quality of learning depends on how technology is pedagogically organised rather than merely made available (Kerma, 2025, p. 131).

From this perspective, the school's first function is to serve as a space for human interaction and the formation of values. Education cannot be exhausted in the learner's relationship with a technological tool; it is grounded in dialogue, cooperation, and responsibility. UNESCO stresses that human interaction and collaboration between teachers and learners should remain at the core of education (Miao et al., 2021, p. 27).

Its second function lies in organising complex thinking. As machines assume some routine cognitive tasks, the school must create educational situations that call for examination, synthesis, deliberation, and decision-making. Its third function concerns the organisation of learning pathways, whereby the teacher becomes a designer of learning experiences and an active guide within them rather than a transmitter of fixed content. This direction is consistent with the OECD Teaching Compass, which reconceives teachers as co-designers of learning, adaptive experts, and agents of educational change (OECD, 2025, p. 5).

Its fourth function concerns ensuring equity and quality. The introduction of artificial intelligence without appropriate safeguards may turn differences in the capacity to use such technologies into differences in educational opportunity. UNESCO therefore places the protection of human agency at the centre of the educational use of generative AI, while insisting that its adoption be pedagogically appropriate and remain subject to human control (Miao & Holmes, 2023, pp. 24–25). The school is thus not merely a technological intermediary, but an institution responsible for regulating the conditions under which technology is used, safeguarding learner autonomy and the quality of learning, and ensuring that artificial intelligence remains a means in the service of educational purposes rather than a substitute for them.

II. Reconstructing Curriculum, Learning, and Assessment

1. From a Fixed Curriculum to a Dynamic Curriculum

The challenge posed by digitalisation places the Algerian school before a question that goes beyond the mere incorporation of digital media into educational practice: can the curriculum remain fixed in a world in which knowledge, as well as the means through which it is produced and used, is changing at an accelerating pace? The issue does not lie in the stability of the curriculum's purposes as such, but in the possibility that stability may turn into a closed structure in

which content becomes an end in itself, detached from the transformations surrounding the learner. The curriculum, understood as a conception of the human being, knowledge, and the future, therefore needs to preserve its educational foundations without turning them into a justification for rigidity in its content or modes of implementation.

The reconstruction of the Algerian educational model consequently requires a shift from a curriculum that merely responds to change after it has occurred to one that incorporates change into its own internal logic. This entails embedding periodic review, continuous updating, anticipation, and adaptability within the curriculum itself, so that knowledge and subject matter can be reconsidered in response to scientific and technological developments and related to what learners are able to do with them in new situations. Such a conception accords with Operti's view of curriculum as a dynamic, complex, and collectively developed process rather than a fixed collection of learning materials (Operti, 2023, p. 24).

In the Algerian context, Meraka and Soltane argue that educational curricula should keep pace with contemporary developments and enable learners to develop imagination, critical thinking, analysis, and the capacity to anticipate the future (Meraka & Soltane, 2024, p. 4). Accordingly, digitalising the Algerian school should not mean adding technology to a fixed curriculum; it should mean reconstructing the curriculum itself so that it can accommodate, adapt to, and pedagogically orient digital transformation.

The dynamic curriculum thus becomes one of the constitutive conditions for reconstructing the Algerian educational model: stability in purpose, flexibility in structure, renewal in content, and foresight in orientation.

2. From a Uniform Learning Path to Differentiated Learning

A uniform learning path assumes that differences among learners can be accommodated within a single method and a common pace, even though variations in readiness, needs, and capacity to progress make such an assumption restrictive. Educational equity is not achieved by imposing the same path on everyone, but by ensuring conditions that enable each learner to reach shared educational goals through the path and pace most appropriate to them. Differentiated learning, therefore, represents a shift from a single learning path to multiple pathways without fragmenting the unity of educational purpose. UNESCO notes that personalised learning can allow learners to progress at their own pace, receive individualised feedback, and be directed towards additional learning materials when further support is required, thereby making learning more responsive to individual differences (Liu et al., 2023, pp. 22–24).

Digitalisation opens further possibilities for such differentiation. Artificial intelligence can support the analysis of learners' performance and provide information that may help adapt content, learning activities, and pathways to individual needs. Mahajneh's study of AI-supported personalised learning reports that intelligent systems can analyse learners' performance, strengths, weaknesses, and learning pace, while providing different learning pathways within a common framework of educational objectives (Mahajneh, 2026, pp. 753–754).

Accordingly, reconstructing the educational model in the Algerian school does not require abandoning common curricular aims, but reorganising learning so that pathways may differ without educational purposes being fragmented. Each learner may thus be given greater scope in pace, method, and support, while artificial intelligence serves as an aid to such differentiation rather than as a substitute for the teacher or for the human relationship through which learning acquires its educational meaning.

3. From Content Retention to Competence Development

It is no longer adequate for the school to make the sheer volume of content the measure of successful learning. Knowledge derives its educational value not simply from being possessed, but from the learner's capacity to mobilise and apply it in understanding and action. The transition from content retention to competence development therefore does not entail diminishing the importance of knowledge; rather, it restores knowledge to its proper place—as a resource for action, rather than an end in itself. This orientation is already evident in the competency-based approach adopted within the Algerian school system, which has sought to move beyond the centrality of content towards forms of learning that enable learners to mobilise their acquired knowledge and skills (Berber, 2024, pp. 703–704).

At this point, the very criterion of learning begins to change. What is required is the development of an integrated capacity combining critical thinking, creativity, problem-solving, adaptability, and independent learning. A learner who merely reproduces a ready-made answer remains vulnerable when the conditions of a problem change. A competent learner, by contrast, is able to understand a situation, examine its evidence, generate alternatives, choose among them, and reconsider that choice in light of its consequences. The OECD Learning Compass 2030 places critical thinking, creative thinking, learning to learn, self-regulation, adaptability, and problem-solving within the broader repertoire of competencies required for navigating changing circumstances (OECD, 2019).

Digitalisation adds another dimension to this transformation, one that cannot be reduced to the ability to operate devices. Digital literacy must become part of cognitive competence: searching for information, assessing its reliability, processing data, producing content, and using digital tools to address problems. With the emergence of generative artificial intelligence, this shift becomes even more significant. The OECD's Digital Education Outlook 2026 shows that successful task performance with general-purpose generative AI does not necessarily translate into learning; outsourcing cognitive tasks may weaken engagement and skill acquisition, whereas pedagogically purposeful uses can support learning and foster skills such as critical thinking, creativity, and collaboration (OECD, 2026, pp. 20–21).

Accordingly, reconstructing the educational model of the Algerian school requires moving the learner beyond the possession of a stock of answers towards the capacity to formulate questions, scrutinise answers, construct solutions, and

adapt to what emerges. In this perspective, computer science in primary education should become part of the formation of a mind capable of engaging with digital knowledge, rather than remaining an isolated technical skill.

4. From Final Examinations to Performance-Based Assessment

If the purposes of learning are changing, the means by which learning is assessed cannot remain confined to a logic of final examination that primarily measures what the learner can recall at the end of instruction. Competence is not manifested in the retrieval of information alone, but in the ability to mobilise knowledge in understanding, performance, and the resolution of situations. Assessment should therefore move beyond a purely terminal judgement towards a practice that accompanies learning and makes difficulties visible while there is still an opportunity to address them. This concern is particularly relevant to the Algerian context, where continuous assessment in primary education has been examined as a means of monitoring pupils' learning and identifying difficulties within the learning process (Farah & Taabali, 2018). Such a transformation cannot be achieved simply by multiplying tests. It requires a reconsideration of what assessment is expected to demonstrate. Portfolios, projects, and tasks involving actual performance can reveal the trajectory of learning, while also enabling learners to reflect on, revise, and improve their work. The OECD identifies portfolios and logbooks as means through which learners can reflect on the learning process, while rubrics can help them evaluate, edit, and improve their own work (OECD, 2005, p. 63).

The need for this shift becomes more pronounced with generative artificial intelligence. High-quality final products can now be produced with limited engagement in the learning process, creating the risk that assessment measures technological performance rather than human understanding and skill. The OECD consequently calls for a reorientation towards process-oriented assessment, rather than relying exclusively on final outputs (OECD, 2026, pp. 52–53).

Nor should artificial intelligence itself become an autonomous judge. The OECD notes that AI-generated assessment outputs still require human review to ensure their pedagogical relevance, truthfulness, fairness, and alignment with learning goals (OECD, 2026, p. 55).

Thus, performance-based assessment follows from the logic of reconstructing the educational model: if the purpose is to develop competence, assessment must attend to what learners can do with what they have learned, rather than merely to what they are able to recall.

III: Reorganising Educational Space, Time, and the Roles of Educational Actors

1. From a Single School Space to a Multi-Spatial Educational Model

Under conditions of digitalisation, the school can no longer be conceived solely as a bounded physical space in which learning takes place within the classroom and according to a predetermined schedule. Digital technologies have opened up additional spaces for educational activity, ranging from digital platforms and distance education to virtual environments and simulation. Yet expanding the educational space does not entail abolishing the physical one. Rather, it calls for reconstructing the functional relationship among different learning spaces, so that each fulfils the purposes for which its particular affordances are most appropriate. In the Algerian university context, Ben El Habib and Meni show that hybrid education combines the direct interaction afforded by face-to-face instruction with the flexibility of distance learning, thereby overcoming some of the temporal and geographical constraints of conventional classroom-based education (Ben El Habib & Meni, 2025, p. 569). They further indicate that this mode broadens the scope of learning beyond the boundaries of traditional classrooms (Ben El Habib & Meni, 2025, p. 570).

From a philosophical perspective, however, the digital space should not be understood merely as a new location for transmitting an old lesson. An educational space is constituted by the forms of action, interaction, and knowledge construction that it makes possible. Galamba argues that hyper-hybrid spaces should transcend the simple juxtaposition of physical and digital environments. Rather, they should constitute integrated learning environments in which learners move across contexts and participate actively in the construction of knowledge through interaction with peers, instructors, and digital tools (Galamba, 2025, p. 3).

Accordingly, reconstructing educational space in the context of the Algerian school and the challenge of digitalisation does not mean establishing a virtual school as an alternative to the physical one. It means broadening the very conception of the school into a multi-spatial educational structure, within which face-to-face interaction and digital environments complement one another, while platforms, distance learning, and simulation are integrated into a coherent educational conception.

2. Functional Differentiation Between Face-to-Face and Digital Learning

Educational hybridity does not require face-to-face and digital environments to perform identical functions, nor does it consist simply in transferring a lesson from the classroom to a screen while leaving its underlying organisation unchanged. Rather, it requires assigning each educational function to the space in which its particular conditions can best be realised. Direct physical presence retains particular value when learning depends upon communication, discussion, interaction, and immediate feedback, whereas digital environments provide greater flexibility in accessing resources, organising learning, revisiting materials, and fostering learner autonomy. Jabbar and Fadli found that hybrid learning combines the flexibility of digital platforms with the interactive and communicative advantages of face-to-face instruction, while also placing greater responsibility on learners for managing their own learning (Jabbar & Fadli, 2025, p. 1858).

This differentiation should not, however, be transformed into an absolute opposition between two modes. The educational value of a learning space is determined not by its technological form alone, but by the way educational activity is organised within it. Zhuang et al. (2026), in a natural experiment involving synchronous hybrid instruction, found no statistically

significant direct effect of attendance modality on examination performance. At the same time, student engagement during synchronous sessions played an important role in enabling online students to achieve outcomes comparable to those of their face-to-face peers. Their findings therefore suggest that the effectiveness of hybrid instruction does not arise simply from combining two spaces, but from the quality of interaction and engagement designed within them (Zhuang et al., 2026, pp. 795–809).

Accordingly, the hybridity involved in reconstructing the educational model of the Algerian school should not be conceived as a merely technical mixture of face-to-face and digital instruction. It should be understood as a functional differentiation between them: activities whose educational value depends upon direct human presence should retain a place within face-to-face settings, whereas activities that lend themselves to flexible, self-directed learning and recurrent access to resources may be extended through digital environments. In this way, the digital does not replace the school, nor does the physical classroom become a constraint to be overcome. Rather, the two constitute complementary spaces between which educational functions can be redistributed according to purpose.

3. Reconstructing Educational Time

Educational time is not merely a quantity of hours filled with lessons; it is a mode of organising and directing the activity of learning. Accordingly, reforming the school does not necessarily require extending the amount of time devoted to schooling, but rather reconsidering how that time is organised and used. In some reform initiatives, the reorganisation of school time has been associated with curricular restructuring, the redistribution of learning levels, and the integration of technology as means of reshaping educational practice (Al-Kazouli, 2025, p. 22).

Educational time should therefore be understood not as a container for transmission, but as a resource for learning. Part of this time can be redirected towards discussion, application, projects, experimentation, and self-directed learning. Temporal flexibility does not simply mean extending the duration of schooling; rather, it involves transforming educational time into ‘quality time’, deliberately organised around learners’ needs and allowing timetables and learning units to be restructured in ways that support more flexible and active forms of learning (Mobilio et al., 2025, p. 480). The study by Mobilio et al. explicitly examines the flexible use of school time as a pedagogical strategy, supporting the relevance of this interpretation.

Learning can consequently extend beyond a closed and predetermined school timetable. It may unfold across formal and informal contexts and between learning within and beyond the school, thereby loosening conventional temporal and spatial boundaries. Ma and Wu's study explicitly describes seamless learning as integrating formal and informal learning, as well as on-campus and off-campus learning, and as addressing limitations related to learning time and space (Ma & Wu, 2025, p. 5).

From this perspective, the hybrid dimension may, at the final stage of this reconstruction, provide an organisational structure through which these different temporal arrangements can be distributed without displacing the centrality of the school. Digitalisation thus becomes a means of liberating educational time from excessive transmission and redirecting it towards the construction of learning.

4. Reconstructing the Teacher's Role

Digital transformation does not ultimately confront the school with the question of whether the teacher will remain or be replaced by the machine. The deeper question is what teaching comes to mean when information is increasingly available beyond the person who once occupied a privileged position in transmitting it. The erosion of the teacher's monopoly over information does not entail a decline in the teacher's significance; rather, it calls for a shift from possessing knowledge to organising the conditions through which knowledge becomes meaningful to the learner.

Accordingly, digital competence can no longer be reduced to the ability to operate technological tools. It also involves understanding their affordances and limitations, evaluating their outputs, and determining their appropriateness for particular educational purposes. The National eLearning Center's framework identifies the evaluation of AI tools in relation to their educational objectives and appropriate use as part of teachers' competencies (National eLearning Center, 2025, p. 11). The same framework also places instructional design, adaptive learning, and learner support among the competencies required for effective digital learning (National eLearning Center, 2025, p. 12).

The teacher thus becomes a designer of learning rather than merely an executor of lessons. AI-supported tools can contribute to the analysis of learners' performance and the monitoring of their progress, but the interpretation of such information and the resulting pedagogical decisions remain matters of professional judgement (National eLearning Center, 2025, p. 12). Technology may therefore extend the teacher's capacity to observe and respond to learning without displacing the teacher's responsibility for determining what that information means educationally.

This reconstructed role also presupposes continuous professional development. The National eLearning Center framework treats continuing learning and professional development as essential dimensions of teachers' preparedness for AI-supported digital learning, linking professional growth to continuing learning and adaptation to technological change (National eLearning Center, 2025, p. 13).

Yet the transformation of the teacher's role cannot be reduced to technological competence. Cukurova emphasises that teachers contribute forms of human engagement that AI cannot substitute, including ethical reasoning, critical thinking, empathy, and meaningful human interaction. These capacities remain central to teaching as AI becomes increasingly integrated into education (Cukurova, 2025, p. 6). The UNESCO position paper likewise places teacher agency,

professional autonomy, and ethical judgement at the centre of AI integration rather than treating teachers as replaceable intermediaries.

Thus, the teacher does not lose centrality in the presence of technology; rather, the nature of that centrality is reconstructed: from the centrality of information to the centrality of meaning and judgement—from transmitting what ought to be known to assuming responsibility for how knowledge is acquired, why it matters, and what ought to be done with it.

IV. Conditions for Transition to the New Educational Model in Algeria

1. Reconstructing Teacher Education and Training

The transition towards a new educational model in Algeria cannot be achieved simply by introducing digital media into schools unless the transformation also reaches the structures through which educational professionals are themselves prepared. The issue, therefore, is not merely to add a technology-related unit to teacher education programmes, but to reconstruct teacher preparation as an ongoing professional process whose components evolve as the conditions of educational practice change. Research on teachers' use of artificial intelligence indicates that the competencies required extend beyond technical knowledge to encompass planning, implementation, and assessment, thereby making professional preparation an ongoing process rather than a one-time stage (Haji, 2025, pp. 37–38).

In the Algerian context, this requires moving beyond a centralised and uniform training model towards a more flexible system capable of diagnosing teachers' needs according to educational level, subject specialisation, and existing competency. Training pathways should then be adapted and renewed accordingly. Artificial intelligence should not be treated merely as a separate subject within teacher education; rather, it can become a medium through which teachers learn to design resources, plan learning activities, diversify pedagogical approaches, and reconsider assessment practices. Alshahrani's proposed training programme, for example, integrates selected AI applications with the academic and professional competencies required of secondary-school Arabic-language teachers (Alshahrani, 2025, pp. 483–484). The study itself is explicitly concerned with developing such academic and professional competencies through an AI-based training programme.

This system should also extend to online professional learning and sustained professional support, so that Algerian teachers are not tied exclusively to the place and time of formal training. Lademann et al. demonstrate that online teacher training can combine synchronous and asynchronous formats, including webinars, self-paced modules, and practical projects, and that participation can improve teachers' AI literacy and their readiness to integrate AI into educational practice (Lademann et al., 2026, pp. 5–6, 8). The study's full-text version confirms both the structure of the training programme and the subsequent improvement in AI literacy.

Accordingly, what Algeria requires is not merely the digitalisation of teacher training, but the digitalisation of its underlying logic: continuous, flexible, diagnostic, practice-oriented, and supported by sustained professional accompaniment. Such a system would allow teachers to move from the training room to the classroom, from the classroom to digital learning environments, and back again into professional learning as practice itself generates new needs.

2. Infrastructure and Digital Equity

The readiness of the Algerian school for digitalisation cannot be measured simply by the number of devices introduced into classrooms. More fundamentally, it depends on whether digitalisation can avoid turning connectivity into a privilege and geographical location into an educational destiny. Where digital transformation is not grounded in principles of equity, it may fail to eliminate existing inequalities and may instead reproduce them in technological form. Evidence from the Algerian experience of distance learning points to continuing difficulties in access to technology, particularly those associated with weak infrastructure, connectivity, and geographical disparities (Hemaidia & Bouamer, 2025, p. 158). The cited page directly discusses disparities in Internet access and weaknesses in digital infrastructure in Algeria.

Digital infrastructure should therefore not be understood merely as the provision of devices and networks, but as a material condition of the right to learn. Digital equity begins when learners, irrespective of their socioeconomic or geographical circumstances, can access educational resources under conditions that enable meaningful participation in learning. Comparative OECD evidence identifies digital infrastructure, the funding and procurement of digital resources, and digital equity among the central policy dimensions of successful digital transformation in school education (Boeskens & Meyer, 2025).

This principle also has direct institutional support in Algeria. At the National Conference on Evaluating Digital Transformation in the Education Sector, held on 26 April 2025, the Algerian Ministry of National Education emphasised the need for a comprehensive and effective digital transformation and linked the evaluation of the information system to improving educational services, reducing distances and costs, and ensuring transparency, equal opportunities, and social justice (Ministry of National Education, 2025). The conference was officially held under the supervision of the Minister of National Education and brought together several national institutions concerned with digitalisation, cybersecurity, and personal-data protection.

Accordingly, Algeria's challenge is not digitalising the school alone, but making the conditions of digitalisation equitable. Investment in networks, devices, and platforms must therefore become part of a broader policy of educational equity rather than remain merely a policy of technological provision. Only then can infrastructure become an element of educational justice rather than simply its technical background.

3. Governance and Ethics

The digitalisation of the Algerian school cannot be regarded as complete merely because technology has become present in the classroom; rather, it becomes meaningful when technology remains accountable to human beings. As schools increasingly rely on digital platforms, data, and artificial intelligence, the protection of personal data and cybersecurity can no longer be treated as purely technical concerns. They also become matters of safeguarding learners' dignity and their right to a secure educational environment. The Arab Charter on Artificial Intelligence Ethics identifies digital security and safety, the protection of users and communities, and the protection of privacy and personal data among the guiding principles for responsible AI use. It also links these principles to transparency, fairness, and the clear allocation of responsibilities (Arab AI Working Group, 2025, pp. 33–35).

Accordingly, algorithms should not enter the school as an opaque form of authority, but as tools that remain open to scrutiny, accountability, and human review. The Charter therefore places emphasis on institutional transparency, participatory policymaking, legal and ethical accountability, continuous monitoring and evaluation, and human oversight (Arab AI Working Group, 2025, pp. 37–38).

In Algeria, this orientation also has an institutional basis. The Ministry of National Education has explicitly associated the digital transformation of the sector with the continued development of digital governance and with the protection and improvement of digital services. More recently, the Ministry announced the continuation of the sector's digital transformation project, including the interconnection and exchange of databases between institutions and bodies in order to strengthen governance and improve the quality of digital services provided to the educational community.

Thus, ethics should be understood as a precondition for digitalisation rather than a subsequent restriction upon it. The issue is therefore not simply how to make the Algerian school technologically intelligent, but how to ensure that its use of intelligent technologies remains compatible with privacy, human agency, accountability, and the educational purposes of schooling.

4. Educational Policy and Adaptive Capacity

The Algerian school does not need a new reform every time the technological landscape changes; rather, it needs an educational policy capable of continuous renewal. The issue is not simply to add digital tools to the education system and expect them to remain adequate in a world that changes faster than programmes and regulations can be revised. It is instead to develop educational policy around a continuing capacity for review, evaluation, and adjustment. The OECD's comparative analysis shows that effective digital education strategies are generally associated with mechanisms for implementation, funding, monitoring, and accountability, while strategic coordination remains an important dimension of digital education policy (Boeskens & Meyer, 2025, pp. 11–14).

From this perspective, educational reform in Algeria needs to move from the logic of a time-bound project towards a policy capable of learning from its own implementation. Curricula, assessment instruments, management mechanisms, and digitalisation pathways should therefore be subject to periodic review—not because revision necessarily signifies failure, but because continuing adjustment is part of maintaining the relevance of educational policy in changing conditions. The OECD evidence indicates that digital education strategies are increasingly supported by implementation funding, defined responsibilities, monitoring mechanisms, and accountability instruments, although the extent of formal evaluation varies across systems.

In Algeria, this orientation can be observed in the current reform trajectory. In July 2026, the Ministry of National Education announced the continuation of curriculum updates, the development of pedagogical organisation, and the gradual implementation of structural reforms. It also announced the continuation of the sector's digital transformation project through the interconnection and exchange of databases, with the stated aim of strengthening management governance and improving digital services.

Educational policy should therefore not be conceived as a closed plan awaiting the future, but as an institutional structure capable of learning from it. For the Algerian school, adaptive capacity consequently becomes an important condition for sustaining educational reform in an environment characterised by continuous technological and knowledge transformation.

Conclusion

Renewing the Algerian school does not mean dressing its existing structure in digital clothing and then claiming to have created a new school; digitalisation does not constitute a transformation of the educational model unless it also renews the foundations through which educational practice is organised. What is required, therefore, is not merely to introduce technology into the school, but to reconsider the relationship between the school and knowledge, between the learner and learning, between the teacher and educational practice, and between the institution and the future.

Accordingly, the envisaged model is neither a digital school that replaces the traditional school nor a virtual school that substitutes for face-to-face schooling. Rather, it is a flexible, multi-spatial educational model in which the physical school and digital environments complement one another, with educational activities distributed between them according to the requirements of each learning situation. Within such a model, the curriculum becomes dynamic rather than static, open to revision and renewal; learning becomes differentiated rather than uniform, taking account of differences in learners' readiness, needs, and pathways; and assessment shifts from asking What has the learner memorised? to asking What can the learner do with what they have learned?

Within this configuration, the status of the teacher does not diminish; rather, the teacher's centrality shifts from possessing information to creating the conditions for its acquisition, and from transmitting knowledge to guiding its use and

exercising judgement upon it. Artificial intelligence, likewise, should not be positioned as a substitute teacher, but understood as a tool whose educational value depends on the school's ability to use it appropriately while recognising and regulating its limits. Machines may assist in producing and processing knowledge, but they cannot replace human judgement concerning its meaning, the purposes of its use, and the responsibility attached to it.

The question that should therefore guide educational reform is not How do we digitalise the school?, but rather: How can digitalisation be placed in the service of a school better equipped to educate the human being? It is in this movement from the digitalisation of means towards the reconstruction of purposes, functions, and relationships that the deeper meaning of a new educational model for Algeria is to be found.

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