

Blended Learning and Educational Equity: A Thematic Analysis on Tribal and Gender-Inclusive Education

Arvind Kumar¹, Situ Kumari²

¹Research Scholar, School of Education, Pondicherry University, Puducherry, India

²Research Scholar, Department of Geography, Sidhu Kanhu Murmu University, Dumka, India

Corresponding Author Email: aurvind2u@pondiuni.ac.in

Abstract— Education is a powerful tool for social and economic development, but despite this, many communities and female students in India continue to be disadvantaged by limited access to quality education. Remote areas, economic hardships, cultural demands, and language barriers make education a difficult endeavor among these groups. The growing educational inequality in learning has only widened these gaps since the majority of marginalized students lack the necessary resources and skills to cope. This paper explores how blended learning, which combines face-to-face classroom teaching with online teaching, can narrow such gaps. Grounded on a review of past research, literature, policy initiatives, and case examples, it examines the role of blended learning in increasing accessibility, flexibility, and enjoyment of learning among students with disadvantaged backgrounds. Using the Digital Divide Theory and the Gender and Education Framework, the study looks into how technology access and social norms influence the role of blended learning in contextualizing equity in education. Evidence suggests that while blended learning offers promising options such as remote education options, competency-based learning, and culturally relevant content, its success depends on critical factors like enhanced infrastructure, trained teachers, and inclusive policies. The analysis found that a balanced strategy that incorporates digital tools with local pedagogies (Language) and gender-sensitive methods can make education more inclusive and transformative for marginalized groups.

Keywords: Blended Learning, Tribal Education, Gender Disparities, Digital Divide, Inclusive Education, Educational Equity.

I. INTRODUCTION

Education plays a crucial role in shaping socio-economic mobility, yet tribal communities and female students in India continue to face significant barriers that hinder their access to quality learning opportunities (Kaur, 2023). The study done by LeVine in Nepal shows geographical remoteness limits the availability of schools and educational infrastructure, forcing many students to travel long distances or drop out altogether (LeVine, 2019). Additionally, economic constraints prevent families from affording school-related expenses, including digital devices and internet access, which are increasingly essential for modern education (Walker, 2021). Research by Siddiqi shows that socio-cultural norms often reinforce gender biases, discouraging girls from pursuing higher education and restricting their participation in digital learning environments (Siddiqi, 2021). In response to these challenges, blended learning, which integrates face-to-face instruction with digital education and leverages technology, can help overcome geographical and economic barriers, offering students flexible and remote learning opportunities. This paper employs a thematic analysis of existing literature, policy documents, and empirical studies to explore how blended learning can bridge educational gaps for marginalized groups and also explores the effectiveness of blended learning by examining its impact on girls. The study highlights how technology-enhanced education can contribute to a more inclusive and equitable learning environment, ultimately empowering marginalized communities.

1.1. THE DIGITAL DIVIDE

Van Dijk's Theory of the Digital Divide (2017) is pertinent to tribal and rural education, where students are economically and infrastructurally constrained from engaging in digital education. The theory focuses on learning as an interactive, dynamic, and actively student-focused process. The approach combines physical and virtual learning, where pupils are not just passive recipients but actively engaged in the process of acquiring knowledge. However, blended learning is likely to have implications for marginal communities in accordance with socio-structural inequalities, technological access, and socio-cultural beliefs. Understanding these aspects, the Gender and Education Framework has been employed within this review in order to make sense of challenges as well as prospects of blended learning among such underprivileged societies. A study by Van (2024) on the Gender and Education framework explores where education intersects gender roles, gender norms, and gender biases with regard to ability of individuals in accessing educational possibilities or achieving outcomes of learning. While if social, cultural, and

linguistic factors continue to constitute the core component of growing gender disparity in most tribal and rural areas, education and language are inextricably linked in most societies where male education is more valued than female (Nakray, 2018). Nayak and Kumar (2022) found that social norms perpetuating gendered expectations lead to girls' lesser school attendance and higher dropout in tribal areas. Absence of girl-friendly facilities like sanitary and clean toilets, secure means of transportation, and more flexible school hours also contributes to difficulties in girls' continuation of education. Girls' domestic work, care work, and early marriage are limited. Their safety and mobility concerns also deter them from sending daughters to schools far away, further increasing the gender differentials in education. With the use of online self-paced modules, virtual classrooms, and online materials, blended learning can make education more of a level playing field, bypassing traditional barriers and giving women students a chance to continue studying without social as well as logistical barriers. Digital Divide Theory and Gender and Education provide a Framework to collect the dilemmas and promises from past literature of blended learning in disadvantaged tribal and rural cultures.

I.II. TRIBAL EDUCATION

Tribal populations in India have traditionally suffered from limited access to quality education due to limitations such as geographical inaccessibility, inadequate infrastructure, and socioeconomic deprivation. The majority of tribal regions possess inferior educational infrastructure, including well-staffed schools, trained teachers, and proper transport, which hinders students from pursuing normal studies (Ramakrishnappa, 2022). Therefore, the educational attainment of tribal students remains lower than the national average, entrenching marginalization and limited socio-economic mobility. To address these disparities requires targeted interventions to improve access, participation, and learning outcomes. One such viable solution is blended learning, which combines traditional classroom instruction with digital resources to provide flexible and accessible learning opportunities. Employing online platforms, virtual classes, and self-instruction modules, blended learning can bridge geographical and infrastructural gaps to provide quality education to tribal students regardless of location. Nayak et al. (2020) addressed using ICT in open and distance learning to examine tribal students' access to higher education. It evokes the promise of virtual networks to construct an even and integrated society in India. The technique also enables students to cement concepts with the support of digital aids while preserving the benefits of face-to-face social guidance. Implementing custom-made blended learning models for tribal populations can potentially close education disparities, increase literacy rates, and propel sustainable socio-economic development.

I.III. GENDER DISPARITIES

Gender disparities in education remain a significant concern, particularly among tribal and rural populations, where deep-seated socio-cultural norms, economic constraints, and security concerns often restrict girls' access to schools (Goel & Husain, 2018). (Mitra, et al., 2023). The majority of families place a higher priority on family work for girls over girls' formal education, considering their domain to be primarily at home (Singh & Pattanaik, 2020). (Petroni et al., 2017). Moreover, financial limitations push families to make difficult choices, preferring boys' education over girls. Where the school is far and transport facilities are inadequate, the security concerns also discourage parents from allowing their girls to go to school, resulting in higher dropouts among the girls (Panda & Gope, 2024). Such barriers render limited access to education, reinforcing gender discrimination and narrowing future career prospects for women. Blended learning provides a possible solution in the sense that it offers a flexible and accessible mode of learning that allows girls to continue their studies even when they are unable to go to school on a full-time basis (Guglielmi et al., 2021). Guglielmi finds that through online resources, virtual classrooms, and self-study modules, girls can learn quality education in their own homes despite geographical and social constraints. Blended learning is conducive to personalized learning experiences under which girls can manage learning with household responsibilities without losing all the progress in learning. By blending digital schooling with support infrastructure among the surrounding communities, blended learning can empower girls with knowledge, skills, and abilities as well as confidence that contributes to gender equity in education, creating opportunities towards greater social as well as economic inclusion.

II. IMBALANCES IN ACCESS TO HIGHER EDUCATION

A lack of balance in educational access is a long-standing problem in India along social, economic, and geographical lines. The findings by Goel and Husain (2018) show that factors like caste, class, gender, and geographical disparities positively influence the possibility of accessing quality education. Historically, economically backward and lower castes have been confronted with restricted access to schools, lower educational infrastructure, and lower enrollment rates, which lead to intergenerational poverty and marginalization (Desai & Kulkarni, 2008). Moreover, gender inequality also holds back educational advancement, especially

for females in rural and tribal communities, where socio-cultural attitudes, financial limitations, and security issues prevent them from going to school on a daily basis (Garg et al., 2022). Due to the advent of the digital age, the digital gap further increased such disparities since the majority of marginalized groups did not have access to technology, regular internet, and digital literacy. Urban students are privileged with well-stocked schools and digital study materials, whereas distance and disadvantaged students have outdated schooling facilities and limited exposure to computer resources. This divide was particularly far-reaching in the COVID-19 era, when distance learning was the new norm, further alienating those without digital inclusion (Tilak & Choudhury, 2021). Healing such deep-seated disparities demands an inter-disciplinary solution to bring inclusive digital policies, local content broadcasting, and focussed interventions in marginalized communities. Large-scale deployment of digital infrastructure in rural locations, offering access to devices and the internet at affordable rates, and equipping teachers with digital pedagogy are important steps towards closing the gap (Tilak & Choudhury, 2021). Creation of learning content in local and tribal languages can make it more accessible and understandable, so that language does not prove to be an obstacle to learning (Agrawal, 2014). Through education policies that are balanced in character and with digital inclusion and social equity at the forefront of the agenda, India can work towards a more accessible and balanced education system for everyone.

Education disparities continue to be an issue in India, and it still hasn't been resolved socially, economically, or geographically. Class, caste, gender, and regional disparities determine the educational possibilities for individuals, and the majority of individuals from lower societies develop poor learning. Earlier, lower castes and socio-economically weaker sections of society had comparatively fewer opportunities for education, inferior learning facilities, and low enrollment rates that took them to poverty and marginalization (Sharma, 2021). Apart from this, gendered inequality is also a challenge to education, particularly in the context of women belonging to rural and tribal societies where the possibility of a girl going to school regularly is hampered by sociocultural norms, resources, and even security threats (Nayak & Alam, 2022). In the current era, digital divides have highlighted these gaps because many disadvantaged groups do not have the requisite gadgets, a consistent internet connection, and technological know-how. While town students have access to amenities such as working schools and the internet for self-study, the reverse is the case with underdeveloped and rural areas, where students are disadvantaged by inefficiency in education systems and minimal or no access to devices. This gap was brought forcefully to the forefront during the time of COVID-19, as online education became the standard, further excluding those who had no footprint in the virtual space (Choudhury & Kumar, 2024). Closing such deep divides needs a sophisticated set of interventions, ranging from inclusive digital policy to localized content delivery and targeted interventions among the most marginalized. Increased digital infrastructure in remote locations, affordable access to devices and the internet, and teacher training for digital pedagogy are some of the most significant interventions to close the gap. Local and tribal language development of learning materials can enhance access and understanding to prevent the problem of language hindering learning (Choudhury & Kumar, 2024). By adopting inclusive education policies regarding digital inclusiveness and social justice, India will be closer to a just and inclusive education system for everyone.

III. BLENDED LEARNING

Various research works have proven the importance of blended learning as a contemporary teaching approach that incorporates traditional classroom teaching alongside digital teaching, leading to a dynamic and responsive learning environment. Dangwal, in his book, highlighted the function of blending face-to-face discussions with technology-based tools, the model allows students to engage with learning material in a more personalized and independent manner (Dangwal, 2017). The aspects highlighted by (Kumar et al., 2021). These comprise internet content, online rooms, and individual learning modules through which students are able to look up complex materials at their own convenience, pick up things very quickly, and seek assistance if and when they need it. This flexibility makes it especially beneficial for distant and disadvantaged groups of students where quality education access proves to be a scarcity on both geographical and socio-economic grounds. With online platforms, students can access vast quantities of interactive content, video lectures, and tests, so that they achieve rich and diverse learning experiences without the constraints of a physical class (Kleftodimos & Evangelidis, 2016). Blended learning also closes the digital divide through technological literacy, which equips students with necessary digital skills enhancing their academic and professional prospects (Bandyopadhyay et al., 2021). By making quality education accessible to a larger population, blended learning can bridge knowledge gaps and enhance inclusive growth among marginalized communities.

IV. CHALLENGES OF TRIBAL AND GENDER INCLUSIVE EDUCATION

Past literature has shown that tribal and gender-sensitive education faces various challenges that complicate access to educational opportunities. Findings reveal that geographical impediments are largely to be blamed for circumscribing learning access as a number of tribal regions are still devoid of necessary infrastructure such as roads, power supply, and even internet facilities. This

renders electronic learning resources less accessible to students; hence, they are losing out on access advantages compared to students residing in urban areas. The research by James (2021) finds that economic constraints increase this issue because poverty prevents most families from affording digital tools, reliable internet access, and adequate digital literacy to participate fully. Without such access, students cannot fully contribute to digital learning environments, and the learning gap will widen. Morgan et al. (2017) in his work describe how sociocultural norms significantly influence education accessibility, especially among Indigenous girls. In the same area, research done by Kollmayer et al. (2018) finds that gender stereotypes discourage girls from pursuing higher education, maintaining traditional roles that limit their educational aspirations. The gap is also evident in learning, where girls may have limited exposure to technology due to household duties or restrictive social norms. Furthermore, regarding language issues, Mohanty (2018), in his book, writes that the majority of tribal students fail to understand teaching languages used in learning environments. Since teaching and learning material is largely in the prevalent regional or national languages, the lower language skills of students make it harder for them to comprehend concepts, hence reducing the efficiency of learning. Such related issues highlight the essential need for intervention that will make education inclusive and accessible for tribal and marginalized gender groups.

V. EFFECTIVENESS OF BLENDED LEARNING TO COUNTERACT THE CHALLENGES

Bandyopadhyay et al. (2021), in their book presents empirical validation of the blended learning, as new means of addressing the problem of tribal students and women learners in accessing quality education, through integrating digital tools with conventional face-to-face teaching in the classroom. Eugenijus (2023), in his findings, states that the strength of this method is its capacity to transcend geographical boundaries. The majority of the tribal areas lack proper infrastructure, and it is challenging for students to go to school regularly. Mobile applications, community learning centers, and alternative digital channels like radio and television broadcasts allow students from remote areas to pursue their studies without having to travel physically all the time. Low-bandwidth learning materials and offline virtual libraries also enable students to access learning materials even in places where electricity and internet connectivity are not reliable.

Financial limitations are another vital challenge that is addressed by blended learning. Poverty prevents many families from accessing digital devices, internet access, and other valuable learning resources. Tobin and Hieker (2021), in a small-scale, explorative, qualitative study, find programs like virtual community centers, government initiatives offering assistance, and access to free, open-source learning resources mitigate the cost. Dey and Bandyopadhyay (2019) find that online learning decreases reliance on costly books and physical schools, making it possible for underprivileged groups to access education at an even lower cost overall. By offering online content to supplement traditional teaching, students can acquire educational content at a low cost.

Socio-cultural expectations, especially gender stereotypes, largely deny female students opportunities to pursue studies. Acherjee et al. (2023), in their work, find that in rural and tribal communities, girls are typically given domestic chores by their societies instead of formal education, leading to high dropout rates, and blended learning offers a different way of learning that is suitable for their circumstances, in which they learn from home and at their own pace. Self-study modules and video lectures give girls who otherwise cannot attend school on a regular basis the opportunity to be educated. Online learning platforms also offer a safe and conducive environment for women students to interact with instructors and mentors without necessarily having to confront societal limitations and the integration of gender-sensitive education curricula and community sensitization programs can also reinforce families to enable their girls' education, further changing stereotypes towards increased learning gender equality (Nakaweesa, 2024).

Language is one of the major barriers for most tribal students since most online course material is in dominant national or regional languages. Most tribal students lack an understanding of courses presented in foreign languages, reducing the impact of online learning. Blended learning fills this gap by employing multilingual online platforms where lessons are instructed in tribal and mainstream languages and the integration of AI-powered translation tools, voice-learning software, and culture-sensitive teaching resources facilitates learners' accessibility to digital learning Dayanand and Parthasarathy (2024).

Empirical Evidence and Case Studies: Empirical evidence and case studies have proven the efficacy of blended learning in reducing learning disparities. Government schemes like Digital Infrastructure for Knowledge Sharing (DIKSHA) and Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) have contributed significantly towards increasing digital learning nationwide by offering free online courses and teacher training sessions to increase coverage (Aashish & Rohit, 2024). SWAYAM, led by the Ministry of Education, offers a range of courses that are designed to supplement classroom learning, taking higher education to the more distant geographies with greater accessibility. DIKSHA, too, is an online teachers' and students'

national platform offering support in 36 Indian languages and multilingual education content mapped against state curricula. These platforms have provided more educational opportunities for students from oppressed classes, especially in tribal and rural areas where access to quality education is scarce. In addition to government initiatives, there have been a number of grass-root level initiatives that have been able to implement blended learning in tribal society. For example, the Ekal Vidyalaya Foundation has single-teacher schools in rural areas, utilizing digital resources to enhance the learning process (Lata, 2025). These schools employ mobile-based learning modules and radio lessons to provide education to such children who lack access to formal schooling. Furthermore, interventions such as Pratham's Hybrid Learning Program have also showed that learning deficits could be addressed through digital means if developed in collaboration with conventional pedagogy. Pratham's initiative focuses on self-learning through tablets preloaded with interactive content so that students with an irregular school pattern can pursue their studies according to their convenience (Banerji, 2021). During research conducted by the Azim Premji University on online education among rural India, it was noted that students who were taught with a mix of physical and online education exhibited enhanced interaction and understanding compared to those using only conventional means of education (Gilbertson et al., 2023). While digital interventions have been shown to be effective in supplementing formal education, success relies on infrastructure support, teacher training, and community engagement. To realize the complete potential of blended learning, there needs to be continued investment in digital literacy, local content creation, and policy frameworks for inclusive learning

The findings suggest that blended learning not only addressing such challenges, it also improves the overall learning outcomes by increasing interactivity in education and the skill-oriented nature of education. Virtual platforms enable the incorporation of interactive learning techniques like virtual simulation, gamification of learning processes, and tests based on individual students' needs. Studies shows that the student-oriented mode of instruction maximizes knowledge and retention and maintains the learners active in their work. Apart from this, blended learning offers vocational training and science, technology, engineering, and mathematics learning and inculcates learners with preparedness for practical competencies, hence becoming more employable. In tribal societies, vocation-oriented education in agricultural technology, computer competency, and entrepreneurship makes tribal societies achieve economic independence and long-term social mobility. Blended learning hence becomes an effective instrument to root out educational inequality among marginalized communities. But this is contingent on proper infrastructure, fair policies, and community participation. Expansion in internet penetration, investment in teacher training in digital pedagogy, and the creation of localized digital content are all significant strides in making blended learning a sustainable and inclusive model. With its combination of formal and online instruction in a multilingual, culture-sensitive and socio-economic strategy, blended learning holds the promise of empowering tribal and female students and revolutionizing education as a socio-economic force of change.

V.I. GOVERNMENT POLICY AND ROLE

Government policies and initiatives have a significant role to play in the encouragement of blended learning and in the redressal of the concerns of tribal and marginalized communities. The National Education Policy (NEP) 2020 stresses the employment of technology for education in order to leverage accessibility, equity, and quality. It promotes development of digital infrastructure, utilization of open educational resources, and development of online and distance education, specifically among students studying in tribal and rural areas. NEP 2020 also promotes the need for multilingual digital content to be mindful of the country's rich linguistic heritage, with an emphasis on enabling tribal students to learn in their own native language. While the policy outlines a vision of the future, its actualization on the ground necessitates enormous investments in teachers' training and computer infrastructure.

To bridge the digital divide, the Bharat Net scheme is designed to extend internet connectivity to rural and remote areas, making digital access economical for schools and students (Jain & Neogi, 2023). With village connectivity through high-speed broadband, BharatNet can empower online education and equip students from disadvantaged areas with the means to access digital study materials. But problems such as slow deployment, lack of last-mile connectivity, and price remain a hurdle to its actual potential. Most tribal regions are still plagued with poor internet connectivity, restricting the penetration of digital education programs. Several programs have been launched for enabling digital learning among tribal and rural populations. The PM eVIDYA programme, introduced in the wake of COVID-19, brings together various digital learning systems such as DIKSHA, SWAYAM, and television learning channels to promote continuity of learning. The Eklavya Model Residential Schools (EMRS), which specifically cater to tribal students, have also started promoting digital learning approaches to enhance learning outcomes.

VI. CONCLUSION

Blended learning has the potential to bridge the education gap between tribal students and women through affordable, flexible, and interactive learning. However, its potential is contingent upon having adequate infrastructure such as internet connectivity and digital equipment, which are absent in most of the far-flung areas. Along with it, there must also be policies of inclusion so that digital literacy, gender-responsive interventions, and localized content are promoted to ensure that all the students, regardless of their socio-economic background, can benefit from technology-enabled learning. No less significant is socio-cultural acceptance, as traditional norms and language problems predominantly hinder the proper implementation of digital learning, particularly among girls from tribal communities. By a multi-faceted approach combining technological advancement with pedagogy sensitive to the local context, blended learning can be employed as an empowerment instrument in the education sector. Focused investment and people-oriented interventions can help create a more equitable and inclusive education system that, in the long term, alters the nature of learning opportunities for marginalized groups. Policy interventions for these purposes are essential to achieve more inclusiveness and equity in education, especially for tribal and marginalized communities. Among the priorities is the establishment of digital infrastructure, i.e., expanding internet access and offering access to low-cost digital devices for rural students. Without these fundamental tools, digital learning is inaccessible to those who need it most. Apart from infrastructure, teacher training is crucial to equip teachers with digital pedagogical competencies. Most of the teachers in rural and tribal areas are not aware of blended learning strategies, so there is a need to provide specialized training that will enable them to integrate technology into their teaching practices efficiently. Furthermore, gender-sensitive policies must be adopted to encourage more women's participation in digital education. Scholarships for girls, campaigns on the importance of education, and involvement of communities can help overcome gender disparities in educational opportunities. Localization of material, i.e., development of educational material in tribal and local languages, is another policy recommendation. Since most tribal students are challenged by mainstream instructional languages, instruction in their own languages enhances comprehension and engagement, making learning more effective and culturally relevant. These efforts focus on inclusive learning opportunities and narrowing the gaps in educational access. But what is required are localized solutions that address the specific socio-cultural and language hurdles confronting tribal students. Even while government policies have gone a long way towards increasing access to online learning, there are still gaps in infrastructure development, teacher training, and content localization. There are still gaps in student and teacher digital literacy and access costs to hardware and internet services that prevent large-scale adoption. To enhance blended learning, policies must address community-based digital learning models, higher investments in inexpensive digital devices, and teacher professional development programs to facilitate proper integration of technology in classrooms. Strengthening public-private partnerships and using local knowledge systems in digital content development can also enhance the inclusivity and efficiency of blended learning for tribal and marginalized communities.

REFERENCES

1. Acherjee, A., Kasi, E., & Hariharan, R. (2023). Impact of Informal Online Learning on the Lives of Tribal Women: An Ethnographic Study from Central India. *Contemporary Voice of Dalit*, 2455328X231207515.
2. Agrawal, T. (2014). Educational inequality in rural and urban India. *International Journal of Educational Development*, 34, 11-19.
3. Aashish, J., & Rohit, K. (2024). Technologies for Quality and Sustainable Online Education in Rural India: a Comprehensive Review. *2024 ITU Kaleidoscope: Innovation and Digital Transformation for a Sustainable World (ITU K)*, 1-8.
4. Bandyopadhyay, S., Bardhan, A., Dey, P., & Bhattacharyya, S. (2021). *Bridging the education divide using social technologies*. Springer.
5. Banerji, R. (2021). Learning for All: Lessons from ASER and Pratham in India on the Role of Citizens and Communities in Improving Children's Learning. In *Powering a learning society during an age of disruption* (pp. 181-194). Singapore: Springer Nature Singapore.
6. Choudhury, P. K., & Kumar, A. (2024). Socioeconomic Inequality in Accessing Professional Higher Education in India: New Evidence from a Household Survey. *The Indian Economic Journal*, 00194662241260812.
7. Dangwal, K. L. (2017). Blended learning: An innovative approach. *Universal Journal of Educational Research*, 5(1), 129-136.
8. Dayanand, S. A., & Parthasarathy, M. (2024). Empowering Tribal Literacy Through Mobile-Assisted Language Learning and Online Learning Communities. *Harnessing Social Media for Educational Success*, 197.
9. Desai, S., & Kulkarni, V. (2008). Changing educational inequalities in India in the context of affirmative action. *Demography*, 45(2), 245-270.

10. Dey, P., & Bandyopadhyay, S. (2019). Blended learning to improve quality of primary education among underprivileged school children in India. *Education and Information Technologies*, 24(3), 1995-2016.
11. Eugenijus, L. (2023). Integrating blended learning and STEM education: Innovative approaches to promote interdisciplinary learning. *Research and Advances in Education*, 2(9), 20-36.
12. Garg, M. K., Chowdhury, P., & SK, M. I. (2022). An overview of educational inequality in India: The role of social and demographic factors. *Frontiers in Education*, 7, 871043.
13. Gilbertson, A., Dey, J., Singh, P., & Grills, N. (2023). The only option? Distance learning in North India during the COVID-19 pandemic. *Learning, Media and Technology*, 1-14.
14. Goel, S., & Husain, Z. (2018). Gender, caste, and education in India: A cohort-wise study of drop-out from schools. *Research in Social Stratification and Mobility*, 58, 54-68.
15. Guglielmi, S., Jones, N., Nicolai, S., Perezniето, P., Plank, G., Vu, N., ... & Mackintosh, A. (2021). Reimagining Girls' Education: Solutions to Keep Girls Learning in Emergencies. *UNICEF*.
16. Jain, R., & Neogi, P. (2023). The growth of broadband mobile communications in India: Trends, policy issues, and challenges. *Frequencies*.
17. James, J. (2021). Confronting the scarcity of digital skills among the poor in developing countries. *Development Policy Review*, 39(2), 324-339.
18. Kaur, M. (2023). Empowering rural Indian women through education: the role of teachers in overcoming socioeconomic barriers. *J Adv Zool*, 44, 451-63.
19. Kleftodimos, A., & Evangelidis, G. (2016). Using open source technologies and open internet resources for building an interactive video based learning environment that supports learning analytics. *Smart Learning Environments*, 3, 1-23.
20. Kollmayer, M., Schober, B., & Spiel, C. (2018). Gender stereotypes in education: Development, consequences, and interventions. *European journal of developmental psychology*, 15(4), 361-377.
21. Kumar, A., Krishnamurthi, R., Bhatia, S., Kaushik, K., Ahuja, N. J., Nayyar, A., & Masud, M. (2021). Blended learning tools and practices: A comprehensive analysis. *Ieee Access*, 9, 85151-85197.
22. Lata, S. (2025). Equity in Literacy: Addressing the Urban-Rural Divide. In *Literacy Policies for Equity and Inclusion* (pp. 189-214). IGI Global Scientific Publishing.
23. LeVine, S. (2019). Getting in, dropping out, and staying on: Determinants of Girls' School Attendance in Nepal. *The Impact of Education in South Asia: Perspectives from Sri Lanka to Nepal*, 11-36.
24. Mitra, S., Mishra, S. K., & Abhay, R. K. (2023). Out-of-school girls in India: a study of socioeconomic-spatial disparities. *GeoJournal*, 88(1), 341-357.
25. Morgan, M., Terry, G., Rajaratnam, S., & Pant, J. (2017). Socio-cultural dynamics shaping the potential of aquaculture to deliver development outcomes. *Reviews in Aquaculture*, 9(4), 317-325.
26. Mohanty, A. K. (2018). *The multilingual reality: Living with languages* (Vol. 16). Multilingual Matters.
27. Nakray, K. (2018). Gender and education policy in India: Twists, turns and trims of transnational policy transfers. *International Sociology*, 33(1), 27-44.
28. Nakaweesa, N. (2024). *Assessing the role of eLearning on the quality of education in higher institutions of learning: A case study of the School of Women and Gender Studies (SWGGS), Makerere University-Uganda* (Master's thesis, University of Agder).
29. Nayak, S. R., Kant, N., & Anjali, K. (2020). Strategy of using ICT in ODL to disseminate higher education in tribal communities: a case of MP, India. *Asian Association of Open Universities Journal*, 15(2), 189-206.
30. Nayak, K. V., & Alam, S. (2022). The digital divide, gender and education: challenges for tribal youth in rural Jharkhand during Covid-19. *Decision*, 49(2), 223-237.
31. Nayak, K. V., & Kumar, R. (2022). In pursuit of education: Why some tribal girls continue and others dropout of schools in rural India?. *Journal of Human Values*, 28(2), 129-142.
32. Panda, A., & Gope, L. (2024). Breaking barriers: The digital revolution in girls education across India. *Journal of Interdisciplinary Studies in Education*, 13(S1).
33. Petroni, S., Steinhaus, M., Fenn, N. S., Stoebenau, K., & Gregowski, A. (2017). New findings on child marriage in sub-Saharan Africa. *Annals of global health*, 83(5-6), 781-790.
34. Ramakrishnappa, V. (2022). Exclusion of Scheduled Tribes in access to digital services in India: Bottlenecks and the way forward. *East African Scholars Journal of Economics, Business and Management*, 5(9), 251-255.

35. Sharma, V. (2021). Caste and class in Indian education: Historical perspectives on inequality. *South Asian Education Review*, 12(4), 89-107.
36. Siddiqi, N. (2021, May). Gender inequality as a social construction in India: A phenomenological enquiry. In *Women's studies international forum* (Vol. 86, p. 102472).
37. Singh, P., & Pattanaik, F. (2020). Unfolding unpaid domestic work in India: women's constraints, choices, and career. *Palgrave Communications*, 6(1), 1-13.
38. Tilak, J. B. G., & Choudhury, P. (2021). Digital divide and educational inequality in India: Challenges in the post-COVID era. *Economic and Political Weekly*, 56(39), 45-52.
39. Tobin, E., & Hieker, C. (2021). What the EdTech experience in refugee camps can teach us in times of school closure. Blended learning, modular and mobile programs are key to keeping disadvantaged learners in education. *Challenges*, 12(2), 19.
40. van Dijk, J. (2017). Afterword: The state of digital divide theory. In *Theorizing digital divides* (pp. 199-206). Routledge.
41. Van Houtte, M. (2024). Understanding gender gaps in education: The role of stereotypes and the intersection with social class. In *The Routledge international handbook of equity and inclusion in education* (pp. 246-259). Routledge.
42. Walker, S. K. (2021). Technology use and families: Implications for work-family balance and parenting education. *Background paper prepared for the United Nations Department of Economic and Social Affairs (UNDESA) Division for Inclusive Social Development*.