

Digital Divide, Inequalities and Skill Based Education: Bridging the Gap Between Education and Inclusive Economic Growth in India

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Abstract

The relationship between education, economic growth, the digital divide, skills, and social inequality is the prime focus of this review article. Though unequal access to digital technologies has led to new types of exclusion, education is universally acknowledged as a major driver of economic development. The review research determines how differences in digital skills and digital barriers affect economic results and employability. It implies that although education fosters productivity and skill development, the digital divide still prevents people, especially those from underprivileged classes, from taking full advantage of these opportunities. The need for both technical and soft skills has expanded due to rapid technological improvement, making skill development more important than ever. Income and social inequality are made worse by the unequal distribution of digital literacy and employability skills. The difficulties of inclusive development are further complicated by geographical and socioeconomic differences. The necessity of integrated policies that link labor market demands, technology, and education is very crucial. The study also emphasizes that attaining sustainable and equitable economic growth requires closing the digital gap and fostering inclusive skill development.

Keywords: Digital divide, economic growth, inequalities, skill based education

Introduction

Due to rapid industrialization, India is becoming more technologically driven so there's significant need to enhance skill acquisition, human capital, innovation, etc. which thereby increase the productivity of labors in the market. There's also need to add skilled based education in the higher education system. Skilled based education refers to learning those employable skills required for economic participation in the real world. Employable skills are the general and necessary skills for the achievement in all the sectors of the labor market. Academic knowledge shall be integrated with technical skills to reach greater performance in the work place. Unemployment in India is considered as a very serious problem as most of the people are jobless along with the educated one (Ansari and Khan, 2018). There's a need for vocational education and training (VET) to bridge the gap between the education and needs of industry. Government has taken some initiatives to promote VET like Skill India Mission, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Industrial Training Institutes (ITIs), National Skill Development Corporation (NSDC), etc.

India consists of people having different cultures, social status and economic backgrounds. Society has been divided in such a way which results in unequal distribution of necessary resources which in turn

increases the socio-economic disparities in the country. When people are not given equal and fair opportunities in the areas of justice, health, and education, unequal opportunities arise in a society. The term "digital divide" refers to this phenomenon that is currently apparent in the digital sphere. (Sharma, 2023). An unequal access to Information Technology which means technology that has not reached to each and every section of the society, especially in the rural areas. Gender inequality to reach out information and technology also prevails in rural areas, where women are viewed as inferior to males in a variety of social, political, economic, cultural, and legal fields (Choudhary, 2018). However, despite over 60 years of enacting laws meant to correct this disparity and a little decrease in educational disparities, the difference is still rather large (Desai and Kulkarni 2008).

So, to overcome these challenges, government should provide internet access in the rural areas and promote women participation in every field of the economic structure. Economic growth in India can be attained by overcoming these challenges. A bridge is needed to fill the gap in digital divide through technical access to all as digital literacy is important for creating better employment opportunities. At the same time reducing inequalities shall be emphasized by increasing women participation and productivity. Moreover, encouraging skill based and vocational education corresponding to expansion of the industries is also needed. India cannot expect beneficial changes to occur without massive education reform as substantial social and economic structuralizing is required (D'Aleo and Sergi, 2017).

Numerous approaches have been tested and empirical studies have been carried out worldwide to access the role of education in economic growth, with conflicting findings about the causal relationship between economic growth and educational spending (Schultz, 1961, Card, 1999; Mallick and Dash, 2015).

In the review literature the author aimed to examine interconnections between digital divide, gender inequality and skill development, and tried to evaluate their combined impact on India's economic growth. Understanding these challenges is important as it will shift India towards a digital and skill-based education.

Literature review

Social inequalities and digital barriers

Education plays an important role in the society but there still exist gender inequality. In India, gender disparity worsens educational inequalities. Girls in rural areas frequently face extra obstacles, such as societal expectations, early marriage, and safety concerns, despite improvements in enrollment rates.

The Right to Education Act (RTE) of 2009, which requires free and compulsory education for children ages 6 to 14, is one of the most significant NPE (National Policy on Education) efforts. RTE seeks to eliminate these barriers like enrollment costs and inadequate infrastructure, especially in rural and underprivileged areas (Kumar et.al, 2024). The NEP 2020 recognizes that technology is very crucial to enhance the experiences of students, improving learning standards and closing the digital gap (Kumar et al., 2021).

Research done in India by Sharma and Gupta (2021) showed that AI-based learning platforms had a limited impact in rural areas, but improved outcomes of learning in urban areas. When adopting AI in education, developing nations face infrastructure and digital literacy difficulties, according to UNESCO (2021).

Digital Skills and literacy

The educational sector has enormous hurdles in sustaining pupil engagement and enhancing learning ou-

tcomes in a time when younger generations' attention is dominated by digital distractions (Kachhwaha et al., 2025). The question of integrating digital skills in the framework of higher education is of utmost importance. Digital literacy skills include a wide variety of complex skills like cognitive, motor, sociological, and emotional capabilities that students need to have in order to work successfully in digital world (Leahy and Wilson, 2014).

The quality standards are getting more and more important as India seeks to be a part of global economy in the areas that require highly skilled workers. This is possible by the inclusion of technological intelligence and digital literacy skills in the school's curriculum; and a road map for integrating digital skills which includes ICT skills-enhancement courses and extracurricular activities (Varghese and Musthafa, 2022). The goal of National Education Policy (NEP) 2020 has also included some initiatives like pilot research and creation of virtual labs like SWAYAM, SWAYAM PRABHA, DIKSHA mobile app, blended learning, and providing the study material in different languages. A digitally literate teacher can help the government by minimizing the gap of this digital divide (Sharma and Singh, 2024). In order to give in-depth knowledge to students pursuing higher education in the highly competitive Indian environment, educators must carefully assess the knowledge gap and develop strategies to close the knowledge deficit through the use of information communication platforms, which can enhance the learning outcomes of learners (Kaushik and Kachhwaha, 2024).

Employability skills and economic growth

The most significant problem that India has faced is unemployment. Every year millions of people graduate from high schools or colleges and enter into workforce. The introduction of technology, computerization, and mechanization in every field of business and administration has drawn attention to the issue. This clearly demonstrate the need of encouraging young people to engage in self-employment and entrepreneurial activities (Katole, 2015). Further research is required to incorporate innovative training techniques. This will lead to the creation of high-tech jobs and a sustainable way of life. Employability skills are sometimes referred to as soft skills, core or basic skills, work-preparedness skills, or job-readiness skills (Subramanian, 2017). So, developing employable skills will contribute to economic growth.

Skills training and active labor market policies (ALMPs) mutually complement one another to combat the disparities between skill supply and demand. A proper ALMPs framework can make India realize it's potential.

Employment and unemployment in Labor market

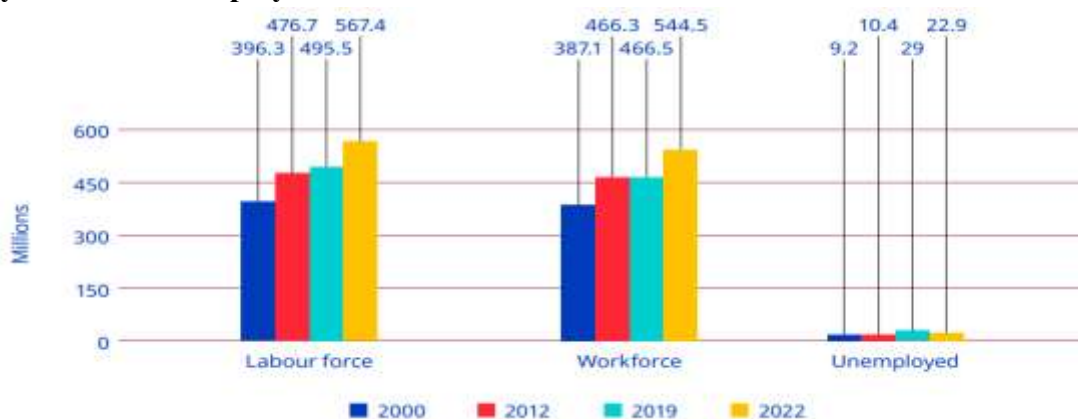


Figure 1: Labor force size, workforce, and unemployed individuals (UPSS), for persons aged 15 and older (rural and urban combined), for the years 2000, 2012, 2019, and 2022 (in million) (source: https://www.ilo.org/sites/default/files/2024-08/India%20Employment%20-%20web_8%20April.pdf)

The growth of the labor force without a corresponding rise in employment was the main cause of the significant rise in the open unemployment rate between 2012 and 2019. However, between 2019 and 2022, there was a substantial rise in the labor force as well as a decline in unemployment. The quality of jobs created during the current global recession is an issue, as the International Labor Organization (2023) noted, with many workers being forced to take low-quality occupations, often with low wages or earnings. Other attempts to position India as one of the world's leading economic powers would be hampered by the unemployment and poverty brought on by slow growth. Therefore, India's top priorities for the next 20 years are the employment of talented youth and the acceleration of economic and digital growth (Ganeshan and Vethirajan, 2021).

Conclusion

The review indicates the direct relationship between digital barriers and socioeconomic inequality, which limits access to opportunities and worsens already-existing gaps. Marginalized populations are still excluded from the advantages of economic and educational growth due to unequal access to digital resources. To turn access into significant outcomes, digital literacy and skills are essential. Yet, there are still gaps in digital skills, which limit people's capacity to take advantage of technological improvements and fully contribute in the digital economy. Since they increase productivity and innovation, employability skills are essential for promoting economic growth. But, disparities in access to high-quality education and skill mismatches hinders inclusive growth and increase inequality.

Suggestions forward

To overcome access gaps and integrate digital literacy into conventional educational programs, expanding digital infrastructure is important. Programs for integrated skill development should be supported by the government. This will encourage a lifelong learning and development of training interest in every learner. Improve research on skill outcomes and digital inequality in developing countries and foster collaboration among economic, technological, and educational initiatives.

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REFERENCES

1. Ansari, T. H., & Khan, M. A. (2018). Role of education and skill development to promote employment in India. *Skill India Opportunities and Challenges*, 208-214.
2. Card, D. (1999) 'The Causal Effect of Education on Earnings', in Ashenfelter, O. Card, D. (ed.) *Handbook of Labour Economics*, Vol. 3, Elsevier Science.
3. Choudhary, R. (2018). A study of Gender Inequality in India. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 5(2), 1139-1141.
4. D'ALEO, V. and SERGI, B. S. (2017). Human factor: the competitive advantage driver of the EU's logistics sector. *International journal of production research*, 55(3): 642–655

5. Desai, S. and Kulkarni V. (2008). 'Changing Educational Inequalities in India: In the Context of Affirmative Action', *Demography*, 45(2): 245–70
6. International Labor Organization: India Employment Report (2024). Youth employment, education and skills https://www.ilo.org/sites/default/files/2024-08/India%20Employment%20-%20web_8%20April.pdf
7. Kachhwaha, N., Magomedov, I., & Aun, D. (2025). Innovative educational techniques: Exploring the potential of edutainment and gamification. In *ITM Web of Conferences* (Vol. 72, p. 05002). EDP Sciences.
8. Katole, H. (2015). Skill development and economic growth of India. *Journal of Applied Economics and Business*, 3(4), 8.
9. Kaushik, P., & Kachhwaha, N. (2024). Weak Conceptual Knowledge Base of Zoological Classification in Students Pursuing Higher Education. *Zoology, SSR Institute of International Journal of Life Sciences*, 10 (2):5057-62.
10. Kumar, A., Krishnamurthi, R., & Bhatia, S. (2021). Enhancing education through digital technology: Challenges and opportunities. *International Journal of Information and Education Technology*, 11(5), 235-241
11. Kumar, A., Sharma, P., Patel, R., Gupta, A., & Singh, V. (2024). Educational inequality and its impact on social and economic opportunities in rural India. *International Journal of Humanities, Management and Social Science (IJ-HuMaSS)*, 7(2), 87-96.
12. Leahy, D., & Wilson, D. (2014). Digital skills for employment. In D. Passey, & A. Tatnall (Eds.). *Key competencies in ICT and informatics: Implications and issues for educational professionals and management* (pp. 178–189). Berlin Heidelberg, Germany: Springer.
13. Mallick, L. and Dash, D.P. (2015), 'Does Expenditure on Education Affect Economic Growth in India? Evidence from Cointegration and Granger Causality Analysis'. *Theoretical and Applied Economics*, 22(4): 63-74.
14. Ganeshan, M.K. and Vethirajan, D.C. (2021). Skill Development Initiatives and Employment Opportunity in India. *SSRN Electronic Journal*, 1(3): 21-28.
15. Schultz, T. W. (1961), 'Investment in Human Capital'. *American Economic Review*, 51(1): 1-17.
16. Sharma, A., & Singh, A. (2024). Digital literacy: An essential life skill in present era of education. *Transforming learning: The power of educational technology*, 118-125.
17. Sharma, J. (2023). Digital Education Leading to a Digital Divide: As an Emerging Form of Inequality. In *Technology, Policy, and Inclusion* (pp. 162-178). Routledge India.
18. Sharma, R., & Gupta, P. (2021). "AI-Based Learning Platforms in Indian Schools." *Journal of Educational Technology*, 18(2), 45–58. 5.
19. Subramanian, K. R. (2017). Higher education and employability skills. *International Journal of Combined Research & Development (IJCRD)*, 6(1), 711-721.
20. UNESCO. (2021). *AI and Education: Guidance for Policy Makers*. Paris.
21. Varghese, J., & Musthafa, M. N. (2022). Integrating Digital Literacy Skills and Technological Intelligence in the Higher Education Curriculum of India: A New Paradigm. *Issues and Ideas in Education*, 10(1), 31-38.