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How can digital literacy in India bridge the gap between rural and urban populations?

Sofia Damásio

IE University, Madrid, Spain

Bachelor in International Relations

sdamasio.ieu2022@student.ie.edu

Abstract

Digital literacy is key in our modern world. It is crucial for everyone to be familiar with innovative technologies and their possible implications, especially in a rapidly developing country like India. However, 70% of India's population lives in rural areas, most of them facing a digital divide. To address this ongoing problem, this paper discusses potential solutions that consist of leveraging other already existing solutions and adapting them to a local level.
This paper also looks at how this digital divide not only affects development at a national level, but may also affect India's foreign policy and prosperity. Seeking regional dominance, India simply cannot afford having most of its population excluded from society and contributing to economic growth. Hence, bridging the digital divide is key to India's future.

Keywords: digital literacy, urban and rural divide, India,

1. Introduction

Digital literacy has gained a big role in our modern world. It is one of the key pillars of current ideologies that shape our modern world, such as globalisation. India is a rapidly emerging country located in Southeast Asia. It is currently involved in several political alliances, mainly the BRICS. This showcases India's rapid development and its search for global influence.

This paper will look at how digital literacy may bridge the gap between urban and rural populations in India. Through the use of government and institutional sources such as the WHO, this paper will provide an unbiased analysis of the issue at hand.

The digital gap is currently one of India's main domestic issues, as around 70% of its total population lives in rural areas. However, India is a labour-intensive country and, thus, their rural population contributes significantly to India's GDP. Nevertheless, this digital divide has posed an immense challenge to bringing together Indian society. Having more than half of the population marginalized, is negative for the country, from an economic, social, and governmental perspective. However, this can be solved

through public and private partnerships, international treaties, and global cooperation.

Firstly, this article will provide an analysis of what is currently happening due to the gap between rural and urban populations. Moreover, the possible long-term effects of these current impacts, and what this means for India, both, from a national and international point of view, will be examined. And the final sections will analyse possible international policies and evaluate to what extent India can implement them.

Before jumping into the analyses, it is important to understand the origin of this inequality. This inequality stems from cultural differences. In rural areas, people are less likely to feel the need to get digital education.[1] They depend on agriculture, thus, their priority is not technology. As a result, people prefer to invest their time in activities that relate to their daily lives and surroundings.

This main cultural principle led to the inequality we have nowadays that grew in scale. Digital disparity today is based on educational differences and a lack of infrastructure. While, culture itself plays a minor role since nowadays you cannot afford to not be digitally literate.

II. Consequences of the divide between urban and rural populations

The gap between urban and rural populations in India has been increasing especially from an economic perspective. For example, the rural inflation rate is 75% higher than the urban.[2] This is mainly because of disruptions in distribution channels, underscoring the current division between rural and urban people. For example, disruption in the food system. Urban areas have access to quality food. However, by the time this food reaches rural areas, it has spoiled.

This ongoing division has several consequences. First of all, the urban population has limited access to government-provided essential services such as the PM Kisan and the Jan dhan Yojana. The PM Kisam is a government-led platform that provides financial assistance to small and medium-scale farmers[3]. This platform provides them a total of 6000 rupees annually, transferred in three instalments, as income support. 80% of farmers in India are considered small scale farmers.[4] Out of those, 47% live in rural areas.[5] Due to the bureaucratic complexities and technical or intricate requirements needed to have a bank account with conventional financial services

[1] Mahmudul Hasan Laskar. 2023. "Examining the emergence of digital society and the digital divide in India: A comparative evaluation between urban and rural areas." frontiers. https://www.frontiersin.org/journals/sociology/articles/10.3389/fsoc.2023.1145221/full.

[2] Ishaan Gera. 2023. "Why is rural inflation trending higher than urban inflation? Read more at: https://economictimes.indiatimes.com/news/economy/indicators/explainer-why-is-rural-inflation-trending-higher-than-urban-inflation/articleshow/105985571.cms?utm_source=contentofint." The Economic Times. Why is rural inflation trending higher than urban inflation? Read more at: https://economictimes.indiatimes.com/news/economy/indicators/explainer-why-is-rural-inflation-trending-higher-than-urban-inflation/articleshow/105985571.cms?utm_source=contentofint.

[3] Administration of Union Territory of Ladakh. 2023. "Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) | The Administration of Union Territory of Ladakh | India." Ladakh. https://ladakh.gov.in/scheme/pradhan-mantri-kisan-samman-nidhi-pm-kisan/.

[4] Shweta Saini. 2023. "arcusresearch." India's small and marginal farmer. https://arcusresearch.in/indias-small-and-marginal-farmer/.

[5] PIB Delhi. 2023. "Press Release:Press Information Bureau." Press Release:Press Information Bureau. https://pib.gov.in/PressReleasePage.aspx?PRID=1894900.

providers, this platform is a big opportunity for unbanked and low-income individuals to open a savings account. Another advantage is that there is no minimum amount required to open an account. However, with the recent rapid shift towards online banking and online services, rural citizens with limited literacy skills and knowledge on innovative technologies are struggling to adapt. Therefore, the Jan Dhan Yojana is an online platform that offers bank accounts, insurance and pensions, available to all Indian citizens from the age of 10, with adult supervision.

Furthermore, rural populations are disadvantaged when it comes to digital markets, online purchases and employment. As a result, rural entrepreneurs find it challenging to expand the reach of their products, as their market is very limited.[6] The process of expanding from a local level, to a regional level, to a national level, and finally to an international level takes much longer and is sometimes impossible in their circumstances. This makes competition with urban-based developing businesses very difficult. Additionally, for employment opportunities, it is crucial to have some type of digital literacy. Today, within the poorest 20% of rural households, only 8.9% have internet access.[7] This prevents social and personal development, reinforcing the poverty cycle.

Thirdly, education disparities between urban and rural populations in India have hindered educational development in rural areas. For example, during the Covid-19 pandemic, a report released by the Azim Premji University in 2021 found that only 25% of students in rural areas had access to online learning[8]. 5% of students had somewhat access to education during that time, and 60% had zero access to online education, while 60% of students in urban areas had full access to online classes. It is also important to consider that teachers in rural areas are uneducated about technology, making it difficult for them to adapt to the online learning system.

Moreover, health disparities caused by a lack of infrastructure and medical staff in rural India is a severe problem. This scarcity in rural areas means that people have to travel a long distance to get the care they need. Furthermore, it has been proven that in case of an emergency, rural citizens do not trust they will have access to the appropriate care. Despite the fact that 70% of the Indian population is located in rural areas, almost 70% of the medical professionals work in the urban areas.[9]

Although physical healthcare facilities are scarce in rural areas, telemedicine could offer a solution for this issue. However, this highlights the bigger issue faced by most rural citizens: they are unable to access online healthcare services. Even though telemedicine has gained popularity

[6] Dr. V. Shireesha. 2021. ""CHALLENGES OF RURAL ENTREPRENEURSHIP IN INDIA.""
http://www.ijmdrr.com/admin/downloads/280220249.pdf.
[7] Scrollstaff. 2022. "Digital divide: Mobile ownership 30% higher among men than women in India, shows Oxfam report." scroll.in.
https://scroll.in/latest/1039064/digital-divide-mobile-ownership-30-higher-among-men-than-women-in-india-shows-oxfam-report.

[8] Azim PRemji University. 2021. Loss of Learning during the Pandemic. http://publications.azimpremjifoundation.org/2490/1/Loss_of_Learning_during_the_Pandemic.pdf.
[9] Kusum Pareek. 2023. "ROLE OF MICROFINANCE ON WOMEN ENTREPRENEURSHIP." *Inspira Journals*.

overall, its adoption has been limited mainly to urban India[10]. Issues such as poor internet connectivity and lack of digital literacy means that people are prevented from using telemedicine.

This lack of digital literacy in healthcare also contributed to the spread of misinformation, not only about Covid-19, but also about other health issues[11]. Due to the Indian rural population's limited exposure to government websites or institutional websites such as the World Health Organization, which provide accurate information about diseases. Consequently, this leads to the self interpretation of several health issues. Some people may over emphasise them or underestimate them. Not only that, the rural population is also vulnerable to rumours or fake news.[12]

Finally, due to a lack of education and access to digital services, they are limitedly involved in civic life. They have no access to online civic processes such as online voting or signing online petitions. This divide reinforces the power dynamics in favour of the urban population. Rural communities are underrepresented in policy-making, for example. They do not participate in discussion panels to improve certain areas of society, politically, socially, economically, or environmentally.

III. Long-term consequences of the digital gap

It is important to evaluate and analyse the possible long-term consequences of this gap, from an economic, social, and governmental perspective.

Economic Consequences

Starting off with the economic consequences, it must be noted that the digital gap will have negative effects on economic growth and prosperity. This digital divide restricts access to financial tools that could be used to drive productivity and efficiency. Therefore, more than half of the Indian population is prevented from achieving their full potential by hindering rural productivity.[13]

These barriers can also be observed when it comes to innovation, as the digital divide prevents the creation of new businesses. This barrier hinders job creation and the development of new sectorts, which, given India's rapidly growing population, is important to address, in order to develop new sources of employment. Moreover, new businesses generate solutions for common problems[14]. We can see this through the example of Ather Energy . Ather Energy is a local start-up that successfully tackles the problem of urban pollution. They produce low-emission scooters that are adapted to local daily needs. This is

[10] Department of Psychology, Central University of Karnataka, Kalaburagi, Karnataka India. 2023. "PubMed Central." Applications, benefits and challenges of telehealth in India during COVID-19 pandemic and beyond: a systematic review. https://pmc.ncbi.nlm.nih.gov/articles/PMC9810518/.
[11] Salman Bin Naeem, and Maged N Kamel Boulos. 2021. "COVID-19 Misinformation Online and Health Literacy: A Brief Overview." PubMedCenter. https://pmc.ncbi.nlm.nih.gov/articles/PMC8345771/.
[12] Farhana Shahid. 2022. "Examining Source Effects on Perceptions of Fake News in Rural India." researchgate.net. https://www.researchgate.net/publication/359808898_Examining_Source_Effects_on_Perceptions_of_Fake_News_in_Rural_India.

[13] "Changing Structure of Rural Economy of India Implications for Employment and Growth." 2017. NITI Aayog. https://www.niti.gov.in/sites/default/files/2021-08/11_Rural_Economy_Discussion_Paper_0.pdf.
[14] Ather Energy. 2024. "All thrills. All electric." AtherEnergy. https://www.atherenergy.com.

crucial in rural areas since locals have a better understanding of the problems faced by their community, and the solutions needed to tackle them.

All these factors combined result in a reduced tax revenue. Limiting part of the possible economic activity in the country results in less production and thus, less taxable activities. For this reason, the total revenue available to the government is much more limited when it comes to investing in public sectors, infrastructure, healthcare and so on. Furthermore, reducing tax income may contribute to India's deficit. India has a current deficit of $663.8 Billion. [15] Reducing tax revenue makes India more dependent on outside borrowing, increasing the deficit.

Social Consequences

Regarding long term social consequences, the main one is unemployment, which increases dependence on social welfare programs provided by the government. Having this dependency culture in a country is detrimental, as it causes a dependency cycle, which leads to workforce discouragement[16]. Being unemployed and dependent on social warfare, decreases your motivation of finding a job and pursuing a career. Furthermore, unemployment leads to higher income inequality, which, in turn, may increase crime and social unrest. All of these, seriously put the country's development at risk, especially India which is

labour intensive. Being a labour intensive country, means you have a high population, thus, social unrest is detrimental for your country. We can see this through the case of Sudan, which has high levels of social unrest, hence, fails to develop and reach its full potential[17].

In addition to unemployment, another possible long-term consequence is underemployment. India has potential for development, but not if individuals work below their skill set[18]. Rural citizens have the capability and skills to progress in the workforce, however, they are underemployed because they lack digital literacy.

Furthermore, low levels of digital literacy reinforce the tendency of the poverty trap. Cycles of poverty that may go on for generations. Despite India's potential, mainly because of its size and influence, having a big part of the population stuck in a poverty trap prevents it from achieving its full capacity. This is especially concerning for India, as it is competing for regional dominance. This regional dominance cannot be sustained in the long term if the country continues to develop at different rates. This inequality prevents India from having a stable and growing economy. Therefore, how can India expect to have influence over other countries, if it does not have domestic stability?

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[15] Barkha Mathur. 2024. "India's external debt rises to $663.8 bn; debt to GDP ratio falls: RBI." business-standard.com. https://www.business-standard.com/economy/news/india-s-external-debt-rises-to-663-8-bn-debt-to-gdp-ratio-falls-rbi-124062501024_1.html.

[16] Tinsley, Matthew. 2013. "Cultures of Dependency." Policy Exchange. https://policyexchange.org.uk/wp-content/uploads/2016/09/cultures-of-dependency.pdf.

[17] International Rescue Committee. 2023. International Rescue Committee. https://www.rescue.org/article/crisis-sudan-what-happening-and-how-help.

[18] Deshpande, Prashant P. 2024. "India's potential to become the largest provider of skilled workforce to the world." Times of India. https://timesofindia.indiatimes.com/blogs/truth-lies-and-politics/indias-potential-to-become-the-largest-provider-of-skilled-workforce-to-the-world/.

Finally, we have the governmental long-term consequences. The digital divide causes an increase in public spending, as India allocates larger resources to tackle the issue in the country, however, this allocation should be improved, to more efficient programs. So far, the government has invested in online programs to help unify both types of population, nevertheless, it systematically ignores the rural population[19].

Moreover, having a big internal problem like a population gap, prevents the Indian government from looking outwards, and focusing on its foreign policy, especially considering its regional rivalry with China.[20]

Additionally, a key factor for a country to develop is to ensure that it develops in a sustainable manner. This principle involves leaving no one behind. This principle created by the UN Sustainable Development Goals, is aimed at developing in a way that considers social, economic and environmental factors.[21] In the long term, this domestic dilemma can act as a major setback for India's foreign policy objectives.

Lastly, ensuring transparency is essential for a government's survival in the long-term. Hence, Prime Minister Modi should not ignore more than half of its population because they do not have access or they cannot use online tools that focus on citizen competence. It is extremely dangerous for a government to have over half of its population vulnerable to misinformation. Therefore, tackling this digital divide is key for Modi's survival as a politician.

IV. Potential policies to bridge this digital gap

The good news for India is that several other countries went through the same challenge, therefore, there are numerous policies India could implement that have succeeded in other countries.

For instance, India could consider implementing and adapting the Connect America Fund. This project invested in infrastructure that would ensure high quality internet access to rural and isolated communities.[22] It managed to drive economic growth and create business opportunities in the United States. The CAF managed to connect around 400,000 Americans living in rural areas with already existing businesses within three years, through providing internet access[23]. This helped with rural based businesses, and incentivizing entrepreneurship. As mentioned above, India struggles with rural entrepreneurship and business development, which would be tackled with this government-funded policy.

Secondly, India could implement a National Digital Literacy Initiative, and leverage the existing one in

[19] BTI transformation index. 2024. "BTI 2024 India Country Report: BTI 2024." BTI Transformation Index. https://bti-project.org/en/reports/country-report/IND.

[20] Arvind Mohan. 2024. "India-China Rivalry and its Long Shadow Over the BRICS." E-International Relations. https://www.e-ir.info/2024/11/02/india-china-rivalry-and-its-long-shadow-over-the-brics/.

[21] "Transforming our world: the 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs." n.d. Sustainable Development Goals. Accessed December 3, 2024. https://sdgs.un.org/2030agenda.

[22] "Connect America Fund (CAF)." 2017. Federal Communications Commission. https://www.fcc.gov/general/connect-america-fund-caf.

[23] "Federal Communications Commission." 2012. FC news. https://docs.fcc.gov/public/attachments/DOC-315413A1.pdf.

Australia.[24] As a first step, the government could fund community workshops that would take place in public space, free of cost. These community workshops would consist of basic skills needed to use government provided online platforms. Citizens would complete these workshops and understand the importance of these tools, how to use them, when to use them, and guidance about what to do after using them. In doing so, they could partner with NGOs that are already tackling digital illiteracy such as Pratham and DEF (Digital Empowerment Fund), and, therefore, have experience in conducting these workshops for isolated areas. Moreover, it would also be important for the government to tackle specific sectors of society such as the educational sector, and its teachers. As seen before, access to online education was close to zero in rural areas, in part because teachers did not have the knowledge to use online tools. This indicates that teachers lack the skills and the knowledge to provide their students digital literacy. Not only teachers, but also senior citizens need to have access to healthcare services, such as telemedicine. Providing an easy to understand workshop can help bridge this gap. However, it is important to have some sort of feedback portal to ensure this policy's success and efficiency. This feedback system is important for the government to understand what is going right and what could be improved. With the information of what could be improved, this initiative could be adapted to local needs, and increase efficiency.

Additionally, India should expand on device accessibility policies, such as the implementation of subsidy programs or short-term loans that can provide financial assistance for low-income families that cannot afford a digital device. These loans are especially useful for students who only need a digital device for school. Thus, the programs could then be done through partnerships with schools to ensure every student has equal access to technology.

Furthermore, collaborations with private companies may also arise, encouraging the donation of second-hand devices, in exchange for tax incentives, in the form of tax breaks, equivalent to the amount of second hand devices they donate.

Also, the government could adapt and apply the Canadian Internet Access Initiative policy. This policy aims at funding local initiatives that tackle the digital divide. Several small-scale local initiatives in India aim at bridging the digital divide, such as the Akshaya Centers.[25] The Akshaya Centers consist of several hubs spread around the city of Kerala, where citizens are able to pay their bills, do online application and other services[26]. Local initiatives have the advantage that they understand the complexities of the problem and understand the needs of the people. They better comprehend the local culture and know how

[24] Australian Government. 2024. "Digital Inclusion Standard." Digital Inclusion Standard. https://www.digital.gov.au/policy/digital-experience/digital-inclusion-standard#:~:text=The%20Digital%20Inclusion%20Standard%20is,with%20government%20information%20and%20services.

[25] Government of Kerala. 2024. "Akshaya centres (CSC)." Akshaya centres (CSC). Akshaya centres (CSC).
[26] Akshaya Kerala. 2023. "Akshaya- 'Reforming Kerala through Digitization.'" http://www.akshaya.kerala.gov.in/about.

to tackle the problem. And lastly, they know the extent to which this is a low-education problem, a lack-of-access problem or an affordability problem. Hence, investing in a solution that is already adapted to local needs, has a higher probability of success than one created externally.

Nevertheless, for any of these policies to work, the government needs to have an accurate image of the current digital divide. This involves robust data collection methods and analyses. Regional governments must conduct surveys to understand the internet speed and access in each region in order to implement the right policy. This can be done either, independently by the government, or in collaboration with research institutions. Nonetheless, considering Modi's popularity decline, citizens would most likely trust this project if it had external influence[27]. The Indian population is sceptical and does not trust its government or its institutions, thus, they will not participate willingly in an initiative done only by the government.

Furthermore, in order to implement effective policies, it is important to understand the development of digital illiteracy over time. Understanding the complexities of the system, as well as identifying key points that are currently lacking, will help the government shape and adapt already existing policies, to better fit the Indian context.

V. Conclusion

In conclusion, this paper aimed to answer the question, *how does digital literacy in India bridge the gap between rural and urban populations?* Firstly the negative effects of this gap are addressed, especially those regarding the development of the rural population. Moreover, we can see health and education disparities between both groups of citizens, as well as a difference in involvement in civic life. Moreover, we can see that the digital gap will have long-term, economic, social, and governmental consequences. On the other hand, there are several policies that can and should be implemented to close the gap. India should leverage already existing policies and adapt them into their context. Furthermore, the implementation of feedback mechanisms are crucial to measure the success and effectiveness of these policies. Feedback mechanisms are also important to understand what is going well and what could be improved from a citizen point of view. Finally, we can conclude that digital literacy would play a key role in bridging this gap. Digital literacy would enable education in rural communities, allowing them to leverage existing technologies. Hence, leveraging these technologies would give them the opportunity to attend online courses. As a result, this would give them economic empowerment. This economic empowerment would be key in creating online jobs, thus, decreasing income inequality.

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