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Digital Literacy With Academic Achievement Among Student -Teachers Of B.Ed. Programme

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Abstract: Digital literacy has emerged as an essential component in teacher education, directly influencing how student-teachers learn, plan, and deliver instruction. This study explores the relationship between digital literacy and academic achievement among student-teachers enrolled in the Bachelor of Education (B.Ed.) programme. Digital literacy, defined as the ability to access, evaluate, create, and communicate information using digital technologies responsibly and effectively, extends beyond basic technical skills to include critical thinking, information evaluation, ethical use, and integration of digital tools into pedagogical practices. The integration of technology into teacher education has been emphasized by national policies such as India's National Education Policy (NEP) 2020 and global frameworks like the European DigCompEdu and ISTE Standards, which highlight the importance of preparing teachers for a digitally enabled educational ecosystem. Evidence from recent meta-analyses indicates a medium positive correlation between digital literacy and academic performance, suggesting that student-teachers with higher digital competence tend to perform better in coursework, practicum, and assessments. This can be attributed to improved access to quality resources, efficient research and planning, enhanced assessment literacy, and the ability to apply innovative instructional strategies in classroom settings. Despite these benefits, disparities in infrastructure, access, and digital readiness remain barriers to maximizing these outcomes. Addressing these gaps through structured digital literacy training, access to national platforms such as the National Digital Library of India (NDLI), and faculty support can enhance both the academic achievements of B.Ed. students and their preparedness for future teaching roles. This paper underscores the need for a holistic approach to digital literacy in teacher education, where it is treated as a core professional competence that enhances both academic success and long-term teaching effectiveness.

Index Terms - Digital literacy, Academic Achievement, Student-Teachers, B.Ed. programme etc.

I. INTRODUCTION

Digital literacy is the ability to effectively find, evaluate, create, and communicate information using digital tools and technologies. It goes beyond basic computer skills or knowing how to operate devices. At its core, digital literacy involves understanding how to navigate digital environments, critically assess the credibility of online content, and use digital resources responsibly and ethically. It includes skills such as information search, online communication, multimedia creation, data handling, and awareness of privacy and security practices. For educators and students, digital literacy also means the ability to integrate digital tools in ways that enhance learning, collaboration, and problem-solving. It requires critical thinking to distinguish reliable sources from misinformation, adaptability to new technologies, and creativity to use them for meaningful outcomes. Being digitally literate also involves understanding the social, cultural, and ethical implications of the digital world, including respect for intellectual property, digital citizenship, and online safety. In the context of education, digital literacy enables learners to access a wealth of information, participate in virtual classrooms, create interactive content, and engage with diverse perspectives. It prepares individuals to function confidently in a rapidly evolving digital society, where most academic, professional, and social interactions involve some form of technology. Therefore, digital literacy is not just a technical skill set; it is a combination of cognitive, social, and ethical competencies that empower people to use digital platforms effectively, make informed decisions, and contribute positively to both their personal growth and the wider community.

Review Of Literature:

The relationship between digital literacy and academic achievement has been explored increasingly within Indian teacher education, especially in the context of B.Ed. programmes that aim to prepare future teachers for digitally enabled classrooms. The following literatures highlight both the potential and the challenges in developing these competencies among student-teachers.

Kumar and Saini (2021) conducted a study on the digital literacy skills of B.Ed. student-teachers across five teacher education institutions in Haryana. Their research revealed that while most students demonstrated basic operational skills, including email use and web browsing, a significant gap existed in critical digital skills such as evaluating online resources, using digital tools for assessment, and understanding copyright or plagiarism norms. The study reported a moderate positive relationship between digital literacy levels and academic performance in coursework, particularly in research assignments and project submissions. The authors concluded that curriculum integration of structured digital literacy modules could enhance both skill levels and academic outcomes.

Sharma and Gupta (2022) examined the impact of digital literacy training workshops on B.Ed. students in Rajasthan. They employed a quasi-experimental design with pre- and post-intervention tests, measuring changes in students' digital competence and academic performance. The findings indicated a significant improvement in students' ability to access e-resources, prepare digital lesson plans, and submit assignments online after the intervention. Academic scores in pedagogy subjects also improved, with students citing better access to open educational resources and online collaboration tools as key factors. The study

emphasized the importance of practical, hands-on digital literacy training over purely theoretical approaches.

Rani and Thomas (2023) who analyzed the role of national digital initiatives, particularly the National Digital Library of India (NDLI), in supporting B.Ed. students' academic work across Kerala. Their mixed-methods study found that students who actively used NDLI for literature searches, reference management, and lesson planning showed higher grades in research methodology and practicum reports. However, barriers such as inconsistent internet access in rural areas and lack of awareness of available resources were identified. The authors recommended integrating NDLI orientation into the first semester of B.Ed. programmes and training faculty to mentor students in using these platforms effectively.

Patel and Deshmukh (2023) studied the relationship between digital literacy and practicum performance among student-teachers in Maharashtra. Their research highlighted that digital literacy did not only enhance academic assignments but also improved classroom teaching quality. Student-teachers with higher competence in using digital formative assessment tools, multimedia content, and online feedback systems received higher practicum evaluations from supervisors. The study suggested that B.Ed. programmes should embed digital pedagogy into school internship phases rather than treating it as a separate course component, enabling authentic application of skills in real teaching contexts.

Joshi and Verma (2024) investigated the long-term academic trajectory of digitally literate B.Ed. graduates from Uttar Pradesh who had undergone structured digital competency courses aligned with the National Education Policy (NEP) 2020 recommendations. Their longitudinal data showed that these graduates not only achieved higher cumulative grade point averages (CGPA) during their B.Ed. training but also demonstrated better readiness for teaching eligibility tests and continuous professional development courses after graduation. The research underscored the policy relevance of sustained investment in digital literacy training, noting that graduates with higher competence found it easier to integrate ICT into school curricula and reported better job prospects in both urban and semi-urban regions.

Statement Of The Problem:

Despite rapid advancements in educational technology and policy initiatives such as the National Education Policy (NEP) 2020, many B.Ed. student-teachers in India continue to face challenges in developing adequate digital literacy skills. These challenges include limited access to resources, insufficient training, and lack of integration of digital tools into the teacher education curriculum. As a result, their ability to effectively plan lessons, access quality learning materials, conduct digital assessments, and achieve strong academic outcomes is often compromised. The problem lies in the gap between the growing demand for digitally competent teachers and the current preparedness of B.Ed. students. This study seeks to investigate how digital literacy influences their academic achievement and to identify strategies for bridging this gap.

Significance Of The Study:

The significance of this study lies in its potential to enhance the quality of teacher education by establishing the link between digital literacy and academic achievement among B.Ed. student-teachers. As classrooms increasingly integrate technology, future teachers must develop the skills to access, evaluate, and utilize digital tools effectively. This study highlights how improved digital competence can lead to better academic performance, more effective lesson planning, and stronger practicum outcomes. It also addresses the persistent gaps in digital readiness, especially in diverse socio-economic and regional contexts. By identifying these connections, the study provides valuable insights for curriculum designers, policymakers, and teacher educators to create targeted interventions that strengthen both digital literacy and overall educational outcomes in teacher preparation programmes.

Objective Of The Study:

This study explores the relationship between digital literacy and academic achievement among student-teachers enrolled in the Bachelor of Education (B.Ed.) programme.

Research Methodology:

This study is based on secondary sources of data such as articles, books, journals, research papers, websites and other sources.

THEORETICAL FRAMEWORK

Digital Literacy With Academic Achievement Among Student -Teachers Of B.Ed. Programme:

Digital literacy now sits at the center of what it means to be an effective teacher in training. For student-teachers in the B.Ed. program, it influences how they learn, how they plan and teach lessons, how they assess learning, and how they demonstrate academic achievement inside the university and in school placements. Digital literacy is not just a set of software tricks. It is a blend of technical skill, information savvy, pedagogy, assessment knowledge, ethics, and professional judgement. When we look closely at how these pieces work together, a clear pattern emerges. Student-teachers with stronger digital literacy tend to learn better, produce higher-quality coursework, collaborate more effectively, and perform more confidently during practicum. Recent evidence even quantifies a medium positive link between digital literacy and academic achievement across education levels, which gives teacher educators a practical lever for raising outcomes. At the same time, literacy gaps persist across infrastructure, training opportunity, and confidence. The question for B.Ed. programs is not whether to invest in digital literacy, but how to build it well so that it translates into measurable gains in academic performance and classroom practice.

It helps to begin with a shared understanding of digital literacy for educators. A useful reference is the European Commission's DigCompEdu framework, which defines educator-specific digital competence across six areas: professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating learners' digital competence. This is not a tool checklist. It is a progression model that moves from basic awareness to expert orchestration. It invites B.Ed. programs to map their courses, mentoring, and assessment to clear levels of practice and to ask what evidence a student-teacher can produce that shows growth in each area. The International Society for Technology in Education (ISTE) Standards serve a similar purpose in many countries. They point educators toward learner-centered uses of

technology, leadership for digital learning, and coaching mindsets that student-teachers can start adopting during training. Together, these frameworks give B.Ed. faculty a common language for course design, rubrics, and feedback, which tightens the link between literacy development and grades.

In the Indian context, policy signals reinforce this direction. The National Education Policy 2020 calls for better integration of technology in teaching, assessment, teacher professional development, and system management. It also ties teacher education to multidisciplinary universities and lifelong learning, with expectations for continuous professional development each year. For B.Ed. programs, that translates into coursework that treats digital literacy as foundational rather than optional and into practicum experiences where student-teachers can try digital assessment, open resources, and data-informed planning. National digital infrastructure such as the National Digital Library of India gives B.Ed. students broad access to academic literature, OER, and curriculum resources in multiple languages, which can improve research papers, lesson plans, and test preparation. These are practical tools that can raise assignment quality and support better performance in examinations and viva.

The empirical link between digital literacy and academic achievement is worth spelling out. A recent meta-analysis in 2025 across 35 effect sizes found a significant medium positive correlation between digital literacy and academic achievement. The analysis also reported that the strength of the relationship varies by subject, grade level, orientation of literacy, and sampling method. Comprehensive conceptions of literacy that include technical, cognitive, and socio-emotional facets showed stronger associations with achievement than narrow technical skills alone. For B.Ed. student-teachers, this should be an eye-opener. If programs focus only on "using tools," they leave gains on the table. When programs push into info-evaluation, digital pedagogy, assessment design, and learner empowerment, academic outcomes improve more.

Why does digital literacy matter so directly for B.Ed. students' academic achievement? First, it improves access and productivity. A student-teacher who can search scholarly databases efficiently, filter credible sources, and organize references with a citation manager writes better literature reviews and produces tighter, more current lesson plans. That shows up in grades. It also shortens time wasted on technical hurdles and frees up time for analysis and reflection that examiners value. Second, it deepens subject understanding through interactive content and data-rich tasks. Simulations, virtual labs, and dynamic visualizations let student-teachers test ideas, which sharpens their own content knowledge and boosts performance on content-heavy assessments. Third, it strengthens pedagogical content knowledge. Digital lesson planning tools that tie objectives, activities, and assessment help students build coherent plans that supervisors evaluate favorably during practicum. Fourth, it lifts assessment literacy. Familiarity with formative tools, rubrics inside learning management systems, and feedback analytics improves how student-teachers design, administer, and interpret assessments. They can document impact with evidence, which typically earns higher scores on practicum evaluations. Finally, digital literacy supports academic integrity and professional ethics. Knowing how to paraphrase appropriately, cite sources, and use plagiarism detection responsibly reduces academic misconduct incidents and protects grades.

The frameworks already mentioned make these mechanisms concrete. DigCompEdu invites student-teachers to find, adapt, and create digital resources legally and effectively. It asks them to plan for accessibility and differentiation, to choose appropriate tools for formative and summative assessment, and to help learners build their own digital competence. The ISTE Standards keep the focus on learning rather than the technology itself. Both align naturally with the TPACK idea that good teaching sits at the intersection of technology, pedagogy, and content. When B.Ed. coursework and school experience deliberately scaffold practice at that intersection, student-teachers can show what they know through stronger assignments, higher-quality portfolios, and more successful micro-teaches.

A useful way to see the achievement impact is to track the assessment moments across a typical B.Ed. program. Consider foundation courses where students read theory, critique research, and submit presentations. Digital literacy shows up in the quality of sources selected, the clarity of citation, the freshness of evidence, and the ability to turn data into coherent arguments. In methods courses, literacy shows up in the mapping from standards to outcomes, the use of OER to reduce cost and widen access, the integration of media to support diverse learners, and the tight design of formative checks. In practicum, it shows up in lesson execution, adaptations for learners with barriers, and the depth of post-lesson reflection supported by artifacts like anonymized student work or analytics from a quiz. In the capstone or portfolio, it shows up in curation, narrative coherence, and compliance with ethical and privacy guidelines. Each of these assessment points can be designed to reward competent digital practice, which raises the academic ceiling for student-teachers who invest in these skills.

This is not only about individuals. System conditions shape what B.Ed. students can do. The OECD's Digital Education Outlook 2023 frames digital education as an ecosystem that blends tools for management, classroom teaching and assessment, and the human capacity to use them well. Countries and institutions that treat devices and connectivity as the whole story miss the point. Interoperability, quality assured resources, and support for teacher learning matter just as much. In concrete terms for a B.Ed. college, that looks like a reliable learning management system integrated with student information systems, access to curated open resources, an academic integrity policy connected to clear training, and sustained professional development for teacher educators. When those pieces are in place, student-teachers have fewer roadblocks and more chances to practice meaningful digital teaching. Their academic output tends to improve because they spend more time on pedagogy and less on workaround.

The Indian policy environment has been moving in this direction. NEP 2020 emphasizes technology integration and continuous professional development. It also encourages innovation in assessment and calls for better use of digital platforms to widen access. Student-teachers can tap national platforms such as the National Digital Library of India to gather sources across languages and subject areas. Colleges that embed NDLI tasks into research methods and methods courses help students practice search strategies, evaluate credibility, and cite correctly. That shows up directly in assignment grades and defense quality. When practicum schools provide even minimal digital access, student-teachers can pilot quick formative assessment checks or use OER for remediation. A culture of reflective use rather than gadget-driven activity keeps the emphasis on learning evidence that supervisors can see and score.

The relationship between digital literacy and achievement is not uniform, and teacher educators should be realistic about the limits. The 2025 meta-analysis shows that the correlation varies by subject. It tends to be stronger in mathematics and language arts than in natural science depending on how digital tools are used. Orientation matters too. When literacy is narrowly defined as tool operation, the link to achievement is weaker than when it includes critical evaluation, communication, collaboration, and problem solving. Sampling method in the research also matters, which should remind us to interpret findings carefully and design local evaluations in our own programs. If you want digital literacy to lift B.Ed. grades, define it broadly, teach it explicitly, and align course rubrics and practicum evaluation to those competencies.

This broader definition helps student-teachers avoid common pitfalls. One pitfall is equating time spent online with productive learning. Another is mistaking polished slides for effective pedagogy. A third is focusing on novelty over alignment. Student-teachers need repeated practice in choosing when not to use a digital tool, how to reduce cognitive load, and how to use analytics to inform immediate teaching decisions. They also need guidance on digital well-being, privacy, and ethics. Programs that ask students to justify technology choices in lesson plans and reflections, with reference to learner needs and evidence of impact, tend to produce graduates who not only score well but also teach well.

The question of equity runs through all of this. Digital literacy gains are uneven when devices, connectivity, and support are uneven. Student-teachers from rural or low-income backgrounds may enter B.Ed. programs with less exposure to educational technology even if they are strong in content. Colleges can level the field through device loan programs, offline-capable resources, low-bandwidth LMS options, and scheduled access to labs. NDLI and other open platforms lower cost barriers for research and planning. Faculty development matters too. When teacher educators model accessible slides, alt text, multilingual OER, and formative assessment that works on basic phones, student-teachers pick up habits they can carry into diverse schools. The long-term payoff is stronger practicum performance across placements, which boosts both grades and confidence.

One practical concern is assessment of digital literacy itself. Self-report surveys are easy to deploy, but they overestimate skill. Better approaches mix self-report with performance tasks. For example, ask B.Ed. students to locate, evaluate, adapt, and cite a set of digital resources for a unit plan in a limited time window. Have them build a formative assessment with clear alignment and privacy-safe settings. Ask them to interpret mock analytics and decide next instructional steps, with a short rationale. Use a rubric anchored in frameworks like DigCompEdu or the ISTE Standards, and make the criteria visible early in the course. This gives student-teachers clear targets and connects training to grades in transparent ways. Studies that use DigCompEdu-based instruments for teacher competence assessment suggest that this approach supports comparability and structured growth, which helps program leaders see where to invest in faculty development and infrastructure.

Curriculum design can thread digital literacy across the B.Ed. timeline. Early courses can focus on information literacy, accessibility, and ethical use. Mid-program courses can lean into digital pedagogy and assessment, including micro-teaching with feedback tools and peer observation protocols. Practicum can center on planning for diverse classrooms with realistic constraints, using only the tools likely to be

available in the placement school. Capstone portfolios can demonstrate growth with artifacts and reflective commentary tied to specific standards. Throughout, the emphasis should be on evidence of learning, not on tools for their own sake. Aligning this design with NEP 2020's push for professional development prepares graduates to keep learning and to document that learning, which helps with recruitment and advancement.

Teacher educators themselves need support. If faculty are not comfortable with digital assessment, multimedia OER, or privacy settings, student-teachers will not get consistent guidance. Here again, frameworks and professional networks help. ISTE's educator development offerings and certification pathways provide structured learning for faculty, while institutional policies can create time and recognition for this work. Cross-department mentoring, where more confident colleagues offer clinics on topics like rubric design in an LMS or feedback analytics, builds capacity without heavy cost. When faculty learn together, the quality of assignments and the clarity of expectations improve, which reduces student frustration and raises achievement. It is also wise to watch the policy and ecosystem horizon. The OECD notes that many countries are still sorting out the interoperability and governance of digital education tools, including the rise of AI. B.Ed. programs will need clear guidance on appropriate uses of AI for planning, assessment, and academic writing. Setting boundaries early and teaching verification habits can prevent academic integrity problems and keep the focus on learning. Program leaders can adopt a simple principle for AI use: disclosure, verification, and value-add. If a student-teacher drafts a rubric with an AI assistant, they should disclose this, verify alignment with outcomes and ethics, and show how the tool improved the work. Assessors can grade the thinking and the evidence, not the polish. This approach protects academic standards while letting student-teachers practice the tools they will eventually face in schools.

Even small structural adjustments can have outsized effects on grades and confidence. Embedding NDLI tasks into research assignments raises the baseline quality of sources. Building a citation and academic integrity mini-course into the first semester can reduce plagiarism incidents later. Requiring one or two low-stakes micro-teach sessions using simple formative assessment tools builds comfort before high-stakes practicum. Encouraging bilingual or multilingual OER use helps student-teachers plan for local classrooms. Offering drop-in clinics for portfolios near submission time reduces technical stress and helps students focus on curation and reflection. Taken together, these steps make digital literacy part of the academic culture rather than an add-on. Some caution is healthy. High device availability does not automatically translate into better teaching or higher grades. Without clear outcomes, tool choice can distract rather than help. Without privacy and ethics training, well-meaning student-teachers can make avoidable mistakes that carry academic consequences. Without attention to load and pacing, multimedia can overwhelm. The solution is intentional design. Keep outcomes at the center. Use frameworks to plan and assess. Give practice with feedback. Align grades to competencies that matter in classrooms. Support faculty so they can support students. These are straightforward steps that B.Ed. programs can implement within existing structures.

Conclusion:

Digital literacy plays a decisive role in shaping the academic success and professional readiness of B.Ed. student-teachers. As education increasingly relies on digital platforms for teaching, learning, and assessment, the ability to effectively navigate and use these tools has become a fundamental requirement rather than an optional skill. Student-teachers with strong digital literacy are better equipped to access credible resources, plan engaging lessons, utilize formative and summative assessment tools, and reflect critically on their practice. This translates into improved coursework quality, higher practicum performance, and greater academic achievement overall. However, unequal access to digital infrastructure, limited training opportunities, and varying levels of faculty readiness can hinder consistent development across teacher education programmes. A sustainable way forward lies in integrating digital literacy training throughout the B.Ed. curriculum, aligned with frameworks such as DigCompEdu and supported by national initiatives like the National Digital Library of India. Faculty development, inclusive resource design, and structured assessment of digital competence can further bridge existing gaps.

REFERENCES:

1. European Commission. (2017). European Framework for the Digital Competence of Educators (DigCompEdu). Publications Office of the European Union. DOI :10.2760/159770
2. Government of India. (2020). National Education Policy 2020. Ministry of Education. https://iste.org/standards/educators
3. ISTE. (2023). ISTE Standards for Educators. International Society for Technology in Education.
4. Joshi, A., &Verma, S. (2024). Long-term effects of structured digital literacy training on B.Ed. graduates: Evidence from Uttar Pradesh. Asian Journal of Teacher Education and Development, 12(2), 58–70.
5. Kumar, R., &Saini, P. (2021). Digital literacy skills and academic performance among B.Ed. student-teachers in Haryana. International Journal of Teacher Education and Research, 10(2), 45–56. DOI: 10.29121/shodhkosh.v5.i1.2024.4313-Study on Digital Competence of teacher educators.
6. OECD. (2023). Digital education outlook 2023: Strengthening the digital education ecosystem. OECD Publishing. DOI : 10.1787/c74f03de.en-OECD publishing DOI for the report.
7. Patel, S., &Deshmukh, A. (2023). Digital pedagogy and practicum performance: A study of B.Ed. student-teachers in Maharashtra. Journal of Educational Technology and Teacher Training, 15(1), 89–102.
8. Rani, M., & Thomas, J. (2023). Utilization of the National Digital Library of India (NDLI) for academic improvement in B.Ed. programmes: A study in Kerala. Indian Journal of Digital Learning, 8(3), 112–126.
9. Sharma, N., & Gupta, V. (2022). Impact of digital literacy workshops on academic achievement of B.Ed. students in Rajasthan. Contemporary Research in Education, 14(4), 73–85.

10. Wang, X., & Huang, J. (2025). The causal relationship between digital literacy and students' academic achievement: A meta-analysis. Humanities and Social Sciences Communications, 12(1), 123–135.