The Role of Government Policies in Promoting Edtech: Jharkhand's Initiatives Vs. National Policies

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Abstract

Government policies play a pivotal role in advancing educational technology (EdTech) by shaping the integration of digital tools into education systems. This study explores the impact of national frameworks such as the National Education Policy (NEP) 2020, the National e-Governance Plan (NeGP), and the Digital India Programme on educational technology adoption across India, with a specific focus on Jharkhand. While national policies provide a comprehensive framework for digital infrastructure development, teacher training, and online learning platforms, Jharkhand's localized approach addresses regional challenges such as limited connectivity and inadequate resources through initiatives like the Digital Jharkhand Initiative. A comparative analysis reveals how Jharkhand's efforts align with and diverge from national goals, highlighting both successes and areas for improvement. Insights gained from Jharkhand's experience underscore the importance of adapting national policies to regional contexts and identifying best practices to enhance the effectiveness of EdTech solutions. This study offers valuable perspectives on how national and state-level policies can collaboratively advance educational technology and promote equitable learning opportunities.

Keywords: EdTech, National Education Policy, Jharkhand, Digital Infrastructure, Educational Equity

1. Introduction

The role of government policies in advancing educational technology (EdTech) is crucial for shaping modern education landscapes, particularly in regions like Jharkhand where disparities in educational infrastructure and resources exist. As technology continues to revolutionize learning environments globally, national policies such as the National Education Policy (NEP) 2020, National e-Governance Plan (NeGP), and the Digital India Programme have laid a broad framework for integrating digital tools into education. These policies emphasize digital infrastructure development, teacher training, and the adoption of online learning platforms to enhance educational outcomes across India. In contrast, Jharkhand's state-specific initiatives reflect a localized approach to these national goals, focusing on bridging gaps in digital access and promoting technology-enhanced learning in government schools. Jharkhand's Digital Jharkhand Initiative and state education policies aim to address regional challenges such as limited internet connectivity and inadequate digital resources, tailoring national strategies to local needs. This comparative analysis of Jharkhand's efforts versus national policies highlights both the alignment and divergence in their approaches, shedding light on the effectiveness of policy implementation and its impact on educational technology adoption in the state. By examining these dynamics, we gain insights into how well national frameworks are adapted to regional contexts and the potential areas for improvement in promoting equitable and effective EdTech solutions.

2. Review of Literature

Ng, P. T. (2010). This essay discusses and investigates Singapore's three Masterplans for ICT in Education, which have been in place since 1997, and how they aim to integrate ICT into the classroom. It examines the management strategy used to carry out Masterplans One and Two and draws attention to the shortcomings

of Masterplan Three's ICT implementation using a linear Newtonian model. This paper makes the argument that the new educational ICT management paradigm should be built on complexity rather than a linear Newtonian model in order for Singapore to enter an unexplored era of educational ICT innovation. It should, in particular, support the understanding of the educational system as a complex adaptive system; loose coupling between the headquarters and schools; organisation based on intelligences rather than rigid structures; and integration through purpose as opposed to policy. Other nations putting national-level ICT in education projects into action can learn from Singapore's case study.

Powell, A., & Barbour, M. (2011). The North American Council for Online Learning conducted a survey in 2006 on the policies and practices surrounding primary and secondary e-learning—which they defined as online learning across a number of nations. They discovered that the majority were using e-learning as their primary means of facilitating change, updating educational institutions, and expanding access to top-notch instruction. Although North American nations seem to have been using the internet for secondary distance education longer than most other nations, the lack of a clear vision has resulted in unequal chances for students based on the state or province in which they reside. The government of New Zealand has made an effort to offer a vision or a framework that will direct the growth of online education. In order to demonstrate how this e-learning vision has facilitated the growth of primary and secondary online learning, we will examine three policy documents that the New Zealand government has produced in the last ten years.

Lam, J., & Tsoi, P. (2011). Government-issued technology-enhanced learning policies and strategies have made a significant contribution to raising the standard of lifelong learning. This study aims to assess the impact of technology-enhanced learning policies and initiatives on lifelong learning in China, Hong Kong, Macau, Taiwan, and Singapore. This study reviews the practices and policies related to lifelong learning in various nations. The findings demonstrate that these Asian societies invest varying degrees of energy in advancing technology-enhanced education. Learning with the aid of technology opens up a world of new opportunities for knowledge acquisition and skill growth. Governments should make greater investments and development in these areas in order to educate the workforce of the future.

Verger, A. (2012). Public-private partnerships in education, or ePPPs, are becoming more and more important on the agendas of development organisations and international organisations that deal with educational issues. They are intended to provide a chance to address inefficiencies in the public education system and to raise funds in order to improve educational access and affordability in low-income environments. The formation of ePPP as a "programmatic idea" is examined in this study, with a focus on the semiotic tactics used to situate the idea in the global education agenda and spread it among practice communities globally through a network of policy entrepreneurs. A novel method for analysing the framing and mobilisation of new policy ideas—which draws on the literature on agenda-setting, policy entrepreneurs, and policy frame analysis—as well as substantial fieldwork are used to support the research. The method demonstrates the intricate ways in which institutions, political players, material variables, and policy ideas combine to strategically present new policy possibilities in changing situations.

Williamson, B. (2012). Recent educational policy discourses have positioned British schools as centres of innovation and transformation in novel technology contexts; nevertheless, emerging well-being concerns point to a more "affective turn" in educational policy-making. This article offers an examination of a project that looked at how schools are being redesigned to be both more emotionally or affectively focused on the needs of the student and as effective technology centres.

Cohen, D. K. (2013). Newspapers and trade journals make it quite evident that the newest technology is the big thing in education right now. Such animals usually appear to be present in American schools, and microcomputers might continue to hold this favoured status for a while. However, it also appears possible that this new technology will not function exactly as its backers had hoped. Naturally, assessments will reveal that while the new technology is "working" for a small number of schools and students, it is "not working" for a large number of them. Policymakers and educators will be curious to discover why. Scholars will be asked to look into and provide an explanation.

Harris, P., & Walling, D. R. (2014). This chapter's primary goal is to survey the scope and features of US government policy concerning the use of technology in public elementary and secondary education. Transforming American Education: Learning Powered by Technology, the US National Educational Technology Plan 2010, released November 9, 2010, serves as the central source used by the writers. They

then outline a discussion of technology and politics from an international viewpoint using this analysis. A central query relates to the many functions of research. As a result, the writers provide a thorough overview of US federal policy regarding educational technology and support for the policy-identified research on this topic. This conversation is expanded to include a sampling of global perspectives on practice, research, and policy in other countries. This conversation takes into account English's status as the de facto language of technology as well as the ways in which its dominance impacts education.

Wonglimpiyarat, J. (2014). This study focusses on the policies and initiatives implemented by the government to assist Thailand's technological and innovative growth process. The government initiatives to support information and communications technology (ICT) enterprises are also covered in this report. The Ministry of Economic Affairs (MOEA) oversees robust innovation networks that facilitate effective technological catch-ups, as demonstrated by Taiwan's comparative case study. The findings demonstrate the interventionist government models of Taiwan and Thailand in offering a range of financial policies and initiatives to support the growth of high-tech companies. Other developing economies can learn valuable lessons from the studies of the policy implications and the strategic execution of innovation financing schemes.

Delgadon et al (2015). There is no denying that there is a significant and swift shift occurring in the way people live, engage, communicate, and do business. The progression of technology from analogue, electronic, and mechanical tools to the digital tools that are available today is commonly referred to as the "digital revolution." Furthermore, technology has started to transform education, impacting both how teachers incorporate digital technological instructional tactics into their lessons and how students develop the skill sets necessary to get ready for college and a profession. Several research works have been released that address the challenges associated with incorporating technology into education, the approximate financial outlay required to fully support educational technology, and of course, the efficacy of technology in the classroom. As a result, this article offers a critical analysis of the changes that technology integration has undergone over time, the financial and resource commitments made to fully integrate technology into schools, and the mixed findings regarding the efficacy of doing so. We discovered a wide range of technological instructional methodologies being used to integrate technology into K–12 classrooms through the synthesis of specific themes. Additionally, despite significant financial investments made to incorporate technology into K–12 schools in order to give kids the tools they need to get ready for college and the workforce, the investment has not shown great returns on its practical application. Finally, a number of meta-analyses revealed encouraging findings on the usefulness of technology in the classroom. However, the amount of variance that technology accounts for is dampened by a number of intrinsic methodological and research design difficulties.

Roumell, E. A., & Salajan, F. D. (2016). The three goals of this study were to: 1) build on previous reviews of 20 years of US educational technology policy; 2) conduct an empirical content analysis of the four Department of Education publications known as the National Education Technology Plan (NETP) since 1996; and 3) offer a dialectic analysis of the development of US e-learning policy. The content analysis showed that each of the NETP documents communicates a sense of urgency in the development of e-learning policy and general education reform over time, justifying the need for increased funding and support for federal level initiative in terms of educational technology policy. This is in line with the United States' goal of regaining its leadership role in the world with an emphasis on global competitiveness. By using a dialectical approach, the conflicting perspectives on education's role in granting people in society both economic fluency and mobility reveal underlying tensions within the NETP discourse.

Williamson, B. (2017). ClassDojo is one of the most popular educational apps in the world; 35 million kids and 3 million teachers use it worldwide. It implements and supports new "psycho-policies" from the government regarding the assessment and adjustment of kids' social and emotional learning in the classroom. This article focusses on how ClassDojo uses gamification techniques to enable psychological surveillance. It also discusses how ClassDojo is connected to Silicon Valley designers' psychological techniques and new psychological concepts like "personal qualities," "growth mindsets," and "character development." The study uses network analysis as a methodology to identify the organisational, technical, governmental, and scientific relationships that are combined and encoded in the ClassDojo app. ClassDojo is a key technology of "fast policy" that serves as a "persuasive technology" of "psycho-compulsion" to reinforce and reward student behaviours that are aligned with governmental strategies around social-

emotional learning. This is due to its alignment with emerging education psycho-policy agendas around the measurement of non-cognitive learning.

Czerniewicz, L., & Rother, K. (2018). The relationship between inequality and educational technology at the institutional level has not gotten as much attention as issues of inequality in higher education have in recent decades. The purpose of this paper is to offer an institutional educational technology policy viewpoint based on contemporary theories of inequality. The study is conducted as a content analysis of institutional educational technology strategy and policy documents from South African and UK universities. An initial examination of the literature on educational technology policy indicates a lack of institutional involvement with inequality issues in policy texts. The analysis is based on Therborn's typology of inequality, which incorporates Bourdieu's conceptions of capital as indicators of the many forms of inequality. The study shows geographical variations in the way that inequality is approached as a policy issue and differing approaches to policy-level involvement with inequality concerns related to educational technology.

Donahoe et.al., (2019). Allowing students to use technology in the classroom has been increasingly more popular as technology advances and becomes more ubiquitous. However, many educators wrestle several aspects of edtech, including, how to start using edtech (Caukin, 2018), when to use edtech (National Education Technology Plan [NETP], 2017), how to incorporate it without creating more distractions for students (Thomas, 2019), and ways that edtech can move students towards higher levels of thinking (Caukin & Trail, 2019). It is important for educators to provide opportunities for students to not only participate in effective and meaningful learning experiences, but also engage them, sustain their attention, and assess them in a variety of ways, all of which edtech can provide (NETP, 2017).

Machmud et.al., (2021). This study has an objective to identify the development and policies of educational technology application in ASEAN [South East Asia Region] countries. Through the literature review and analysis, this recent study has compared the issue of educational technology development and policies in ASEAN countries. The reviewing country has been chosen based on the Information and Communication Technology (ICT) index amongst the ASEAN countries, that are Singapore (as the highest rank), Thailand & Indonesia (as the middle rank), and Myanmar (as the lowest rank). The result of the study shows that the majority of the countries focused to improve network capabilities in supporting online learning, and the policies of each country showed a similarity in improving the technology equity for the learner. However, Singapore shows more advance technological implementation such as the application of broader Artificial Intelligence in classroom activity, while the use of Artificial Intelligence (AI) in Thailand and Indonesia still in developing progress. In conclusion, the technology education development in ASEAN countries has moved forward through the past year and the policies of educational technology for each country have been similar in strengthening the ASEAN plan.

Rodriguez-Segura, D. (2022). The emergence of educational technology ("EdTech") in developing countries has been received as a promising avenue to address some of the most challenging policy questions within educational systems. In this paper, he reviews and synthesize all existing studies with credible causal identification frameworks of EdTech interventions in developing countries. While other studies review the evidence for EdTech interventions in developed countries, there is currently no equivalent study for developing contexts, in spite of the rising number of studies being produced. He classifies studies into four thematic categories based on the type of EdTech intervention analysed: Access to technology; technology-enabled behavioural interventions; improvements to instruction; and self-led learning. He finds that EdTech interventions cantered around self-led learning and improvements to instruction are the most effective forms of EdTech at raising learning outcomes. Similarly, technology-enabled behavioural interventions are less promising for generating large effects but highly cost-effective given their typically low marginal costs. Although expanding access to technology alone is not sufficient to improve learning, it is a necessary first step for some other types of interventions. More broadly, the overall success of interventions rests on the thoughtful customization of the EdTech solution to the policy constraints at hand. Finally, EdTech interventions across all thematic areas can and should act as complements by leveraging their respective comparative advantages to address deficiencies within educational systems in developing countries.

3. Importance of Government Policies

Government policies are essential in shaping and advancing educational technology (EdTech) as they provide the structural framework necessary for integrating digital tools into educational systems. These

policies establish the priorities and guidelines for digital infrastructure development, ensuring that schools and educational institutions have access to the necessary technology and resources. They also set standards for teacher training, equipping educators with the skills needed to effectively utilize digital tools and enhance the learning experience. By promoting the adoption of online learning platforms and digital resources, government policies can democratize access to education, particularly in underserved or rural areas. Furthermore, policies can drive innovation and investment in EdTech, fostering an environment where new technologies can be developed and implemented. The importance of these policies is particularly evident in regions with educational disparities, as they help bridge gaps in access and quality, ensuring that all students benefit from modern educational tools and methods. In essence, government policies are pivotal in creating a cohesive strategy for integrating technology into education, thereby improving learning outcomes and preparing students for a digital future.

4. National Frameworks

National frameworks for educational technology (EdTech)[1] establish a comprehensive foundation for integrating digital tools into the education system across a country. Key policies such as the National Education Policy (NEP) 2020, the National e-Governance Plan (NeGP), and the Digital India Programme play crucial roles in shaping this framework. NEP 2020 outlines a vision for enhancing educational quality through digital means, advocating for the development of digital infrastructure, teacher training, and the adoption of online learning platforms. The NeGP aims to improve governance and public service delivery through technology, indirectly supporting educational initiatives by enhancing connectivity and digital literacy. Meanwhile, the Digital India Programme seeks to transform the country into a digitally empowered society, promoting widespread access to digital tools and resources. These frameworks collectively address various aspects of EdTech, from infrastructure and access to skills development and innovation. With setting national standards and goals, these policies create an environment conducive to the widespread adoption of technology in education, ensuring that educational advancements are uniformly applied and that resources are effectively allocated to meet the needs of diverse regions and communities [6-9].

5. Jharkhand's Localized Approach

Jharkhand's localized approach to advancing educational technology (EdTech)[2] is tailored to address the unique challenges and needs of the region. With initiatives such as the Digital Jharkhand Initiative and specific state education policies, Jharkhand focuses on improving digital infrastructure, expanding internet connectivity, and enhancing digital resources in government schools. These efforts are designed to bridge gaps in access and address regional disparities, ensuring that rural and underserved areas benefit from technological advancements. By aligning with national frameworks while adapting strategies to local conditions, Jharkhand aims to promote technology-enhanced learning, train educators in digital skills, and support the development of localized digital content. This targeted approach not only facilitates the integration of EdTech in schools but also helps overcome specific obstacles such as limited resources and connectivity issues, thereby striving to create a more equitable educational landscape within the state.

6. Comparative Analysis

- **Alignment with National Goals:** Jharkhand's localized initiatives, such as the Digital Jharkhand Initiative, align with the national frameworks like NEP 2020[3], focusing on improving digital infrastructure and teacher training. However, the extent of alignment varies based on the state's specific challenges and resource availability.
- **Implementation Effectiveness:** National policies provide a broad vision for EdTech integration, but their effectiveness in Jharkhand depends on how well state-specific strategies address regional issues such as limited internet connectivity and inadequate digital resources. This comparison reveals the practical challenges and successes of implementing national goals at the state level.

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- **Impact on Equity and Access:** While national frameworks aim to ensure equitable access to digital education tools across India, Jharkhand's approach is designed to specifically address local disparities. Analyzing how Jharkhand's efforts impact educational equity compared to the national standards highlights areas where state-level actions may enhance or fall short of achieving broader national objectives.

7. Insights and Improvements

- **Adaptation of National Frameworks:** Insights from Jharkhand's localized approach reveal that while national frameworks provide essential guidelines, their effectiveness hinges on adaptation to regional contexts. Tailoring policies to address specific local challenges, such as connectivity issues and resource limitations, can enhance the impact of national strategies and ensure more effective implementation at the state level.
- **Identifying Gaps and Best Practices:** Analyzing Jharkhand's experiences offers valuable lessons on potential gaps and areas for improvement in national policies. By identifying successful local initiatives and challenges faced, policymakers can refine national frameworks to better support regions with similar conditions, fostering a more equitable and effective EdTech landscape across diverse states.

8. Conclusion

The comparative analysis of national frameworks and Jharkhand's localized initiatives reveals significant insights into the role of government policies in advancing educational technology. National policies, including NEP 2020, NeGP, and the Digital India Programme, provide a broad framework that supports digital integration across India. However, Jharkhand's tailored approach highlights the importance of addressing regional challenges and adapting strategies to local needs. By focusing on improving digital infrastructure and resources, Jharkhand effectively aligns with national goals while addressing specific barriers faced in the state. The findings suggest that while national policies set the vision, their successful implementation depends on regional adaptation and targeted efforts. Identifying gaps and best practices from Jharkhand's experience can inform enhancements to national frameworks, promoting a more equitable and effective EdTech landscape. This approach ensures that educational technology advancements benefit all regions, fostering an inclusive and forward-looking educational environment.

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