Reimagining Education in India: NEP-2020 and the Knowledge Economy of Varanasi[1]

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Abstract
The given study evaluates the integration of digital media technologies in smart education within the semi-urban milieu of Varanasi, a locale of enduring cultural relevance in Uttar Pradesh, India, in alignment with the National Education Policy of 2020. It becomes imperative to scrutinize the adoption of various digital modalities—namely, e-learning platforms, virtual classrooms, digital repositories, and collaborative applications—when applied to the instruction of youth in culturally emblematic regions. Predominantly, existing scholarship in the field of media-educational studies has concentrated on large metropolitan cities, thereby leaving a conspicuous lacuna with respect to semi-urban settings of historical importance. The study zeroes in on the Varanasi region of India, where a historically rich cultural backdrop coexists with institutions of national standing, such as Banaras Hindu University, to ascertain how local youth and educators perceive and evaluate contemporary digital efforts. By fusing empirical data with a nuanced contextual frame, the research informs both the design and operational strategy of education policy. The study aims to delineate concrete, actionable measures that can guide educators, administrators, and creators of learning technology in mitigating the digital divide, advancing digital literacy, and cultivating equitable, culturally attuned, technology-mediated educational environments. The research paper is part of ICCSR sponsored major research F.NO. 02/127/2022-23/ICSSR/RP/MJ/GEN on" Usage of digital media applications for smart education: A study of youth in Varanasi District".

Keywords: Smart Education, Digital Divide, ICT for Education, Techno-Socialisation, Digital Literacy

I. Introduction

Emerging digital media technologies are fundamentally reinventing educational and training environments by influencing both pedagogical design and the hardware deployed within contemporary instructional settings (Kaufmann, 2003; Palloff& Pratt, 2002; Shoikova et al., 2017; Zhu et al., 2016a, 2016b). Worldwide, rapid increases in bandwidth, storage, and processing capabilities enable instantaneous global access to information, rendering previous

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instructional paradigms increasingly inadequate. In their place, modalities such as distance and mobile learning, adaptive instructional pathways, blended formats, social and collaborative practices, and game-centred approaches are gaining prominence as empirically effective alternatives (Erkollar & Oberer, 2016; Knight & Wood, 2005; Strayer, 2012). These advances have catalyzed the design and implementation of smart classrooms, heralding a transition from conventional pedagogy to smart and personalized learning environments (Bajaj & Sharma, 2018; Zhu et al., 2016b).

The Information Age, characterizing the early twenty-first century, has brought pervasive transformations through advanced science and technology, restructuring the core of contemporary society. Within this revolution, the integration of information and communication technologies (ICT) into educational systems has advanced rapidly, focusing particularly on the deployment of digital devices, emerging technologies, artificial intelligence, e-learning platforms, virtual classrooms, digital repositories, and the requisite supporting infrastructure, all identified as strategic priorities under India's National Education Policy (NEP) 2020. The COVID-19 pandemic further expedited this trajectory, amplifying the reliance on technological means for pedagogical delivery and learning. Throughout this pivotal period, the application of ICT has unified the efforts of educators, learners, and institutional administrators, facilitating the collective objective of adapting and succeeding within the prevailing educational environment (Raushan, 2020).

At its core, the National Education Policy (NEP) 2020 posits education as the principal levellerfor realizing human agency and for constructing a society characterized by justice and equity. The document foregrounds the socially transformative vocation of education, conceiving of the classroom as a counter-narrative to the enduring stratifications of caste, creed, gender, religion and region that have long fractured Indian society. Within this framework, learning objectives extend beyond the instrumental pursuit of gainful employment to the dismantling of structural marginality and the realization of social justice, equity and human dignity. NEP 2020 articulates a vision of education that is transformative in its conception of infrastructure, curricular content, pedagogy, teacher development and the principled engagement of communities.

Although India is making the transition to an information society, the systematic integration of technology into the educational process remains incomplete. The policy consequently directs attention to the strategic deployment of digital and media resources to enhance instructional delivery, to mediate linguistic diversity, and to expand the accessibility of educational planning and management.

Notwithstanding recent initiatives, the persistent technological divide remains a formidable barrier. Data generated by the National Statistical Office (NSO) for the period July 2017 to June

2018 reveal that ownership of computers and connectivity to the internet among rural households remained critically deficient. Barely 4.4 percent of rural households reported possessing a computer, whereas the corresponding figure for urban households stood at 23.4 percent. Internet penetration exhibited a likewise disparity, affecting only 14.9 percent of rural households, by contrast to 42 percent among urban counterparts (NSO, 2020). The investigation further illustrated a pronounced contrast in computer literacy rates between the rural and urban populations. Among individuals aged five and older, 9.9 percent of rural respondents demonstrated the ability to operate a computer, whereas the figure for urban respondents reached 32.4 percent. Internet proficiency was similarly unequal, with only 13 percent of rural inhabitants able to navigate the web, against 37.1 percent of those residing in urban zones. Although the rate of internet adoption in rural areas is accelerating more swiftly, mobile telephony remains the predominant means of connectivity across both geographic strata.

The pronounced divergence in technological access between urban and rural populations poses a substantive challenge to the objectives of the National Education Policy of 2020, which foregrounds the role of digital innovation in delivering smart education. Policy frameworks that predicate academic advancement upon the diffusion and integration of advanced technologies must, therefore, confront the empirical reality of entrenched inequalities. It is incumbent upon contemporary analysis to interrogate the underlying assumptions that permit technology to be conceptualised as a universal catalyst. Only through such a critical lens can stakeholders ensure that innovation, rather than consolidating existing disparities, becomes the instrumental vector by which the educational divide is effectively narrowed.

II. Digital Literacy and Structural Challenges: India

Digital deprivation has long been a systemic challenge in India, and it has intensified in recent years, particularly in the context of remote pedagogy prompted by the COVID-19 pandemic. The fundamental shortcoming of the pandemic-accommodated online learning framework lies in the persisting absence of equitable access to the requisite learning technologies. Beyond a functional internet connection, the presence of computers or smartphones of requisite specifications is likewise a conditional prerequisite.

Investigative statistics generated by the National Sample Survey Office substantiate the magnitude of the access deficit: the proportion of household ownership of computers is acutely limited, registering at a mere 4.4% in rural enclaves compared with 23.4% in urban settings. A more nuanced examination of device and connectivity availability reveals that, although 42% of urban homes possess a computer that is internet-capable, the corresponding figure for rural households is only 14.9%. The 2019 Nielsen survey further underscores the disparity, indicating that 70% of the rural populace remains without a functional internet subscription. Within the rural matrix, the lowest penetration has been recorded in West Bengal, Bihar, Jharkhand, and Odisha. Regional disaggregation of the northeast reveals that connections in these states are

predominantly held by low-income, male users, reinforcing the intersection of digital and socio-economic inequities.

The union territory of Jammu and Kashmir has faced considerable obstacles in the provision of remote education, largely attributable to the protracted prohibition on 4G mobile broadband that has been in place since 2019. This limitation has adversely affected both pupils and educators across the region throughout the sustained shift to digital instruction necessitated by the pandemic. Observations indicate that the only operational 2G services suffered from recurrent packet-loss, mean-round-trip-time latency, and throttling, conditions that caused persistent breakdowns in audio and video sessions; consequently, the effectiveness of virtual classrooms was severely compromised."

India is presently estimated to host around 500 million smartphone users, an assertion supported by the Indian Cellular and Electronics Association (ICEA), which anticipates an ascent to 829 million by 2022. This trajectory has been encouraged by governmental interventions, declining hardware prices, and an expanding rural constituency. Nonetheless, a sobering parallel continues to loom: approximately 800 million Indian citizens still lack smartphone access. Given that the preponderance of online educational frameworks is predicated upon synchronous and a-synchronous audio-visual material, an uninterrupted high-speed 4G connection becomes an indispensable condition. Data collated in 2018 by the ICEA indicated that the Indian market contained about 277 million devices supporting Voice over LTE (VoLTE), reflective of a 4G device penetration exceeding 50%. However, penetration rates within rural hinterlands stood at a mere 25%. Since almost the entirety of rural internet users access online content via portable devices, the implication is that a substantial proportion of the rural student demographic is deprived of the fundamental digital apparatus requisite for competent engagement in remote courses. The exigent aftermath of the observable digital fracture has manifested in severe instances, including documented student suicides, the causative linkage to intensifying academic burdens and the inability to procure requisite online hardware.

The inscription of the digital divide in India typically operates at the intersection of both spatial and gender axes. The 75th round of the National Sample Survey Office (NSSO, 2017–18) has articulated this bifurcation with clarity, recording that the propensity for basic internet usage was limited to 8.5 per cent of rural women compared to 17.1 per cent of rural men. Gendered marginalisation was equally pronounced in urban regions, albeit at proportionately higher absolute usage, thus extending the differential across both strata without narrowing the gender gap.

Corroborative micro-level examinations further substantiate this structural disadvantage. Aggarwal's (2018) survey of Delhi's urban slums found that 90 per cent of men possessed handheld devices, with 59 per cent categorised as smartphones and 58 per cent connected to the

internet; conversely, women logged only 58 per cent for basic phone ownership, of which 22 per cent owned smartphones, and internet usage was limited to 18 per cent. Subsequent findings from a complementary enquiry in Aligarh disclosed that 52.25 per cent of men possessed smartphones, against a mere 14.28 per cent of women, and notably, female respondents did not exhibit the capacity to download applications or to navigate platforms such as the Google Play Store. Taken together, such data collections expose a durable and cumulative inadequacy in digital literacy, which functions as a barrier to the equitable acquisition of educational resources for women and girls.

III. NEP-2020 and Digital Education

The National Education Policy of 2020 (NEP 2020) articulates the prevailing limitations of the Indian educational system and advocates the immediate implementation of carefully monitored pilot initiatives that are broad enough to evaluate the pedagogical advantages of online and digital learning, while simultaneously identifying and reducing associated risks.A further directive regarding the application of technology in education is the establishment of a new autonomous statutory authority, provisionally titled the National Educational Technology Forum (NETF). The Forum's principal mandate is to systematize the development and delivery of digital educational content, to standardize pedagogical practices that incorporate technology, and to promote the assimilation of new and emerging educational technologies across the Indian learning ecosystem.

The NEP details a series of empirically grounded, actionable initiatives to fortify digital education, including:

- Augmenting the extant DIKSHA and SWAYAM e-learning platforms by integrating real-time, bidirectional audio and video capabilities that allow teachers to engage and assess learners interactively.
- Assembling a comprehensive digital repository of instructional resources, encompassing, but not limited to, annotated course documents, simulation software, game-based modules, and immersive learning environments delivered through augmented and virtual reality (AR/VR).
- Establishing virtual laboratories under the DIKSHA and SWAYAM platforms, together with a targeted distribution model that offers preloaded tablets to underprivileged students and teachers, to ensure equitable access to experiential learning opportunities.
- Constructing NEP-Zone 21, proposed as India's National Assessment Centre, which will devise and validate innovative assessment methodologies aligned with 21st-century competency frameworks.

The proposals within the National Education Policy (NEP) concerning the persistent digital divide remain the subject of sustained critical examination. To redress the deficit of infrastructural access, the NEP recommends the leveraged use of television, radio, and

community radio to deliver round-the-clock educational content, including programming in regional languages. Yet, the effectiveness of such an intervention is contested; analogue modalities are measured against the inherent affordances of digital platforms, where online courses and interactive technologies afford a higher tier of immediacy and responsiveness to learners equipped with smart devices or stable broadband.

While NEP 2020 articulates an intent to cultivate e-learning and expand technological access, the policy remains silent on several enduring structural challenges that perpetuate inequities in digital education. Future implementation must, therefore, marry the aspirations enshrined in the NEP to the operational modalities advanced by the Digital India programme, which is engaged in fortifying technical and connectivity infrastructures. Of foremost concern is the mitigation of the gender digital divide evident in differential access to both the internet and smartphones. Equally, pedagogical designs must cultivate inclusivity by embedding norms that render digital learning not merely accessible, but authentically usable by persons with disabilities.

IV. NEP 2020: Vision and Key Reforms in Higher Education

The NEP 2020 has a holistic multidisciplinary transformation vision and restructuring for higher education. It clearly mentions “moving towards multidisciplinary and holistic education” which integrates arts, science, and vocational streams. In practical terms, this policy means that the students in the universities and colleges can be offered a multitude of subjects together with flexible curricula, which enables them to customize their education. The NEP aims to eliminate the barrier of the division of disciplines where a science student can take humanities or arts courses and vice versa depicting the notion that the innovation and employment in the 21st century demands a well-rounded knowledge. The policy aims to eliminate rigid interdisciplinary teaching approach, which fosters innovation and enhances critical thinking to develop well-rounded graduates who tackle issues from diverse perspectives.

In terms of institutional changes and interdisciplinary colleges, NEP 2020 explicitly mentions prioritizing the “ending the fragmentation" of the higher education ecosystem, intending to merge all Higher Education Institutes (HEIs) into larger, more multidisciplinary entities. The policy paints a picture of a future where there are no more standalone single-subject colleges, and every institution aims to have more than 3,000 students across multiple disciplines. The system of affiliated colleges is to be eliminated over a period of 15 years by implementing a gradual autonomy framework, which allows colleges to become either degree-granting autonomous institutions or merge into clustered universities. The overt separation between public and private, and deemed universities is expected to merge as all institutions are expected to adhere to the same absolute minimum standards of quality. NEP introduces the concept of Multidisciplinary Education and Research Universities (MERUs), which are envisioned to be comparable to the IITs and IISc, as multidisciplinary, high-calibre, research-intensive universities that set the apex on the meritocratic hierarchy of higher education. It is envisioned

that existing public universities, no longer burdened by affiliation chains, would transform into MERUs focused on high-end research. There is also a note that the private sector is, "encouraged to establish multidisciplinary HEIs," which signifies welcoming other aligned vision contenders.

This realignment stems from the belief that a spatially integrated multidisciplinary environment comprising of the academic disciplines of the sciences, social sciences, the arts, and vocational training yields optimal educational and research productivity. It is a multidisciplinary realignment reminiscent of ancient Indian universities like Takshashila and Nalanda, as well as an embrace of international movements of liberal arts academic training.

Regarding curricular reforms and flexibility, as with most educational policies, the NEP 2020 formulates and aligns goals with National Education Policy Vision 2020, which intends to majorly restructure degree offerings and curriculum frameworks to foster encouragingly greater flexibility and student agency. At the undergraduate level, the policy introduces a multiple entry and exit system (MEES), which markedly shifts away from the traditionally fixed, term-based degree. Under the new MEES, students can exit a degree program at various stages and receive qualifications at different levels: for example, a one-year certificate, a two year diploma, a three year Bachelors, and a Bachelors with Honours and/or research component after four years. This model ensures that “no loss of years” occurs if a student wishes to leave early. In such cases, students have the option to rejoin later and “stack” their credits towards acquiring a fuller degree.

An Academic Bank of Credit (ABC), a national digital credit repository, provides the necessary tools to offer such flexibility. The ABC system automates the storage and retrieval of verified academic credits earned from various institutions (including through online courses). As policy states, the credits stored can later be utilized in an education program where the student intends to continue their education. ABC aims to allow “multiple learning pathways, lifelong learning”, and cross-institution mobility. The 2020 National Education Policy plans an ecosystem that allows flexibility for learners to customize their personal learning journeys, including the ability to take breaks, transfer to different institutions or majors, shift their area of learning, or undertake a wide variety of learning activities without overly strict policies.

Furthermore, the NEP 2020 also integrates a four-year bachelor’s program with an optional international standard research component, which allows deep specialization for students, addressing the needs of those deeply interested. Completion of the program makes the learners eligible for a one-year master’s, which is a reform aimed at shortening the master’s program duration. The policy also notably removes stand-alone M.Phil programs, which are deemed obsolete as an intermediate qualification. Instead, a research-based 4th year of undergraduate study or a master’s degree directly transitions one to a Ph.D. program. The recently introduced regulations, directly after a four-year undergraduate degree were gained allow students with a

certain academic threshold (for example, 7.5 CGPA) to access a doctorate. The revisions target enhancing the research skills of learners at an early age and refining the higher education system.

Changes in the NEP 2020 policy emphasize multidisciplinary approaches to learning and the inclusion of broad liberal arts education even in science and engineering disciplines. For example, credit allocation across disciplines is mandated by the policy, ensuring students in every program take some courses outside their core field. This helps in the formation of well-rounded graduates and includes courses in the humanities, communication, ethics, and innovation. Apart from these, the policy also mandates the inclusion of arts, culture, sports, and the development of critical thinking, creativity, communication, and domain-specific skills. Domain-specific knowledge is to be assessed through continuous and formative evaluation as opposed to high-stakes examinations. The reforms aim to shift the focus away from inflexible, rigid pedagogies to more modular and skills-focused, learner-driven approaches.

In terms of quality improvements and research advocacy, the NEP 2020 draft seeks to foster innovative inquiry with a robust framework of provisions. One of the flagship provisions is the establishment of a National Research Foundation (NRF) which is to act as the central agency to coordinate research funding and facilitation at different universities. The NRF is intended to initiate and nurture research in the sciences, technology, social sciences, and the arts and "provide a significant thrust to research at universities." Its goals include funding research of the highest quality in competition with other proposals, mentoring at least some new researchers, and "recognizing and incentivizing" high quality research output. NRF will consolidate research funding (which was a problem because it was spread out between too many agencies) and guide policy, which is assumed will alleviate the problem of insufficient research funding in higher education.

Concurrently, it advocates better international and interdisciplinary partnerships in doctoral education. Specialized research centers and innovation incubators as well as innovation research centers are to be created by the institutions. Correspondingly, NEP also calls for improved faculty with an emphasis on professional continuing education for faculty, career advancement based on measurable performance, and recruiting academics from the diaspora and industry. The objectives are to equip faculty with the expertise and motivation needed for mentoring students in innovative teaching and research. With these changes, NEP 2020 expects Indian universities to improve their global positions and engage in research that is both nationally and internationally impactful.

In addition to that, the adaptation of India's higher education to be internationally competitive is arguably the most overlooked aspect of NEP 2020. It is MERU's stated aim of "internationalization at home" which plans to establish Multidisciplinary Education and Research Universities. This vision is aimed at not only capturing international students and

research partnerships but also establishing India as an alternative hub to the US and UK. Some of the policies that reflect this are the upper limits India's top 100 global Universities have placed on setting up branches which is incentivising India's HEIs to set up twinning and dual-degree programs. The image of academic diplomacy which is being constructed here attempts to use education as a tool of soft power. It attempts to enable India to diversify its intellectual capital while also enabling India to wield influence. The presence of these policies in NEP 2020 suggests India is reconsidering the international integration of universities and aims to globalize their function.

NEP 2020 has called for an entire restructure of the regulatory system controlling higher education; this has been categorized under Regulatory reform and governance. The policy suggests forming a new overarching body, the Higher Education Commission of India (HECI), that will either replace or consolidate existing regulatory bodies, with the exception of legal and medical education regulators. HECI will have four independent verticals: (1) NHERC for general regulatory oversight of institutions, (2) NAC for accreditation of institutions, (3) HEGC for funding and financing higher education with a shift of grant functions from UGC, and (4) GEC for maintaining academic standards and faculty development.

The rationale for this fragmentation is to remove the previously existing competition for having a singular, central controlling body. The governance will be termed as 'light but tight,' where compliance will be ensured for broad standards (financial probity or academic outcomes) but micro-managing will be absent. The policy also suggests graded autonomy for institutions earned through defined performance.

V. Data Driven Stark Observations: NEP-2020 and Varanasi

Varanasi has a total of 5 universities including both central and state universities. The total number of colleges in Varanasi are 238 including both state/central and private. Out of these, the most prominent ones (based on market value, reputation, and student preference) are 28. In addition to that, there are 11 engineering colleges and 5 medical colleges in operation in Varanasi. This is the overall population space from where the sampling has been done in a randomized manner. Out of the total sampling frame, the sample of 1000 has been drawn in a random fashion. The sampling unit selected to draw from the sampling frame is the age group of the respondents and their enrolment in any institute of higher education.

The information gathered sheds light on the issues related to the use of digital media applications for the smart education of the young people from Varanasi District. The Varanasi District case study provided useful information regarding the students' engagement with smart education through a combination of quantitative surveys and qualitative assessments. The results of the study indicate and elaborate on synergistic and conflicting patterns of usage among the students

and also shed light on some of the challenges and implications that were not expected for educational policies and practices.

The data clearly demonstrates the youth-centred characteristic of the respondents, with the clear majority of them being between 17 to 21 years of age. This pattern complements the overall picture of the students in the colleges and universities, and suggests the survey captured the attitudes and behaviours of a very crucial segment of the young population. The sample is also dominated by undergraduate students, which illustrates greater responsiveness towards early years in the tertiary education and the level of engagement possible through the use of digital media in shaping students' academic and career pathways.

The sample's gender breakdown revealed further nuances worth investigating. The data shows an imbalance in the proportion of males versus females, which in itself is reflective of the more encompassing socio-cultural realities and enrollment practices in Varanasi. Additionally, the data makes a strong case for developing gender tailored approaches for smart education initiatives. This is more important considering the significant differences in perceptions and participation noted between the male and female respondents. It demonstrates the urgent need for policy frameworks that regard gender as a primary factor in designing educational engagement and multicultural equity.

The amount of time spent on digital devices has provided some critical insights. It was evident that the majority of students used digital media for approximately 4 to 6 hours. Furthermore, there was a smaller, yet substantial group that exceeded 8 hours per day. Such enduring exposure raises critical concerns regarding the need for balance between constructive educational utilization and the risks of overexposure to digital media. This balance would need to be optimally calibrated so students are neither overexposed nor underexposed. The students also exhibited a markedly higher preference for news, current affairs, and entertainment over educational content. This hierarchy of content consumption suggests that as students use digital media, educational content needs to be much more compelling and strategically designed to capture and retain their attention.

The answers students provided also led to understanding some of the interesting relationships between the content they accessed and the time they spent on the devices. Students who reported longer usage hours notably consumed more entertainment-related content. This suggests that educational content needs to be marketed more creatively by embedding entertaining elements to grab and hold the attention of students. On the contrary, moderate users appeared to concentrate more on educational and news content. Teaching and learning strategies may need to be designed very differently according to the digital habits of students.

Another critical area that the data has revealed is the awareness and the use of Learning Management Systems (LMS) by students. A considerable number of respondents acknowledged Google Classroom and Coursera, which was indicative of some level of penetration of certain

LMS tools among students. However, the lower awareness of other LMSs like Moodle or Open edX demonstrates require further outreach and capacity-building endeavours. This lack of awareness underscores the need for institutions to expand the range of available tools, thereby broadening the range of educational technologies employed to improve the learning experience.

The cluster analysis provided by the study gave analytical value by categorizing the respondents into different groups stratified by their perceptions, levels of digital interaction, and awareness of policies. A considerable fraction, classified as "Tech-Savvy Advocates," were noticed to be high digital users, fully aware of and strongly supportive of smart education policies. This cluster demonstrates the existence of a vibrant, digitally engaged student cohort who are ready and willing to champion and adopt smart educational initiatives ahead of their peers. Conversely, the enthusiasm from students in the "Positive but Less Aware" category was underpinned by a lack of awareness toward the associated policies, indicating strong support motivated by positive experiences with digital learning. Finally, the “Moderate Users, Moderate Outlook” cluster captures students who, while being relatively well informed about policies, were critical of their real-world applications. This highlights the need for educational systems that are responsive, preemptively address informed scepticism, and act as transparent structures to stimulate engaged participation.

The understanding of the key predictors influencing students' attitudes towards smart education has been enriched using correlation and regression analyses. It is noteworthy that device usage emerged as the strongest positive predictor of favorable attitudes towards the utilization of smart education, confirming that greater digital engagement correlates with increased receptiveness toward these educational innovations. In contrast, greater awareness of policy frameworks was shown to negatively correlate with students’ evaluations. This suggests that better-informed students tend to have higher, more critical expectations, which points to the gap between what is implemented and what is promised. This relationship is particularly compelling as it illustrates the need for educational policymakers to honour their promises to align policy expectations closely with actual deliverables in educational strategy execution in order to maintain student trust and satisfaction.

The data also confirmed the notable impact of gender on various educational factors, including perceptions of government initiatives, digital engagement, and awareness of the NEP (National Education Policy) 2020. These results indicate that policy and practice in education need to be devised and implemented with gender sensitivity in order to achieve equal and fair results. Getting these gendered differences right has the potential to improve the inclusivity and effectiveness of smart education initiatives when applied to outreach and educational strategies.

Strategically integrating digital tools into education in Varanasi reveals both newfound possibilities as well as deep-seeded difficulties that have to be centered in future plans. Although constructive student engagement and the availability of digital tools has been, and continues to

be, enthusiastically embraced, there is vitally still more to be done in terms of creating awareness concerning equal opportunities, demand, and the digital need in education. When embraced and provided top priority, positive changes are likely to be made for education systems that focus on bridging the implementation gap and responding to the needs and wishes of students. If topped with the well-devised and executed policies by educators, change-makers and decision-makers that digitally sharpen the educational features, students would be able to learn more, sharpen their outcomes, and thoroughly enjoy the chances.

On the basis of the findings, the fundamental questions that emerge with respect to the study and its outcomes are:

a. What is the outlook of students in Varanasi towards Smart Education?

The perspective of students from Varanasi regarding smart education is mainly positive, illustrating their willingness to embrace technological enhancements within their learning processes. According to the information gathered, a considerable number of respondents appreciate the benefits and the ease that smart educational aids offer. The survey suggested that students' smartphones and laptops are their preferred smart gadgets because of their ease of use and accessibility. These observations indicate that students are increasingly dependent on digital systems for education, including accessing learning materials, interactive sessions, and virtual teaching.

From a technological engagement perspective, a considerable number of students actively and daily consume educational materials from digital platforms, and this technology-based learning approach seems to be steadfast and growing. Moreover, students seem reasonably familiar with the idea and scope of smart education initiatives launched by the government under NEP 2020, signalling extensive public and institutional-level awareness campaigns and proactive information flow regarding the policies.

Notwithstanding the general acceptance, some differences do exist, particularly along the lines of gender, level of education, and socio-economic status. For example, the study has shown some differences based on gender with respect to attitudes towards smart education, pointing to the need for equitable education policy and gender sensitive strategic frameworks. Furthermore, the prevailing positive attitude towards smart education is countered by some students who, due to insufficient training among faculty and infrastructural resources, possess an uninspired attitude toward smart education. These attitudes indicate that to improve the attitude towards smart education among students in Varanasi, the existing barriers need to be addressed.

b. What kind of integration exists between digital media and smart education in Varanasi?

The incorporation of digital communication technologies and smart education in Varanasi as the Varanasi Smart City Project, showcases important improvements, yet it displays some scope of consideration. Educational institutions in the area have started to adopt the use of digital media,

including the use of interactive whiteboards, streaming lectures, educational apps, as well as online courses. Most importantly, the use of mainstream platforms like Google Classroom and Coursera by students indicates some level of integration because they are known and used by students.

As a positive trend, video lectures, educational apps, and mobile interactive tools are also included in classroom teaching to some degree, as students are digitally studying as a part of their daily routines. Institutions have recorded a high level of student engagement when it comes to the use of digital media in education, which suggests an increasing shift toward a digitally enhanced teaching and learning atmosphere.

Nonetheless, the extent of integration differs significantly across institutional types. Unlike state or rural colleges, prominent private and central institutions possess superior digital infrastructure and resources. This gap arises due to inequitable resources, financing, and differing administrative preparedness. To solve these gaps, focused integration strategies to improve digital infrastructure, faculty development, and resource allocation at all institutional levels are necessary. An improved, more equitable integration approach will help all students achieve consistent educational outcomes regardless of institutional affiliation.

c. How has smart education shaped the educational socialization among the youth in Varanasi?

In Varanasi, smart education has significantly transformed the socialization of the youth, influencing their educational activities, interactions, and anticipations. The availability of educational materials on digital platforms has increased access to content, enabling self-guided and customized learning. This has motivated students to acquire essential digital literacy skills and fostered their engagement and collaboration within learning-centred virtual communities.

With the increased utilization of digital platforms, students are more motivated to use devices. Data analysissupports this claim as there is a positive correlation between digital device usage and attitude toward smart education, suggesting improved educational socialization. Students who rely on digital platforms are more likely to show strong engagement, confidence in resource management, as well as in collaboration within digital ecosystems.

In contrast, the social educational manners impacted by smart tools have their issues as well. Students feel overloaded with digital information, have low face-to-face interactions, and experience digital exhaustion as a result of prolonged screen use. Differences in access to and competency with digital devices among students of varying socio-economic statuses also widen the gap in educational socialization. Meeting these needs adds the challenge of social education that centres on the distribution of resources, which can include the provision of materials, construction of digital literacy access frameworks, and enforced social education methods

combining digital and analogue frameworks that are aimed toward unified outcomes of socialization.

d. What kind of potential trends can be observed in Varanasi post the implementation of NEP-2020?

With NEP-2020's implementation, numerous emerging trends signal transformation in Varanasi's education system. The policy's focus on integrated multidisciplinary frameworks and flexible structural outlines, along with digital pedagogical tools, is restructuring institutions, their frameworks, and teaching methodologies. There is a greater adoption of multidisciplinary models of education, which enables inter- and intra-disciplinary teaching and learning, fostering all-round student development.

Impact of the newly initiated multi-entry and exit policies, along with the Academic Bank of Credit (ABC), has greatly increased the flexibility of education by creating custom-tailored learning paths for each student. These initiatives focus on lowering educational burdens while improving the range of learning paths, which is beneficial for learners in the long run, leading to increased retention and satisfaction.

A notable trend is NEP's focus on academic vocational training and collaboration with the industry, aimed at narrowing the gap between educational institutions and industries. There is a growing adoption of Apprenticeship schemes, industry-oriented defined syllabi with practical hands-on work, which improves the students' employability as well as the education-to-market paradigm.

Notwithstanding, tackling infrastructural gaps, limited funding, undertrained faculty, and socio-cultural barriers tends to be where these trends are effective. To achieve each of NEP's ambitious objectives, institutions require adaptive and iterative management. Active stakeholder collaboration also facilitates proactive engagement. Emerging trends need to concretely and sustainably bolster Varanasi's identity as a dynamic educator hub through ongoing evaluative processes that gather and analyze feedback.

Thus, to conclude, the study conducted concerning the application of digital media technologies for smart education in Varanasi district reveals how the modern technology dimension impacts education. This study has examined various aspects of digital education technology, which in turn has changed the way students participate, how teaching is delivered, and how education policies are enacted in the region. The results strongly suggest that students are largely and favourably willing to accept the use of modern technologies and their impacts on learning, appreciating the convenience, flexibility, and interactivity of lessons.

A number of positive developments can be noted in regard to the implementation of the NEP 2020. As noted above, the introduction of multi-disciplinary and flexible courses with the

multiple entry and exit systems and the Academic Bank of Credit (ABC) signifies an important pivot towards student-centered learning. It is anticipated that these changes will reduce the academic burden, improve student retention, and support their overall development. Moreover, the growing emphasis on vocational studies and the collaboration between industries and educational institutions is integrating educational frameworks with the practical needs of the market, improving students' employability and practical skills.

Meeting NEP 2020's goals will be easier if there is attention to underlying issues such as infrastructure gaps, inconsistent funding, and stakeholder inertia. Alongside these issues, there is also the need to strengthen administrative systems, centralized funding, and ongoing training for teachers to implement the adopted policies. Additionally, fostering and cultivating adaptability and responsiveness among educators is necessary to ensure that policies yield desired results. To ensure the potential of smart education is maximized, collaboration, dedicated efforts and ongoing collaboration of the policymakers, education leaders, teachers, learners, and corporate partnerships will be integral in the long run. Through active involvement, continuous assessments, and flexible governance, these initiatives will be improved. Schools and educational institutions need to go beyond the application of technology and seek to blend digital systems with conventional teaching to offer quality education to all learners.

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