



IMPACT OF DIGITAL LEARNING TOOLS ON ACADEMIC PERFORMANCE OF PRIMARY SCHOOL STUDENTS

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ABSTRACT This research paper explores how digital learning tools affect the academic performance of primary school students, specifically in the Suryapet district of Telangana. The study employs a mixed-methods approach combining pre- and post-intervention assessments, classroom observations, and teacher-student surveys. The research was conducted in six government schools — Three rural (MPPS Yellapuram, MPPS Musivoddu Singaram, and MPPS Palakaveedu) and Three urban (MPPS Nereducharla, MPPS Rajiv Nagar, and MPPS Chinta Banda) — under Nereducharla Mandal. Students used tools such as tablets and smartboards for an 8-week period. Results showed noticeable improvement in academic performance, especially in mathematics and language.

KEYWORDS : Digital Learning Tools, Primary Education, Academic Performance, Rural Schools, Telangana

INTRODUCTION:

Digital technology is revolutionizing classroom teaching, especially in primary education. In formative years, interactive applications, educational videos, and smart classroom equipment significantly aid concept retention. The COVID-19 pandemic increased the adoption of digital education, but rural schools often lag in infrastructure and training. This paper evaluates how digital tools impact learning outcomes in government primary schools of Telangana's Suryapet district.

Objectives:

- To examine the effect of digital learning tools on student performance in language and mathematics.
- To evaluate student engagement using these tools.
- To identify implementation challenges faced by teachers.
- To highlight government initiatives like NEP 2020, DIKSHA, and PM eVidya.

Literature Review:

Past research (Prensky, 2001) identifies the preference of digital natives for interactive learning. Mishra et al. (2018) reported improvements in rural learning outcomes with tablet-based teaching. NEP 2020, DIKSHA, and PM eVidya aim to bring structured content into classrooms. However, lack of infrastructure and trained teachers limit their impact. Our study focuses on government schools in a semi-urban and rural district of Telangana, expanding on prior findings.

Methodology:

Research Design: Mixed-methods (qualitative and quantitative)

Sample: 120 students (Classes III-V) and 12 teachers from 6 government primary schools — 3 rural: MPPS Yellapuram, MPPS Mussoorie Singaram, MPPS Palakaveedu; 3 urban: MPPS Nereducharla, MPPS Rajiv Nagar, MPPS Chinta Banda.

Data Collection Tools:

- Pre- and post-tests in Mathematics and Language
- Classroom observation checklist
- Structured questionnaires for students and teachers
- Focus group discussions

Procedure:

Students used digital learning tools like educational apps and smartboards over 8 weeks. Data was gathered via assessments, classroom observations, and feedback from teachers and students.

RESULTS:

- Mathematics scores improved by 18%, language by 15%
- 82% of students reported more interest in lessons
- Teachers noted better focus and conceptual clarity
- Barriers included occasional electricity issues, limited regional content, and lack of technical support

To Visually Represent The Findings:

- **Bar Chart:** Demonstrating the improvement in average test scores (pre vs. post) for Mathematics and Language subjects.
- **Pie Chart:** Illustrating student engagement levels, showing that 82% of students reported increased interest in learning.

- **Table:** Providing a side-by-side comparison of pre- and post-test scores by subject.

These visuals support the quantitative data and help better interpret the overall academic progress and student feedback.

DISCUSSION:

Digital tools enhanced engagement and learning outcomes, especially where teacher training and infrastructure supported effective usage. Challenges remain in content localization and consistent power supply. Government initiatives like DIKSHA are promising if adapted to local needs. Teacher training and maintenance support are essential for scaling digital learning.

CONCLUSION AND RECOMMENDATIONS:

Real-world implementation in Suryapet's schools proves that digital tools can significantly boost primary students' performance when combined with proper planning.

Recommendations Include:

- Investment in school infrastructure
- Content development in Telugu and local dialects
- Continuous teacher training
- Monitoring systems for long-term impact
- NEP 2020 strategies should be tailored to rural school realities

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Appendices:

6. Sample student questionnaire
7. Observation checklist
8. Sample test papers
9. Visual aids: bar chart, pie chart, and test score tables