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The Role of Digital Literacy in Shaping the Future of Education: A Study on NEP Implementation in Bhagalpur District, Bihar

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Abstract

This research examines the impact of digital literacy on the implementation of the New Education Policy (NEP) 2020 in Bhagalpur district, Bihar, a region characterized by socio-economic diversity. The study investigates how digital literacy serves as both an enabler and a challenge in achieving the goals set by NEP 2020. Employing a mixed-methods approach, the research identifies critical gaps in digital literacy, infrastructural barriers, and the difficulties faced by educators, students, and policymakers in incorporating digital tools into the educational framework. The results highlight a substantial digital literacy gap among both teachers and students, which hinders the effective integration of technology in classrooms. Key challenges include inadequate infrastructure, such as unreliable electricity and limited access to digital devices, as well as a shortage of trained IT personnel. Nevertheless, the study identifies several opportunities for improving educational outcomes, such as utilizing digital resources and fostering collaborative learning among educators and students. The study concludes that for NEP 2020 to succeed in Bhagalpur and similar regions, ensuring equitable access to digital resources is critical. To fully capitalize on the policy's potential, targeted strategies must be implemented to close the digital divide. These strategies include professional development programs for teachers, improvements in infrastructure, and the creation of a digital-inclusive educational environment. The research underscores the necessity of a holistic approach to digital literacy, which is essential for the effective implementation of NEP 2020.

I. INTRODUCTION

In the rapidly evolving digital age, the integration of technology into education has become an embrace digital tools, promote critical thinking, and cater to diverse learning needs. Central to this vision is digital literacy, which is now recognized as a fundamental skill for both students and educators. However, the successful implementation of the NEP depends on overcoming various challenges, particularly in rural and under-resourced regions. Bhagalpur district in Bihar, marked by socio-economic diversity, serves as an

ideal case study for exploring the practical implications of NEP 2020. Despite the increasing emphasis on digital literacy as part of educational reforms, Bhagalpur faces significant barriers to the widespread adoption of technology in schools. These challenges range from infrastructural deficiencies such as unreliable electricity supply and limited access to digital devices, to the lack of skilled IT personnel and insufficient training for teachers. In addition, socio-economic disparities in the region further complicate equitable access to digital resources, perpetuating the digital divide. This study aims to explore the role of digital literacy in the successful implementation of NEP 2020 in Bhagalpur district. By examining the current state of digital literacy, identifying the barriers and enablers of policy implementation, and investigating the impact of digital skills on educational outcomes, this research seeks to provide valuable insights into the intersection of technology and education in rural India. The findings of this study will contribute to the understanding of how digital literacy can shape the future of education, particularly in marginalized regions, and offer recommendations for effective policy interventions that promote inclusivity and bridge the digital divide. This study focuses on Bhagalpur district, aiming to investigate the role of digital literacy in the context of the NEP 2020. By assessing the current state of digital literacy in the region, identifying the barriers to its implementation, and exploring the opportunities digital tools present for enhancing teaching and learning, this research will provide a comprehensive understanding of the challenges faced by rural educators and students. Furthermore, the study will examine how digital literacy can act as both a catalyst for change and a barrier to progress, offering insights that could inform more effective policy interventions in Bhagalpur and similar regions. Ultimately, this research hopes to highlight the importance of targeted efforts to address the digital divide, ensuring that all students, regardless of their geographical location, can benefit from the opportunities digital literacy offers. By providing evidence-based recommendations for improving infrastructure, teacher training, and resource allocation, the study aims to contribute to the broader conversation about equitable education and digital inclusion in India.

II. LITERATURE REVIEW

The literature review serves as a crucial element of this study, providing a solid framework to explore the complexities surrounding the incorporation of digital literacy into educational policy implementation, with a particular focus on Bhagalpur district, Bihar. By carefully examining existing academic research, studies, and theoretical perspectives, the review offers a comprehensive understanding of the evolving relationship between digital literacy and education policy. It delves into the historical development, theoretical foundations, and empirical findings that shape our understanding of these concepts. On a global scale, the literature highlights the transformative impact of the digital age on education, which has necessitated a shift in traditional teaching methods and approaches. It stresses the importance of equipping students with digital literacy skills to enable their participation in a rapidly changing, technology-driven world. The review also explores the evolution of education policies around the world, focusing on how these policies are increasingly designed to leverage digital technologies to improve teaching and learning, drive innovation, and ensure more equitable access to education. By connecting the global context to the specific situation in Bhagalpur, the literature review helps to contextualize the local challenges and opportunities faced by educators and policymakers in integrating digital literacy into the education system. It sets the stage for understanding the implications of digital literacy on education policy, providing valuable insights for both practitioners and policymakers working to bridge the digital divide in rural areas like Bhagalpur.

Nathalis Wamba (2014) explores the complex link between poverty and academic success, particularly focusing on the literacy skills of low-income students. The book highlights the crucial roles of various stakeholders, such as teachers, school administrators, researchers, and policymakers, in addressing the achievement gap and alleviating the negative effects of poverty on literacy development. It delves into the dynamic factors at play and stresses the need for innovative pedagogies that are adapted to the specific needs of low-income students. The text also examines successful school models that have overcome the challenges posed by poverty, showcasing the determination of low-income families to support their children's academic achievements. By analyzing these factors, the book offers valuable strategies for closing the achievement gap and promoting equitable access to educational opportunities. Both schools and home environments are vital in developing literacy skills, with schools playing a key role in teaching reading and writing, and literacy education extending beyond mere skills acquisition to encompass social practices that are vital for social mobility.

Muchkund Dubey and Susmita Mitra (2020) revisit the educational philosophies of renowned Indian

thinkers and leaders, deconstruct significant education documents, and assess the impact of social movements on India's education system. The book takes a broad approach, examining the historical, philosophical, and modern aspects of education to provide critical insights into its role in shaping Indian society and its future direction. One of the key elements of the book is its exploration of how prominent Indian philosophers and leaders have shaped the country's educational vision.

Krishna Mohan Rao (2019) provides an in-depth analysis of India's adult education sector, addressing the obstacles that have hindered progress toward achieving universal literacy. Despite various initiatives from both the central and state governments since Independence, the country continues to face considerable gaps in literacy rates. Rao examines the policy framework and implementation strategies for adult education programs, highlighting tensions between state priorities and the needs of individuals, as well as the differing views of literacy as an educational or developmental process. The book sheds light on the contradictions in literacy efforts and urges the literacy community to align their approaches with India's socio-cultural realities. The author further explores key issues related to curriculum, pedagogy, motivation, post-literacy programs, and evaluation methods, providing valuable guidance for policymakers and educators involved in adult education.

Manoj Saxena K (2020) discusses the transformative vision of the New Education Policy (NEP), which aims to positively impact every Indian citizen. The policy, designed to meet the demands of the 21st century, seeks to balance modern educational needs with the preservation of India's cultural heritage. A central theme of the policy is the emphasis on a holistic approach to education, rooted in India's ancient educational traditions, which prioritize not just knowledge acquisition but also the overall development and self-realization of individuals.

Kavita Roy and Khritish Swargiary (2023) offer an in-depth examination of Information and Communication Technology (ICT) integration in India's education system, with a particular focus on the year 2023. The authors explore various aspects of ICT integration, including infrastructure, curriculum development, digital literacy, assessment, and inclusive education.

They trace the evolution of the Indian education system, emphasizing the need for ICT integration in light of current challenges and opportunities. The book provides an overview of the state of ICT infrastructure in schools and highlights government initiatives aimed at improving accessibility. It also examines how ICT has been incorporated into the national curriculum, with a focus on the resources and tools available for teaching and learning. In addition, the authors stress the importance of teacher training and professional development to effectively use ICT in the classroom, while also addressing challenges in bridging the digital divide and enhancing digital literacy in education.

Barry M. Kroll, Eugene R. Kintgen, Mike Rose (1988)j, According to author, the compilation of 28 essays presented in this book is structured into four distinct sections, each offering a unique perspective on literacy encompassing theoretical, historical, educational, and community dimensions. The editors, in their comprehensive introduction, emphasize the intricate interrelation of all aspects of literacy, aiming to break down artificial boundaries within the field. Additionally, they provide an exhaustive bibliography based on the citations within the essays, enhancing the scholarly value of the compilation. In the final section, the discourse expands beyond the confines of traditional educational settings to explore literacy in broader societal contexts.

Here, the focus shifts to the development of literacy among diverse populations, including children and adults, as well as its practical applications in the workplace and everyday life.

Laura Fedeli and Lukasz Tomczyk (2022) provide valuable insights into assessing digital competence among future educators, focusing on the challenges posed by the intersection of analog and digital media. Their research, conducted across various countries, seeks to answer critical questions related to the effective measurement of media pedagogy skills and the digital literacy levels of pre-service teachers. Drawing from a systematic review of research spanning the past two decades, the book offers a thorough analysis of evolving trends in measurement techniques and digital competence. By synthesizing these findings, the authors offer a comprehensive view of the dynamic landscape of digital literacy and pedagogy, helping readers better understand the key factors shaping the development of digital skills among educators.

Prasanna S (2023) takes readers on an immersive journey through a significant chapter in India's legal history, offering an in-depth exploration of the nation's democratic evolution. The book delves into the

details of a landmark case that profoundly impacted the Indian Constitution, highlighting its transformative effects on the country's constitutional framework.

Through meticulous research and compelling storytelling, the author brings to life the intricate legal arguments and passionate debates that took place in the corridors of power, offering a vivid portrayal of a pivotal moment in India's legal and political landscape.

Khritish Swargiary (2023) examines the transformative role of online education in India's rapidly changing educational landscape. The book explores the emergence, benefits, and challenges of online learning in one of the world's largest and most diverse countries. Drawing from the author's keen observation of the rise of online education platforms and the increasing adoption of digital courses, this work provides a comprehensive analysis of the online education revolution unfolding in India. Motivated by the rapid changes in the educational sector, the author provides a detailed account of how online education is reshaping the future of learning in India.

III.RESEARCH METHODOLOGY

Research methodology serves as the foundation for any academic investigation, providing a structured approach to conducting research, gathering data, analyzing results, and drawing conclusions. In the context of examining the role of digital literacy in the implementation of new education policies, the research methodology becomes even more critical. For this study, which focuses on the integration of digital literacy in the education policy within Bhagalpur district, Bihar, the methodology takes on particular importance due to the region's unique socio- economic and educational challenges. The complexity of the topic, combined with the specific socio-cultural and infrastructural factors that influence digital literacy in Bhagalpur, demands a thorough and contextually aware research approach. This district presents unique opportunities and challenges in terms of implementing digital literacy, which are shaped by factors such as infrastructure, access to technology, cultural dynamics, and local policy frameworks.

Geography and Climate

Bihar, located in eastern India, spans from 83°19'50"E to 88°17'40"E and 24°20'10"N to 27°31'15"N, covering 94,163 square kilometers. The Ganga River divides the state, contributing to the fertility of its plains. Bihar experiences a monsoonal climate with an annual average of 52.5 rainy days.

Demographics

According to the 2011 Census, Bihar is the third most populous state in India, with over 104 million people and a population density of 1,106 people per square kilometer. Around 89% of the population lives in rural areas. The state's literacy rate stands at 61.8%, though there is considerable variation across districts. The sex ratio is 918 females for every 1,000 males, and 58% of the population is under the age of 25.

Administration

Bihar is divided into nine divisions and 38 districts, with 101 sub-divisions and 534 CD Blocks. The state has 8,406 Panchayats, 45,103 revenue villages, 199 towns, and 853 police stations, reflecting a complex administrative structure.

Cultural and Religious Significance

Bihar is a region steeped in Indian mythology and religious significance. It is the birthplace of Sita, Lord Mahavira, and Guru Gobind Singh Ji, and is home to Bodh Gaya, the site of Buddha's enlightenment.

Literacy in Bihar

As per the 2011 Census, Bihar's literacy rate has risen to 61.80% from 47% in 2001. Male literacy is 71.20%, while female literacy stands at 51.50%, indicating a significant gender gap. Patna has the highest literacy rate in the state at 70.68%, followed by Aurangabad at 70.32%. However, districts like Araria (53.53%) and Saharsa (53.20%) lag behind, largely due to poverty, infrastructural deficiencies, and socio-cultural barriers. Various initiatives from NGOs, technology-based learning, and teacher training programs are contributing to bridging these educational gaps.

History of Bhagalpur

Bhagalpur, historically linked to ancient kingdoms such as Anga and Magadh, was once home to Champa, a cultural and trade hub. The district flourished under several empires, including the Mauryas, Guptas, and Palas, with institutions like Vikramshila University contributing to its intellectual heritage. Bhagalpur later experienced administrative shifts during the Mughal and British periods.

Tools for Data Collection Sampling

Sampling is a fundamental aspect of research methodology, involving the selection of a representative subset of individuals or elements from a larger population for study. In this study, sampling will involve selecting schools, teachers, and students from Bhagalpur district, ensuring that the research findings are representative and applicable to the broader population.

Primary Data Collection

Primary data collection refers to gathering firsthand information directly from participants or sources relevant to the research topic. For this study, primary data will be collected through surveys, interviews, focus groups, observations, and questionnaires. These methods will gather data on the current state of digital literacy, challenges faced by educators and students, and the opportunities available for improving digital literacy in Bhagalpur district. The primary data will provide crucial insights into the effectiveness of educational policies, the role of digital tools in the classroom, and the barriers to technology adoption in the region.

Collection of Secondary Data

Secondary data collection refers to the process of gathering information and existing datasets that have already been collected and analyzed for purposes other than the current study. In this research, secondary data plays a crucial role in complementing primary data and offering a broader perspective on the implementation of digital literacy and education policies in Bhagalpur district. The importance of secondary data lies in its ability to provide contextual insights that can enrich and support the findings derived from primary research methods such as interviews, surveys, and observations. By reviewing existing literature, reports, government documents, and previous research related to digital literacy and educational policy in the district, the study can develop a deeper understanding of the historical context, policy frameworks, and earlier findings. Additionally, secondary data helps identify gaps, emerging trends, and patterns within the existing body of knowledge, thereby guiding the formulation of relevant research questions, hypotheses, and strategies for data analysis.

Data Analysis

Data analysis is an essential part of the research process, involving the systematic organization, examination, and interpretation of the collected data to draw meaningful insights and conclusions. It starts with data cleaning and preparation to ensure that the information is accurate and reliable. Descriptive analysis is employed to identify basic trends and patterns within the data, while inferential analysis makes use of statistical techniques (such as regression analysis, correlation, and hypothesis testing) to generalize findings and make broader inferences. Qualitative data, gathered from interviews and observations, are analyzed using coding and thematic analysis methods to identify key themes, experiences, and underlying patterns. By integrating both quantitative and qualitative approaches, the study will offer a comprehensive and nuanced understanding of the challenges and opportunities related to the integration of digital literacy within the educational framework of Bhagalpur district.

Data Interpretation and Analysis

The interpretation and analysis of data play a critical role in this study, offering a structured approach to evaluating how digital literacy influences the implementation of the National Education Policy (NEP) in Bhagalpur district. By analyzing data collected from surveys, interviews, and secondary sources, this research uncovers key challenges and opportunities in incorporating digital tools into the educational system. The study employs both qualitative and quantitative research methods to assess the current levels of digital literacy among students, teachers, and administrators. This assessment serves as a benchmark, enabling the tracking of progress and the identification of gaps over time.

The analysis highlights several common obstacles, including poor infrastructure, limited access to digital devices, and resistance to technological change, which hinder the effective integration of technology in educational practices. Despite these barriers, the study also identifies several opportunities for leveraging digital tools to enhance teaching and learning experiences, such as innovative pedagogical approaches and greater collaboration among educators and students.

The study further evaluates the impact of existing digital literacy policies and suggests areas for improvement, providing insights into how these policies can be strengthened to better support educational outcomes.

IV.CONCLUSION

The digital transformation of various sectors, particularly education, underscores the pivotal role of digital literacy in the successful implementation of educational policies. This doctoral study examined the influence of digital literacy on the implementation of the New Education Policy (NEP) in Bhagalpur district, Bihar. The research revealed a significant digital literacy gap among both teachers and students, highlighting the urgent need for targeted interventions such as comprehensive digital training programs and improved access to digital resources. Several challenges were identified, including inadequate infrastructure, frequent power outages, a lack of qualified IT personnel, and concerns regarding data security, all of which impede the effective integration of digital literacy into the educational system. Despite these obstacles, the study also uncovered opportunities for improvement, such as leveraging online resources for personalized learning and fostering creativity and critical thinking in students. Enhancing digital literacy is key to the successful implementation of the NEP, as it not only facilitates technology integration but also empowers students to become more autonomous in their learning journeys.

The findings suggest that improving digital literacy can help bridge educational equity gaps, improve learning outcomes, and align with the goals of the NEP. The study also emphasizes the importance of raising awareness about the NEP's digital requirements and shifting from traditional methods of education to digital learning. Recommendations from the study include investing in infrastructure, teacher development programs, and ensuring equitable access to digital technologies. Policy reforms to support digital literacy initiatives, alongside public- private partnerships, community engagement, and the development of customized curricula, are also vital to closing the digital divide and ensuring the sustainability of digital literacy efforts in the long term.

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