Omniscient
(An International Multidisciplinary Peer Reviewed Journal)
Vol 3 Issue 4 Oct-Dec 2025 EISSN: 2583-7575

Integrating Digital Tools in Uttar Pradesh Government Primary Schools: A Study on Teacher Readiness and Infrastructure Challenges

Deepshikha Sharma

Corresponding author: depshikha141194@gmail.com
Available at https://omniscientmjprujournal.com

Abstract

India's push toward digital learning has brought exciting new opportunities for classrooms, but it has also revealed some big challenges, specifically in government primary schools in Uttar Pradesh. While national programs like NEP 2020 and platforms such as DIKSHA have set the stage for using technology in teaching, the reality in schools is much more uneven. This paper looks at existing research and shares insights from a survey of 25 teachers in Uttar Pradesh to understand how ready they are to use digital tools and what's holding them back. The findings show that many teachers are willing, even eager, to use technology, but they often face the same hurdles: not enough practical training, unreliable infrastructure, and little ongoing technical support. Rural schools especially struggle with frequent power outages, slow or no internet, and devices that are either poorly maintained or just do not work. This paper gives recommendations focused on enhancing digital readiness in government schools by offering training that matches school's needs, making sure the infrastructure is stable, and creating ongoing support systems so teachers do not have to face these challenges alone

Keywords: Digital education, teacher readiness, primary schools, infrastructure, Uttar Pradesh, NEP 2020

1. Introduction

In recent years, digital learning has taken center stage in India's efforts to reform education. Initiatives like Digital India, DIKSHA, and the National Education Policy 2020 (NEP 2020) have made technology a focal point for transforming classrooms, hoping to boost both teaching and learning. The bigger goal is to modernize education for everyone, and to help close long-standing gaps in quality and access in government schools.

While the policies on paper are impressive, the day-to-day reality in government primary schools, particularly in big, diverse states like Uttar Pradesh, is more complex. Many schools are still working with limited resources, and a lot of teachers don't feel they have enough training or confidence to use digital tools effectively. This study set out to understand just how prepared

teachers in Uttar Pradesh are for this digital shift, and what structural obstacles stand in the way. By combining insights from existing research with survey responses from local teachers, it offers a real-world perspective on how digital transformation is actually happening in classrooms.

India has rolled out several big initiatives in recent years. DIKSHA, which launched in 2017, gives teachers access to curated digital resources and training materials. When the COVID-19 pandemic hit, PM eVIDYA stepped in to provide educational content via TV, radio, and online platforms. NEP 2020 went even further, calling for smart classrooms, virtual labs, and teachers who are comfortable using technology.

In Uttar Pradesh, local education agencies have tried to match these national efforts with their own programs. Some districts now have smart classrooms and digital libraries. Training courses offered through District Institutes of Education and Training (DIETs) have been updated to include digital teaching methods. But progress is uneven. Rural schools, in particular, still face frequent power cuts, unreliable internet, and a lack of ongoing support for teachers after their initial training.

Table: 1

Policy/Program	**Year**	**Objective**	**Relevance to UP Govt Schools**
DIKSHA	2017	Provide free digital content & training for teachers	Limited reach in rural UP
PM eVIDYA	2020	Multiplatform digital learning (TV, online, radio)	Limited access in low-resource areas
NEP 2020	2020	Emphasize tech-integrated pedagogy	Implementation is still uneven
Samagra Shiksha Abhiyan	2018	Merge all school-level programs with focus on equity	Infrastructure support varies

2. Literature Review

Past research paints a mixed picture when it comes to digital readiness in Indian schools. Bhardwaj (2025) found that while digital tools can make lessons more engaging, many teachers in Uttar Pradesh were hesitant to use them—mainly because they lacked sufficient training and ongoing support. Dubey & Bhardwaj (2025) reached a similar conclusion, noting that even though NEP 2020 promotes digital learning, rural schools often don't have the infrastructure to back it up.

Looking beyond Uttar Pradesh, Hassan and Mirza (2021) studied teacher digital literacy in Jammu and Kashmir and found that even when devices were available, many teachers didn't feel confident using them. Pareek & Parashar (2025) reported that secondary school teachers in northern India often faced outdated hardware, unreliable internet, and limited access to quality digital content.

Together, these studies highlight a clear gap between the government's ambitious policies and the everyday realities teachers face. While programs lay out a strong vision, success depends on schools getting the practical, on-the-ground support they need to turn these ideas into reality. This understanding shaped our study, which takes a closer look at these challenges in government primary schools in Uttar Pradesh.

3. Objectives of the Study

This study seeks to:

1. Assess the availability and condition of digital tools in UP government primary schools
2. Understand teachers' readiness and frequency of using digital tools
3. Identify the major challenges teachers face in using digital technology
4. Evaluate the impact of digital tools on student engagement and learning, based on teacher perception

4. Methodology

This study used a descriptive survey to collect information directly from teachers in government primary schools across Uttar Pradesh. Created a questionnaire using Google Forms and shared it online through teacher networks and WhatsApp groups. The survey included a mix of multiple-choice questions, focusing on topics like availability of digital tools, training received, how often they use these tools, and the challenges they face.

In total, received 25 valid responses. The teachers who responded came from both rural and urban schools and had different levels of teaching experience. After cleaning the data, analyzed it using Microsoft Excel to spot trends and draw meaningful insights. To make the findings easy to understand, used bar graphs and pie charts for visualization.

4.1 Research Design

A cross-sectional survey design was selected for its ability to quickly gather perspectives from a diverse group of teachers. The questionnaire was shared online, allowing us to reach respondents from urban, semi-urban, and rural schools across the state. The goal was to understand how digital tools are currently being used and what challenges teachers face in the process.

4.2 Participants

The survey targeted in-service teachers working in Uttar Pradesh's government primary schools under the Basic Education Department. In total, 25 valid responses were received.

- Sampling method: Purposive sampling, based on ease of school access and digital form circulation
- Inclusion criteria: Teachers currently working in government primary schools in Uttar Pradesh
- Exclusion criteria: Teachers from private institutions or those not involved in classroom instruction

4.3 Data Collection Tool

The primary tool used for data collection was a Google Form designed by the researcher. The questionnaire included a combination of multiple-choice, and open-ended questions, categorized into the following sections:

1. Demographics – Gender, teaching experience, school type
2. Access to Digital Infrastructure – Availability of devices, electricity, internet
3. Teacher Readiness – Digital confidence, training received, frequency of digital tool usage
4. Challenges and Support – Barriers to adoption, training needs, expected support
5. Perceptions of Impact – Observations on student interest and learning outcomes

4.4 Procedure

The Google Form was distributed through digital platforms such as WhatsApp and email networks to reach teachers across various districts. Participants were given about a week to respond.

- The first page of the form included a short overview of the study and a consent statement.
- No personally identifiable data was collected.
- Teachers could choose to skip questions they were not comfortable answering.
- Participation was entirely voluntary and anonymous.
- The data collected was used solely for academic purposes, with confidentiality fully maintained.

4.5 Data Analysis

Responses were exported to Microsoft Excel for cleaning and processing.

- Descriptive statistics (like percentages and averages) were used to summarize the data.
- Visual tools such as bar charts and pie charts were generated to present the results.
- Thematic analysis was applied to open-ended questions to extract key qualitative insights

5. Result

This section presents the findings of the survey conducted among 25 teachers from government primary schools in Uttar Pradesh. The responses offer insights into the current state of digital tool availability, usage, training, infrastructure conditions, and their effect on student engagement.

5.1 Teacher Profile and School Background

The participants in the survey represent a diverse group of teaching professionals currently serving in government schools across different districts of Uttar Pradesh.

- Age: Most teachers were between 30 to 45 years old, with the average age falling around 36 years.
- Experience: The majority had 6 to 15 years of teaching experience, indicating a relatively experienced group who have seen both pre- and post-digital transitions.
- School Type: Approximately 18 out of 25 respondents (72%) were teaching in rural schools, while the remaining worked in urban or semi-urban areas.
- Gender: The gender ratio was nearly balanced, though slightly more female respondents participated.

This demographic profile gives a representative picture of the teaching workforce in UP's public primary schools.

5.2 Availability of Digital Tools and Devices

Teachers were asked to indicate what types of digital tools were available at their schools. The options included projectors, smartboards, tablets, or desktop computers. Many respondents selected more than one tool.

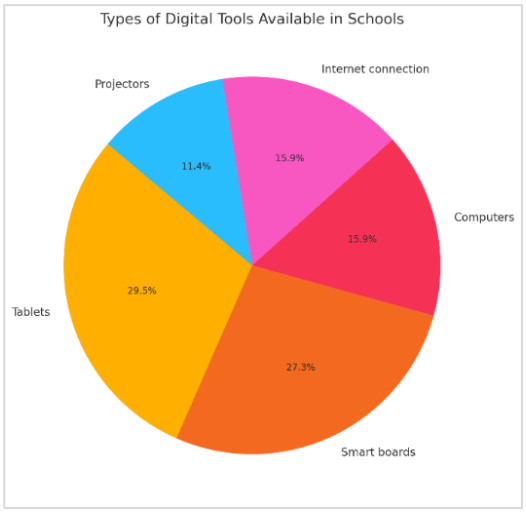


Figure: 1 Digital Tool Availability

- Projectors: Reported by 60% (15 teachers) as being available in their schools.
- Smartboards: Mentioned by 9 teachers (36%), mostly in semi-urban or pilot-model schools.
- Tablets/Computers: Available in only 6 schools (24%), reflecting a digital divide, especially in rural areas.
- Mobile Use: A few teachers noted that they rely on their personal smartphones for playing educational videos or showing content.

Despite some availability, only 11 teachers (44%) said there was a functional digital device in their classroom that they could use during teaching. Several reported that devices were either locked up, broken, or had no electricity supply. This shows a clear gap between the presence of devices and their practical usability.

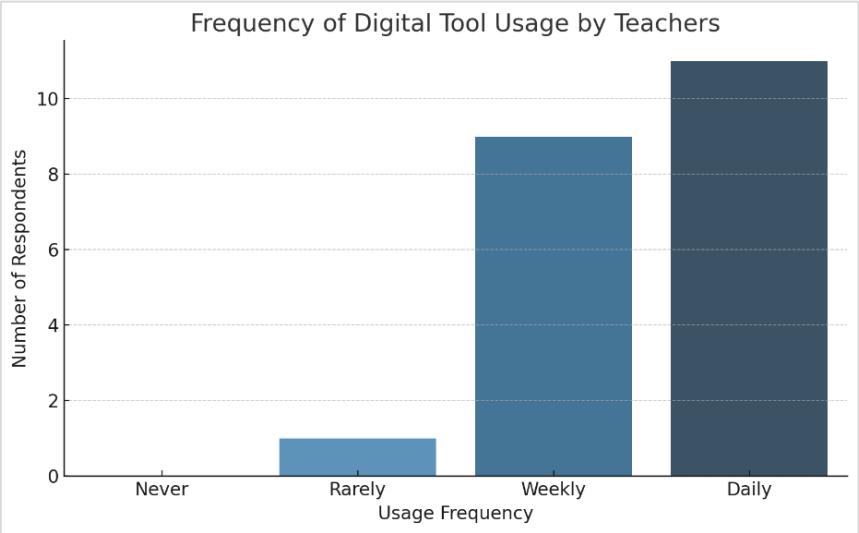
5.3 Frequency of Digital Tool Usage

Teachers were asked how often they use digital tools in classroom teaching. The responses were as follows:

Table: 2

Usage Frequency	No. of Teachers	Percentage
Daily	3	12%
Weekly	6	24%
Rarely	10	40%
Never	6	24%

Figure: 2 Frequency of Usage



The majority either used digital tools rarely or never. This suggests that even where tools are technically "available," there are barriers preventing regular classroom integration. These may include lack of confidence, insufficient training, or unreliable infrastructure.

5.4 Teacher Training and Digital Readiness

When asked if they had received any form of formal training on using digital tools, the responses were: Yes: 11 teachers (44%) and No: 14 teachers (56%)

Among the trained group:

- Many stated that the training was too short, more theory-focused, and lacked real classroom application.
- A few said the training was "just a formality," and they were never guided on how to implement it practically in low-resource classrooms.
- None reported receiving ongoing support, mentorship, or follow-ups after the training.

Among untrained teachers, several expressed willingness to learn but said they lacked access to sessions, time due to workload, or simply didn't know where to start. This shows that even when digital training is available, its design and delivery may need significant improvement to build actual readiness.

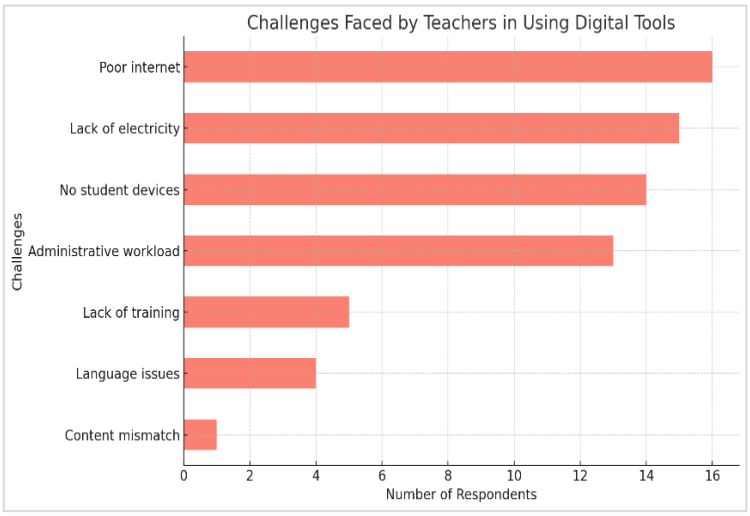
5.5 Infrastructure Challenges in Schools

Teachers were asked to select the major challenges they face in using digital tools. Multiple options could be selected.

Table: 3

Challenge	**No. of Teachers Reporting**	**% of Respondents**
Poor internet or electricity	16	64%
Lack of proper training	13	52%
Devices not working or outdated	11	44%
No technical support at school	9	36%
Difficulty in using English-language tools	6	24%

Figure 3: Infrastructure Challenges



It's clear that infrastructure-related problems especially electricity and internet are the most widespread. Many teachers also face a lack of confidence and technical help, making digital learning difficult to sustain, even when devices are present.

5.6 Student Engagement and Perceived Learning Impact

One of the key goals of digital education is to improve student engagement and learning outcomes. Teachers were asked whether they noticed any change in student interest when digital tools were used.

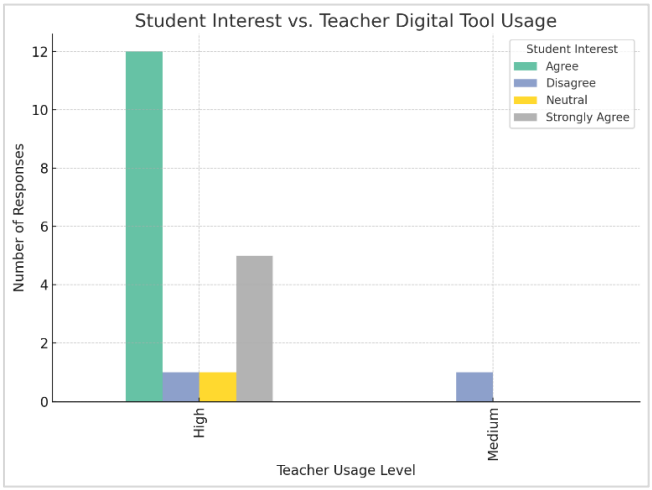


Figure 4 Student Interest by Usage Frequency

Their feedback, when compared with usage frequency, showed the following trend:

Table: 4

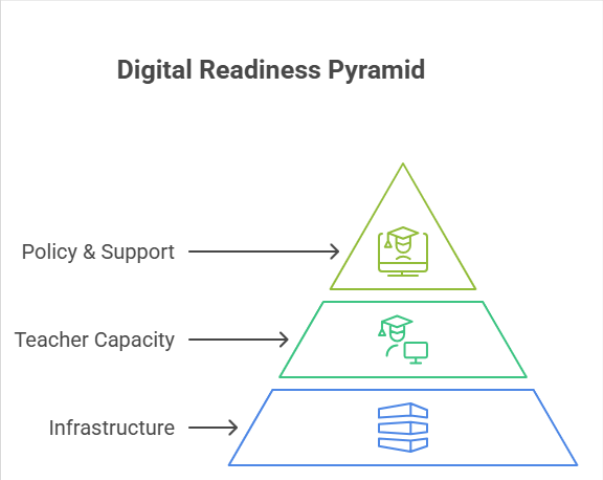
Teacher Usage Level	High Student Interest	Mixed Interest	Low/No Interest
Daily (3 teachers)	3	0	0
Weekly (6 teachers)	4	2	0
Rarely (10 teachers)	3	5	2
Never (6 teachers)	1	3	2

This indicates that students are more engaged when teachers use digital content regularly, even if the tools are basic. Videos, animations, or interactive lessons appear to spark curiosity more than traditional methods.

6. Discussion

The survey results provide a grounded and realistic view of the current state of digital education in government primary schools across Uttar Pradesh. Although there is policy-level momentum to integrate digital tools in classrooms, what is happening on the ground reflects a mix of optimism, gaps, and constraints.

Figure 5 Digital Readiness



6.1 Infrastructure exists, but is not aways functional

The survey results highlight a simple but telling gap: owning digital devices is not the same as using them. Projectors and smartboards are present in some schools, yet only 44% of classrooms had a device that was actually working at the time of the visit. Earlier studies by Dubey &

Bhardwaj (2025) and Rawal (2024) point to the same conclusion—installing technology is the first step, but keeping it reliable is what truly matters.

Teachers described projectors locked away in cupboards, equipment left unrepaired for months, and devices rendered useless by frequent power cuts or slow, unreliable internet. Without consistent maintenance and quick problem-solving, even well-stocked schools risk having technology that sits idle, turning potential tools for learning into little more than unused fixtures

6.2 Training alone is not enough without support

In the survey, 44% of teachers said they'd been through some form of digital training. But when asked how useful it was, many admitted it hadn't helped much. The common complaint was that sessions were too short, too theoretical, and not really linked to what happens in their classrooms each day. This lines up with what Hassan and Mirza (2021) found that you can complete a training course and still not feel ready to use technology with confidence.

What seems to be missing is the kind of support that sticks. Things like having a mentor to call when you get stuck, someone to help adapt lesson plans for digital tools, or even a simple helpline for troubleshooting. Without that sort of practical, ongoing backup, it's easy for whatever you learned in training to fade before you get a real chance to try it out.

6.3 Willingness exists, but barriers are systemic

What's encouraging is that many teachers genuinely want to use digital tools more often. In our conversations, several shared their enthusiasm for trying out videos, interactive lessons, and educational apps. But they're often held back by a lack of devices, limited training opportunities, or just not enough time in their busy day. This reflects findings from Pareek & Parashar (2025) and Naik & Shankaranarayanan (2024), who noted that teacher motivation isn't the main barrier—rather, it's the environment they're working in.

At the moment, teachers are frequently expected to drive digital integration without being given the right resources, adequate time, or strong institutional support. For digital learning to move from policy slogans to actual classroom impact, everyday conditions need to shift so teachers are set up for success.

6.4 Student response is a strong argument for change

One of the most encouraging takeaways from this study was simple but telling—whenever digital tools were used, even just once a week, teachers noticed students leaning in a little more. Videos,

animations, and interactive activities seemed to spark curiosity and hold attention longer, suggesting that these tools don't just deliver content; they make learning feel more alive.

That's a powerful reason to invest in better training and ongoing support for teachers. When they have the confidence and resources to use technology well, the benefits show up almost immediately in the classroom. The finding also echoes Bhardwaj's (2025) work on smartboard-led language lessons in Uttar Pradesh, which reported clear gains in both student engagement and comprehension.

6.5 Bridging the policy-practice divide

On paper, India's ambitions for digital education are impressive, with initiatives like NEP 2020, DIKSHA, and PM eVIDYA setting a clear direction. But on the ground, the story is more complicated. This study echoes what many earlier reports have found—the rollout is uneven, and the gap between vision and reality is hard to miss.

Policies often overlook the everyday realities of schools. Training sessions in English, for instance, fall flat when most teachers and students are more comfortable in Hindi. Similarly, a program that assumes steady internet access won't land well in places where nearly two-thirds of teachers say connectivity is unreliable.

Until policy design and local conditions speak the same language—literally and figuratively—the disconnect between what's envisioned and what's possible will remain one of the toughest hurdles in Indian education reform

7. Conclusion

In the beginning of this study, the aim was straightforward: to see how far digital tools have really made their way into government primary schools in Uttar Pradesh. I decided to focus on two big questions are teachers ready to use them, and what infrastructure stands in the way? What found was a picture that's neither bleak nor overly rosy. There's progress, yes, but there are also gaps that are hard to ignore.

On paper, both national and state policies champion digital learning. In reality, in many schools, it's still patchy. A few classrooms have devices, but in our survey, less than half had equipment that was working well and actually being used. Most teachers were open to the idea of teaching with technology some even enthusiastic but many admitted they did not feel confident. The reasons came up again and again: too little training, no one to turn to for help when something stopped working, and basic problems like power cuts or no internet for days.

Still, one finding stood out. In classrooms where teachers used digital tools even once or twice a week, students perked up. Lessons became livelier, and attention spans seemed to stretch. It's a reminder that change does not have to be dramatic to matter. With the right backup steady electricity, reliable devices, and some hands-on training small, steady steps could start to shift how children in these school's experience learning

8. Recommendations

Based on the survey findings and supporting literature, the following steps are recommended:

Upgrade and maintain infrastructure at the school level

- Ensure that every classroom has at least one working digital device, such as a projector or tablet.
- Prioritize reliable electricity and basic internet access in rural schools.
- Set up a local technical support mechanism (at block or cluster level) for repairs and troubleshooting.

Provide practical, ongoing teacher training

- Design training that includes hands-on demonstrations, not just theory.
- Use regional languages (like Hindi) to make content more accessible.
- Implement a follow-up or mentoring system where trained teachers can guide peers.

Align policy with local realities

- While digital programs like DIKSHA are useful, content should be contextualized for primary-level students in rural UP.
- Avoid one-size-fits-all policy designs; consider local conditions, like network availability and teacher comfort levels.
- Feedback from teachers should be regularly collected and integrated into policy refinements.

Promote peer learning and sharing

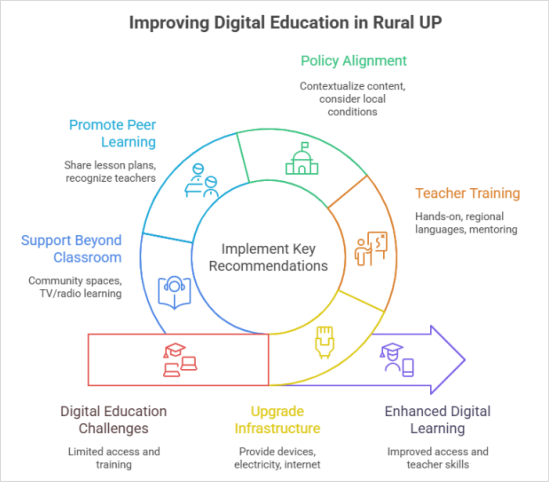
- Encourage teachers to share simple digital lesson plans, low-cost apps, and practical tips during cluster meetings.
- Recognize and reward schools or teachers who are making effective use of digital tools, even in low-resource settings.

Support digital learning beyond the classroom

- Where possible, provide access to community learning spaces where students can explore digital tools after school hours.

- Promote the use of television- or radio-based learning for students without devices at home.

Figure: 6



Digital education is not just about giving schools gadgets it's about building an environment where teachers are supported, classrooms are equipped, and students are engaged. With ground-level changes and sustained support, Uttar Pradesh can move closer to a future where technology is not a barrier but a bridge to quality education for all.

References

Aashish, J., & Rohit, K. (2024). *Technologies for quality and sustainable online education in rural India: A comprehensive review*

Bhardwaj, A. (2025). *From chalkboards to smartboards: Transforming English language teaching in Uttar Pradesh in light of NEP-2020*. *International Journal of Advanced Research in Public Sector*

Charania, A. (2022). *Integrated approach to technology in education in India: Implementation and impact*. *Google Books*

Dubey, A., & Bhardwaj, B. (2025). *Digital intervention in elementary education: Analyzing the implementation of NEP 2020 in rural India*. *Indian Journal of Public Policy and Administration*

Hassan, M. M., & Mirza, T. (2021). *The digital literacy in teachers of the schools of Rajouri (J&K)-India: Teachers' perspective*. *International Journal of Education and Management Engineering*, 11(1), 34–42

Jirli, B. (2013). *A study on e-readiness of Krishi Vigyan Kendra functionaries in Uttar Pradesh*

Naik, T., & Shankaranarayanan, M. E. (2024). *Examining factors influencing technology integration in Indian classrooms: A teachers' perspective*. *Proceedings of the ACM COMPASS Conference*

Pareek, R. B., & Parashar, S. (2025). *Teachers' perspective on availability, accessibility, and utilization of digital resources in the secondary schools of*

Northern India. *Journal of Educational Technology*

Rawal, D. M. (2024). *Mapping of school teachers' digital competency in the context of digital infrastructure: A systematic review and empirical study of India*. *Journal of Professional and Continuing Education*

Upadhyaya, H. (2024). *Digital education and economic transformation: Bridging the gap*. *Google Books*