

Can Digital Education Affect the Educational Setup? A Narrative Literature Review of Initiatives of Digital Education

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Abstract: Digital education refers to the integration of innovative technologies and digital tools in teaching and learning, often termed Technology Enhanced Learning (TEL) or e-learning. This narrative literature review critically examines how digital education initiatives have evolved in Pakistan and evaluates their contribution to transforming the country's educational setup. Drawing on the European Framework for the Digital Competence of Educators: DigCompEdu, the study thematically reviews national and provincial programs, including Digital Pakistan, eLearn Punjab, and NGO-led initiatives, to identify progress, challenges, and policy implications. The review adopts a structured narrative approach using major academic databases (Scopus, ERIC, Google Scholar) and national reports published between 2010 and 2025. Findings highlight that while Pakistan has made notable progress in integrating ICT within education, disparities persist due to infrastructural limitations, policy inconsistency, and limited teacher digital competence. The paper argues that future initiatives should move beyond access-based interventions toward competence-oriented digital inclusion, teacher professionalization, and the localization of digital content. The study concludes by proposing a set of policy recommendations aligned with DigCompEdu's six competence areas to guide sustainable digital transformation in Pakistan's education system.

Keywords: Digital Education, Digital Literacy, Government Initiatives, NGOs, Pakistan, DigCompEdu

INTRODUCTION

The ways of education have evolved with the advent of technology, which is helping to make education more accessible and easier for all. Digital education now represents one of the main global trends in an effort to improve access to learning and its quality. Students living in rural areas often struggle to attend school regularly, and in such circumstances, digital learning tools can enhance equity and accessibility (Sharma, 2023). Thus, the digital technologies have now become ingrained in teaching, learning, and educational management and affect how knowledge is produced and distributed worldwide.

Digital education is understood as internet-based education, which is dependent on electronic devices like mobile phones, computers, tablets, and other sources, with the availability for interaction among students and teachers. Digital learning can be termed as online education, web-based learning, e-learning, or computer-based education (Rani et al., 2021). It is equally referred to as Technology Enhanced Learning-TEL, a purposeful integration of digital tools and pedagogic strategies to enhance learning. Digital education is also defined as the use and incorporation of various digital tools and technologies within the educational environment to enhance learning outcomes and improve learning experiences. This includes software applications, digital devices, and content that facilitate the learning process. The tool uses the capacities of digital tools to make learning more individualized, efficient, and engaging. The key objective of using

digital tools is to provide students with access to a variety of educational resources, activities, and interactive content that extend beyond traditional textbook approaches or classroom instructions (Sharma, 2023).

Digital education is a result of the past few years, though digital education existed slightly earlier in many ways (Danmuchikwali & Suleiman, 2020). It was conceptualized initially in asynchronous mode in 1728 from Boston using weekly letters. In 1992, World War I opened opportunities with challenges, and the courses were broadcast on the radio. In the year 1953, the medium of television was used for educational purposes at the University of Houston. The origin of the World Wide Web and the Internet opened up new doors for educational institutions and universities for online education. In the year 1996, the first executive MBA program was started by Duke University globally. In the year 2008, the first Massive Open Online Course (MOOC) originated, and similarly, Coursera, Udacity, and edX were created in the year 2012, and so on (Kaplan & Haenlein, 2016) and (Rani et al., 2021). However, the use of modern technology, advanced equipment, and advanced means of transmitting information has significantly impacted the growth of digital education. The rapid growth of modern technology has only made this possible (Danmuchikwali & Suleiman, 2020). Universities and educational institutions have been driven towards alternative methods of teaching due to the notable growth of digital technology. The growth has also helped the universities and educational institutions with their broad outreach, now the educational groups are no longer only local but have become global institutions (Nawaz & Quresh, 2010).

While digital education is a global phenomenon, its development in Pakistan has been gradual and uneven. Historically, digital education in Pakistan has evolved through fragmented initiatives. Early efforts such as the National e-Learning Initiative (NELI, 2002) and Virtual University of Pakistan established foundational infrastructures for online delivery. Later, large-scale programs like eLearn Punjab (2014) and Digital Pakistan (2019) attempted to mainstream digital tools within schools and higher education. Alongside government action, several NGOs have experimented with mobile and community-based e-learning solutions. Despite these efforts, though, the issue of digital inclusion still persists because of socio-economic divides, teacher digital competencies, and unequal resource distributions. The struggle to improve the educational system of Pakistan needs improvements in both digital infrastructure and technological advancements in both urban and rural centers. The setup of educational centers in all provinces requires the development of foundations for digital learning, which is accessible to everyone without any difference in age or gender (Javaid A., 2023).

In Pakistan's educational setup, digital transformation is progressing with the promise of a paradigm shift in how we learn. Having many challenges, this digital shift in the education of Pakistan is a strategic step toward a more inclusive and resilient learning environment (CREDP, 2024). This review thus not only identifies major strategies adopted by both government and non-governmental organizations to develop digital education in Pakistan but also interprets these through an analytical framework. Therefore, the study, through a respective application of the European Framework for the Digital Competence of Educators: DigCompEdu, interprets how initiatives align with six competence areas: Professional Engagement, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learners' Digital Competence. This approach has thus enabled a thematic understanding of the digital education landscape of Pakistan, pointing to critical gaps in policy consistency, infrastructure, and teacher training. It also situates Pakistan's progress within the South Asian region.

RESEARCH QUESTIONS

Below are the key research questions that guided this narrative literature review.

1. What are the key strategies adopted by the government, private sector, and non-governmental organizations in Pakistan to promote and sustain digital education, and how do these strategies align with the six competence areas of the European Framework for the Digital Competence of Educators: DigCompEdu?

2. What are the major challenges, technological, pedagogical, and policy-related, that constrain the effective implementation of digital education initiatives in Pakistan?
3. How do existing digital education initiatives in Pakistan relate to regional practices in South Asia, and what are the lessons to be learnt for future digital transformation in education?

METHOD

This paper has applied the narrative literature review approach to identify the key themes and trends in the literature on this topic. The method helped to identify and discuss the key results of this paper. The narrative literature review, according to [Baumeister & Leary \(1997\)](#), can be understood as an approach that helps provide a detailed summary and synthesis of a specific topic from existing literature by focusing mainly on the identification of themes, trends, and gaps. This review paper considered this method of literature review because it is widely used in the field of education and helps provide a broader understanding of the topic.

The paper has followed a structured five-step review process to maintain methodological transparency:

1. **Literature Search and Selection:** Searches were conducted in Scopus, Google Scholar and online sources between January and March of 2025, supplemented with national reports and NGO publications to include both academic and policy sources.
2. **Keywords and Search Strings:** Some of the keywords used were “digital education,” “digital learning initiatives,” “ICT in education,” “e-learning programs,” “digital literacy,” and “teacher competence,” which were often combined with “Pakistan” and “South Asia.”
3. **Time Frame and Inclusion/Exclusion Criteria:** The review targeted studies from 2010 through 2025. Sources selected for review included peer-reviewed articles, official reports, and English-language policy documents related to digital education in Pakistan. Those studies not related to education or lacking conceptual depth were not included.
4. **Data Extraction and Synthesis:** Relevant documents were manually coded under recurring themes of initiatives, challenges, and outcomes. These were subsequently categorized following the areas of the European Framework for the Digital Competence of Educators: DigCompEdu; Professional Engagement, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learners' Digital Competence.
5. **Analytical Approach:** The review stressed a comparative synthesis whereby the studies reviewed were analyzed for patterns and contradictions to glean an understanding of how stakeholders contribute towards the building of digital competence to attain inclusive education. This approach marries the narrative review's descriptive flexibility with structured interpretive rigor, hence allowing for a balanced and analytical review of the digital education landscape in Pakistan.

RESULT AND DISCUSSION

This paper presents the findings thematically, informed by the European Framework for the Digital Competence of Educators: DigCompEdu. Each subsection links to one or more of the six competence areas, therefore demonstrating multiple dimensions of digital education in the initiatives and challenges within Pakistan.

The findings address the three research questions directly.

Role of Digital Technology in Education (Teaching and Learning Competence)

The world is changing rapidly; digital landscapes are evolving at a rapid pace with new tools, strategies, and technologies emerging daily. Now, it has become essential in this rapidly changing scenario to stay informed about the best practices and latest trends in the digital world, and this is where digital learning arises ([Mistry, 2023](#)). The globalization of education has already highlighted the need for digital technologies. An online platform was already available to conduct classes, share resources, perform assessments, and manage day-to-day academic activities in educational institutions. However, the usage of these platforms was so proactive ([Seale et al., 2021](#)).

The COVID-19 pandemic accelerated it and forced institutions globally to adopt online teaching to sustain their existing educational systems. Digital technologies have played the role of protector or savior of education in critical times of the pandemic (Javaid et al., 2020). Global crises like COVID-19 highlighted the need for global integration of the educational systems (Lagrange et al., 2021). The abilities of students for their future careers, like thinking, structure creation, problem-solving, and process comprehension, are assisted by digital technologies (Dufour et al., 2010).

In the context of Pakistan, only partial advantages are realized from these. Most institutions use digital technologies as delivery tools rather than pedagogical innovations to update teaching-learning practices. Teaching and learning practices remain essentially teacher-centered, with little evidence of critical thinking, collaborative learning, or project-based pedagogy (Sahito et al., 2025). This constitutes limited progress on the “Teaching and Learning” area of DigCompEdu in which educators design learner-centred digital experiences. The pandemic made it clear that while many universities in Pakistan could shift their lectures online, few could continue providing interactive, or assessment-based online learning.

Digital tools and educational resources help make the teaching process more compelling and improve the classroom atmosphere. Additionally, digital education tools give greater flexibility to educational institutions in terms of customizing their curriculum based on the requirements of each student (Kryukov & Gorin, 2017). Traditional classroom instruction often falls short of providing a faster learning environment, immediate feedback, and a more engaging learning experience. In contrast, digital learning tools and technology fill this gap. Traditional learning methodologies cannot match the efficiency of modern learning technologies (Vakaliuk et al., 2021). The general public likes the use of wireless technology and smartphones; in this age, making efficient use of these technologies makes sense in educational institutions or schools. Learning has become more appealing to future generations because of the adaptability of technology and the non-intrusive nature of change in education (Cavas et al., 2009).

In online educational settings, students' responses are quicker and easier due to the ease of access via clicker devices like smartphones. It helps teachers assess students' learning quickly and determine where more explanation is needed (Biletska et al., 2021). The integration of technology and education helps students achieve better engagement and learning experiences, allowing them to be more interested in any subject area without facing potential distractions (Akbaba-Altun, 2006). The utilization of computers, projectors, and other such technologically advanced accessories in classrooms might help students by fascinating them and becoming a source of students' entertainment in education (Mikre, 2011). The incorporation of technological resources in classes, group participation, and oral presentation might bring engaging and dynamic learning to the students; verbal interaction may also increase with such participation (Perraton, 2006). The integration of technology into Pakistani classrooms is a growing trend, with increasing adoption by private and higher education institutions due to government policy, a need felt for updated education, and post-pandemic changes. However, this integration remains highly uneven, with challenges including inadequate and inconsistent infrastructure, insufficient teacher training, and a deep digital divide between the public and private sectors. As such, technologies being implemented include interactive boards, online learning platforms, and digital tools; however, infrastructure and resource limitations continue to prevent widespread adoption in public schools (Ahmad et al., 2024; Khan et al., 2018).

This subsection summarises the answer to RQ1 by demonstrating that the transformation in teaching and learning in Pakistan has remained at the introductory stage: technology is being used, but not pedagogically embedded. It justifies RQ2, in that limited digital competence among teachers constrains the effective translation of tools into learning outcomes.

Initiatives of Digital Education in Pakistan (Professional Engagement and Digital Resources Competence)

Pakistan has the most significant proportion of the workforce in the world, with a population of nearly 235.8 million (Data Commons, 2024). A report by UNICEF shows that about

22.8 million children ages 5-16 in Pakistan are out of school. The number of children who can either write or read, resulting in labelling these children as uneducated or illiterate (Siddiqui, 2022). Pakistan had digital literacy initiatives and was working on an approach pre-COVID era, but COVID compelled it to speed up the digital tools for education to provide online learning to students during the pandemic (Abbas et al., 2019).

The government's increased focus on integrating Information and Communication Technology (ICT) into the country's mainstream education system is one of the most critical developments in the digital education sector of Pakistan. The importance of ICT has been emphasized by the Education Policy 2017, which has a particular focus on the integration of digital education in each school by focusing on the measures for digital education in classrooms (Government of Pakistan, 2017). Several initiatives have been implemented as a result of this policy framework to promote digital education in the country; the "Digital Pakistan" vision is one of those initiatives, launched in 2019. This vision aims to digitalize various sectors, and education is one of those sectors through the promotion of the usage of technology for improving the outcomes of education and expanding the quality of education access to everyone (Government of Pakistan, 2019).

The provinces take regional initiatives. A project named "eLearn Punjab" is one such initiative. This initiative was taken by the Punjab Information Technology Board (PITB) years back in the year 2014 (Express Tribune, 2023). This initiative has been appreciated due to its potential to transform the traditional education system and provide it with interactive and engaging content to enhance learning experiences. According to Ali et al. (2023), this initiative has helped students improve their conceptual development. The Sindh government's initiative, "Sindh School Education Standard and Curriculum Authority" (SSESCA), also includes components of e-learning to digitalize the curriculum content and provide digital resources for teachers and students (School Education & Literacy Department, 2015). There are examples of initiatives from other provinces also, like the "Balochistan Education Project," which focuses on increasing the usage of digital devices for improved learning of students (Secondary Education Department of Balochistan, 2015). And also, "Khyber Pakhtunkhwa IT Board (KPITB) Digital Youth Summit" aims to integrate technology into mainstream education as well as build digital skills among youth (Khyber Pakhtunkhwa Information Technology Board, 2017). From the perspective of DigCompEdu, such policies and initiatives relate to two competence areas: "Professional Engagement" and "Digital Resources". They illustrate a strong commitment at the policy level but weak coordination and monitoring at the institutional level. Often, the implementation is fragmented across various provinces, with an absence of unified digital standards and teacher training mechanisms. This finding addresses RQ1, demonstrating that the strategy of Pakistan is policy-rich but practice-poor, an imbalance that acts as a barrier toward systemic digital transformation.

Private sector and non-governmental organizations (NGOs) have also made significant contributions to digital education in Pakistan, particularly in rural and remote areas. The Citizen Foundation, a leading institution in education, has made efforts to promote digital literacy in various ways, including the launch of digital learning programs to provide access to quality education in remote areas (Ahmad, 2024). Teach the World Foundation focuses on mobile learning and on providing children in remote areas with learning tools to support basic literacy through digital platforms. Other NGOs like Idara-e-Taleem-o-Aagahi (ITA), Developments in Literacy (DIL), CARE Foundation, and Akhuwat Foundation have integrated digital components into their programs (Farooq & Nauman, 2023). These examples provide evidence of cross-sectoral engagement and increasing collaboration, but also point to structural disparities in access to digital resources. The NGO-driven initiatives tend to be small-scale and project-based, which limits the potential for long-term sustainability. The DigCompEdu "Digital Resources" area necessitates institutional mechanisms for the creation, sharing, and curation of digital materials-a practice not yet common in Pakistan.

Challenges to Digital Education in Pakistan (Empowering Learners and Facilitating Learners' Digital Competence)

The education sector of Pakistan has been facing various challenges. The challenges to the overall education sector have different aspects and consequences. The common challenges include the low budget for education, lack of resources, corruption in the education system, lack of teacher training, lack of access to education in remote areas, and many other challenges (LearnOBots, 2023). Digital education in Pakistan has specific challenges. Table 1 in the original text summarizes key barriers including poor access, power load-shedding, internet connectivity, policy inconsistency, and poor teacher preparation.

Table 1. Key Challenges to Digital Education in Pakistan

Key Challenge	Causes	Description	Citation
Poor Access	Digital Divide	The digital divide highlights inequalities and impacts Pakistan's access to technology, development, and well-being. This gap is wider, and it is important to fill it.	(Shair et al., 2023)
	Electric Loadshedding	The power cut or electric load-shedding has a greater negative impact on students' learning capabilities and access to learning properly. Electrical load shedding has damaged the country's basic education system and significantly impacted digital education.	(Mashiyane Et al., 2024; Malik et al., 2022)
Issues of Connectivity	Connectivity in Remote Areas	In addition to the major cities and developed areas, remote areas often have poor or no internet access. This results in students and teachers having no access to digital education resources.	(Ahmed, 2024)
	Internet Shutdown	The frequent closure of the internet results in economic losses and also impacts the education sector as a whole, leading to adverse effects on students' learning. The closure or slowdown of the internet speed has a similar impact.	(Express Tribune, 2023; Aftab, 2024)
Issues of Policy and Governance	Inconsistency in Policies	Frequent shifts in priorities and inconsistent policies in education lead to instability and hinder the long-term development of education, which also impacts digital education within the broader education scenario.	(Zulfiqar, 2023)
	Poor Allocation of Funding and Resources	Insufficient funding and the misallocation of resources are among the leading issues in the educational sector in Pakistan. An assessment of the ADB Digital Education Readiness Framework shows that Pakistan is the least prepared country for providing digital education.	(Zulfiqar, 2023)
Less interaction and Poor Language Knowledge	Less interaction in e-learning	Digital technology has positive impacts, but at the same time, traditional societies like Pakistan prefer face-to-face interaction. In some modes of digital learning, like e-learning, there are negative impacts on learning approaches.	(UeCampus, 2023)

Poor understanding of other languages	The dominance of English in the education sector has influenced various aspects of education, similar to digital education. Learners experience difficulties in e-learning and other forms of digital education, and face challenges in understanding due to their limited knowledge of English.	(Yaman, 2015)
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While the descriptive challenges have been well-documented, these issues are suggested to intersect across three major levels.

1. Infrastructure-level barriers: power supply, connectivity, digital divide;
2. Institutional barriers (inconsistent policy and funding, weak governance); and
3. Human-capacity barriers: limited digital skills among both teachers and students.

These challenges map directly to “Empowering Learners” and “Facilitating Learners’ Digital Competence” in DigCompEdu. Examples:

- The lack of reliable electricity and internet access limits learners’ empowerment.
- Limited teacher training prevents the facilitation of learners’ digital competence.
- Barriers in language and content localization gaps further restrict inclusion.

Hence, RQ2 is addressed: Digital education challenges in Pakistan are multilevel and systemic, not isolated technical problems; their solution needs an integrated approach in the realms of policy, infrastructure, and pedagogy.

Comparative Reflection: Lessons from South Asia (Cross-Competence Analysis)

Across South Asia, distinct but often converging paths have been pursued to integrate digital education into mainstream schooling. India’s Digital India initiative of 2015 and SWAYAM platform have expanded open-educational resources and digital connectivity nationally, connecting universities and their learners through MOOCs and cloud-based libraries (Shokeen & Ishita, 2024). Such policies demonstrate much potential in furthering the “Professional Engagement” and “Digital Resources” areas of the European Framework for the Digital Competence of Educators: DigCompEdu, encouraging cross-state collaboration and sharing of digital content. In contrast, while Pakistan’s initiatives, such as eLearn Punjab and the Digital Pakistan Vision 2019, share similar ambitions, practice remains fragmented and uneven across provinces, a consequence of weaker institutional coordination and teacher digital training (Ali et al., 2023).

Bangladesh’s Digital Bangladesh Vision 2021 has placed emphasis on inclusion and access through community ICT centres and mobile learning platforms, thus directly contributing to the “Empowering Learners” competence. Government-supported projects like MuktoPaath and a2i Program have provided self-paced courses for teachers and citizens (Centre for Policy Dialogue, 2007). There are serious efforts taken by Pakistan with collaborations of different organizations and stakeholders to increase the accessibility of ICT, while with persistent gender and regional disparities in access to devices, connectivity, and localized learning content (Zuberi, 2024). As such, the comparison may suggest that while Pakistan’s policy intent is strong, its operationalization of inclusive and locally adapted digital education remains limited (Zubairi et al., 2022).

Regional trends further reveal that most of the South Asian initiatives are oriented toward technological access rather than pedagogical transformation. India and Bangladesh have quickly surged ahead in terms of gains in infrastructure, but both still grapple with the preparation of teachers and formative assessment practices (Neupane & Joshi, 2022; Aziz, 2020). While Pakistan also demonstrates this pattern, it has a deeper gap in “Teaching and Learning” and “Facilitating Learners’ Digital Competence”, where the integration of digital tools into classroom pedagogy and professional development for teachers remains emerging.

Collectively, the comparison across South Asia points out three important lessons for Pakistan:

1. Creating a nationally coordinated digital education platform to consolidate provincial initiatives and standards.
2. Enhancing inclusive access and localisation of content, coordinated with community-based approaches.
3. Investing in teachers' digital pedagogy and formative digital assessment to close the gaps in the "Teaching and Learning" and "Assessment" competencies.

These lessons address RQ3 by locating Pakistan within a broader regional setting and provide evidence-based directions for its competence-oriented digital transformation.

CONCLUSION

The paper identifies that though digital education in Pakistan is on its way, it is very uneven, and there are sharp gaps between policy formulation and execution on the ground. While national and provincial programs have launched a host of digital learning platforms, translation of these tools into pedagogical transformation and learner empowerment remains limited. Based on the European Framework for the Digital Competence of Educators: DigCompEdu, this review identified six competence areas for assessing progress in Pakistan: Professional Engagement, Digital Resources, Teaching and Learning, Assessment, Empowering Learners, and Facilitating Learners' Digital Competence. The analysis showed that while "Professional Engagement" and "Digital Resources" are moderately advanced, "Assessment" and "Facilitating Learners' Digital Competence" remain the weakest.

This review finds that the present government has pursued several programs and policies, such as Digital Pakistan Vision 2019, eLearn Punjab, and NGO-driven efforts like Teach the World Foundation to fortify the digital learning ecosystem. Yet, these initiatives still face issues in regard to insufficient infrastructure, inadequate teacher digital literacy, and insufficient content localisation. If targeted investment is not undertaken in building teacher competence, continuous professional development, and curriculum alignment, the risks persist that Pakistan's digital transformation may remain surface-level and not systemic.

These findings, from a policy standpoint, underscore three strategic priorities, including establishing a nationally coordinated digital learning framework that unifies provincial efforts and integrates teacher digital training, expanding inclusive access through rural connectivity, gender-sensitive programs, and local language content, and embedding digital pedagogy and assessment reform into teacher education and school accreditation systems. These would comprehensively impact and improve Pakistan's performance in all six DigCompEdu competence areas by transforming the current access-driven model into a competency-driven system.

Such future research should be focused on empirical evaluations of the digital education initiatives at the provincial level, longitudinal studies related to teacher digital competence, and comparative assessments with other developing regions. It is research that will help in evidence-based policymaking and support the creation of a sustainable digital learning ecosystem in Pakistan.

POLICY AND PRACTICE IMPLICATIONS

The development of digital education in Pakistan requires an integrative approach across infrastructural, pedagogical, and policy domains. Based on the findings of this review and the European Framework for the Digital Competence of Educators: DigCompEdu, five integrated directions have been suggested for policymakers, educators, and non-academic partners. These implications highlight a movement from access-oriented interventions toward competence-based digital transformation.

Strengthen Teacher Professional Engagement and Digital Competence

Digitally competent teachers are at the heart of sustainable digital transformation. Government and educational institutions should integrate continuous CPD in digital pedagogies, formative assessment, and content curation. Provincial training institutes like the Directorate of Staff Development and Teacher Education Institutes could work with universities to implement an

organized module of digital skill-building. Encouragement and nurturing of communities of digital practice across provinces could catalyze peer learning and resource sharing.

Expand and Localize Digital Learning Resources

Access to quality, localised, and contextualised digital resources is of vital importance. A single National Digital Learning Repository must be created that incorporates the various provincial learning platforms, such as eLearn Punjab and Sabaq.pk. Open Educational Resources (OER) should be developed in Urdu and regional languages to promote inclusion. Quality assurance standards should ensure that content is aligned with the national curriculum, including the DigCompEdu “Digital Resources” competence area.

Ensure Inclusive Access and Learner Empowerment

The digital divide will be bridging through targeted interventions that widen internet coverage and device access in underserved regions. Government and NGOs can collaborate to establish Community Digital Learning Hubs, particularly for female and rural learners. In examples like Digital Pakistan, programs will ensure the inclusion of affordability schemes through subsidized devices, educational data packages, and solar-powered ICT labs that promote equitable participation. These actions directly further the “Empowering Learners” and “Facilitating Learners’ Digital Competence” domains of the framework.

Reform policy and governance structures

A national coordination mechanism should be established to align all the provincial digital education strategies and to standardize digital pedagogy all over Pakistan. It can take the shape of the National Digital Education Council, NDEC, which connects the ministries, provincial education departments, and private sector partners. Such coordination will ensure monitoring of competence-based outcomes rather than merely technological deployment. Integration with the European Framework for the Digital Competence of Educators: DigCompEdu can also facilitate benchmarking with international best practices and guide evidence-based reform.

Foster Public–Private Partnerships and Innovation Ecosystems

Collaborative efforts among the public sector, NGOs, and the private technology industry can help accelerate innovation in the field of education technology and teacher-support platforms. Offering incentives to local startups and enterprises for the design of low-cost devices, adaptive learning software, and AI-assisted feedback mechanisms would further cement the country's innovation pipeline. The private sector can also contribute to national repositories and teacher training with their expertise and infrastructure to help build a more resilient and scalable digital education ecosystem.

Collectively, these five strategic directions reflect the six competence areas of European Framework for the Digital Competence of Educators: DigCompEdu and underline capacity-building, inclusivity, and institutional coordination. Implementation will help the country move from fragmented digital adoption to a coherent, competence-driven educational transformation.

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