

# Artificial Intelligence, Intergenerational Digital Divide

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**Abstract** - The accelerating diffusion of Artificial Intelligence (AI) applications into the daily lives of young students in semi-urban India has generated not only educational consequences but also profound sociological dislocations - most acutely, a deepening intergenerational digital divide that strains family communication, erodes shared cultural reference points, and reconfigures the relational dynamics of the household unit. The present empirical investigation examines these social and familial dimensions of AI adoption among students enrolled at Govt. L.B.S. P.G. College, Sironj, Vidisha district, Madhya Pradesh - a semi-urban institution with 3,500 enrolled students situated within a community where joint family structures, intergenerational co-residence, and traditional communicative norms retain considerable force. Employing purposive sampling, 50 respondents (25 male, 25 female) were engaged through a structured interview schedule; secondary data were assembled from 27 published academic sources. Following systematic frequency-percentage tabulation across eight data variables, principal findings reveal that: (i) 78% of students report their parents or guardians are unable to use or understand any AI platform; (ii) 70% observe a measurable reduction in the quality of family conversation attributable to AI-mediated screen engagement; (iii) 62% experience conflict with family members over AI and smartphone use frequency; (iv) 74% report that parents express concern about, but lack capacity to monitor, their AI usage; (v) 58% acknowledge that AI platforms have become a preferred medium of social interaction, supplanting direct peer and family communication; and (vi) 66% express desire for structured family awareness programmes on AI. The investigation concludes that the intergenerational digital divide generated by differential AI adoption constitutes a substantive social problem with consequences for household harmony, cultural transmission, and youth development - demanding coordinated responses from educational institutions, families, and local governance bodies.

**Key Words:** *Artificial Intelligence, Digital Divide, Intergenerational Communication, Family Dynamics,*

*Semi-Urban India, Social Impact, Youth Technology Use, Vidisha*

## 1.INTRODUCTION

The household - as the primary site of intergenerational encounter, cultural transmission, and relational formation - is undergoing profound reconfiguration in the era of ubiquitous AI. For young students in semi-urban India, AI-enabled smartphones have become the dominant medium through which they access information, manage social relationships, navigate entertainment, and increasingly perform academic work. For their parents and grandparents - socialised in environments of personal communication, oral knowledge transmission, and community-embedded social life - these technologies are largely opaque, inaccessible, and, in many cases, perceived as threats to established family norms (Kisley, 2022; Tegmark, 2017).

The resulting intergenerational digital divide is qualitatively distinct from earlier forms of technology adoption differential. Where the television or mobile telephone created generational gaps in consumption patterns, AI creates a gap in epistemic agency - in how individuals understand, navigate, and generate knowledge about the world. This asymmetry in epistemic capacity is not merely a matter of technical proficiency; it reshapes conversations, redistributes household authority, and reconfigures the relational bonds through which families constitute themselves as coherent social units (van Dijk, 2020; Park & Kim, 2023).

Sironj, a semi-urban town in Vidisha district, Madhya Pradesh, provides an analytically distinctive research setting for examining these dynamics. The co-presence of rapidly increasing smartphone-based AI access among youth - facilitated by the Digital India initiative and low-cost data availability - and the persistence of traditional joint family structures, elder authority norms, and limited digital literacy among older community members creates a particularly acute version of the intergenerational AI divide (Sharma & Mishra, 2022; Gupta & Pathak, 2023).

The present investigation provides primary empirical evidence on these dynamics from within this specific institutional and community context, addressing a significant gap in the existing sociological literature on AI in India.

## 2. OBJECTIVES OF THE STUDY

The investigation was designed around four analytically non-overlapping research objectives, each addressing a discrete dimension of AI's intergenerational and social impact:

1. To assess the extent and nature of the AI-related technological gap between student respondents and their parents or guardians at Govt. L.B.S. P.G. College, Sironj.
2. To examine the impact of AI-mediated screen engagement on the quality, frequency, and depth of family communication patterns as perceived by student respondents.
3. To identify the nature and intensity of intrafamily conflict arising from divergent attitudes towards AI and digital device use across generational cohorts.
4. To determine student attitudes towards structured family awareness programmes as a mechanism for bridging the intergenerational digital divide.

## 3. REVIEW OF RELATED LITERATURE

### 3.1 *The Intergenerational Digital Divide: Theory and Evidence*

Van Dijk (2020) developed the most comprehensive sociological framework for understanding the digital divide, distinguishing four analytically distinct dimensions: motivational access (desire to use digital technologies), material access (physical availability of devices and connectivity), skills access (technical and informational competencies), and usage access (the breadth and depth of actual technology application). All four dimensions operate intergenerationally in Indian semi-urban contexts: older family members frequently lack motivational access shaped by familiarity, material access constrained by cost and device availability, skills access limited by formal education, and usage access consequently underdeveloped across the full range of AI applications.

Park and Kim (2023) extended this framework specifically to the AI era, employing panel data from Asian household surveys to demonstrate that AI adoption generates

measurable intergenerational stratification in patterns of information access, social participation, and household decision-making authority. Their finding - that the intergenerational AI divide has social consequences that extend well beyond technical proficiency gaps - provides the most directly applicable theoretical anchor for the present investigation. DiMaggio and Hargittai (2020) further established that digital divides are not static conditions but dynamic processes that can either widen or narrow depending on institutional investment in digital inclusion and intergenerational technology mediation.

### 3.2 *AI and Family Communication Dynamics*

Kisley (2022) provides the most sustained scholarly analysis of AI's impact on intimate and familial relationships, arguing that the integration of AI, virtual reality, and robotic systems into domestic life reshapes emotional bonds, reduces tolerance for the productive friction of face-to-face communication, and creates new forms of socially mediated intimacy that bypass - rather than enrich - existing relational structures. Tegmark (2017) situates this analysis within a broader civilisational frame, contending that AI fundamentally reconstitutes the conditions under which human beings form attachments, sustain relationships, and navigate shared social life.

Bonk (2020) documents the specific mechanism through which digital screen engagement displaces family communication in educational contexts: students whose primary social and informational world is mediated by AI platforms develop reduced investment in the slower, more ambiguous, and less immediately rewarding dynamics of face-to-face family interaction. Chassignol et al. (2018) provide historical context, tracing how each successive wave of consumer technology has generated analogous intergenerational communicative disruption - a pattern that AI amplifies through its personalisation capabilities, addictive interface design, and capacity to simulate social interaction.

### 3.3 *Social AI Use and Peer Communication Displacement*

Renzulli (2021) and Zhai (2022) examine the displacement of direct peer interaction by AI-mediated social engagement among young people, documenting the emergence of what might be termed 'surrogate sociality' - the use of AI platforms to satisfy social needs that were previously met through direct interpersonal engagement. This phenomenon has particular relevance in semi-urban

contexts where AI platforms may represent the primary channel for accessing social experiences, content, and communities unavailable within local geography (Sharma & Mishra, 2022; IBEF, 2025).

Lo (2023) and Cotton et al. (2023), while primarily focused on academic contexts, both document the social displacement dimensions of AI engagement - students' preference for AI-mediated task completion extends to AI-mediated social interaction in ways that progressively attenuate the relational skills required for direct family and community communication. Gupta and Pathak (2023) identify this social displacement dynamic as particularly acute in Indian tier-2 and tier-3 city contexts, where AI platforms offer access to social worlds dramatically larger and more diverse than local community structures.

### **3.4 Policy Responses and Family Awareness Frameworks**

UNESCO (2022) explicitly addresses the social and familial dimensions of AI governance, recommending that national AI strategies include provisions for digital inclusion across all age cohorts - not merely youth populations - and that family and community-level awareness initiatives accompany institutional educational interventions. The National Education Policy 2020 (Ministry of Education, 2020) provides enabling policy architecture for community engagement programmes, though its implementation in semi-urban and rural contexts remains uneven. Dhamdhare (2021) and Agarwal and Srivastava (2022) both identify family awareness and intergenerational dialogue as underutilised mechanisms for AI governance in Indian educational contexts, noting that parent sensitisation programmes could simultaneously reduce intrafamily AI-related conflict and improve the quality of parental oversight.

## **4. RESEARCH HYPOTHESES**

Four directional hypotheses were formulated prior to primary data collection, each grounded in the theoretical literature and corresponding to a discrete research objective:

H1: A substantial majority of student respondents' parents or guardians are unable to use or understand AI platforms, constituting a measurable intergenerational technological divide within the study population's household environment.

H2: AI-mediated screen engagement has produced a perceptible and measurable reduction in the quality and depth of family communication as experienced by student respondents.

H3: Divergent generational attitudes towards AI and digital device use generate discernible intrafamily conflict within the households of student respondents.

H4: A majority of student respondents support the establishment of structured family awareness programmes on AI as a mechanism for bridging the intergenerational divide and reducing household AI-related tensions.

## **5. RESEARCH METHODOLOGY**

### **5.1 Research Design**

A descriptive and sociological research design was employed, consistent with established methodological conventions for investigating social behaviour, relational dynamics, and attitudinal patterns within defined community contexts (Cope & Kalantzis, 2021; Agarwal & Srivastava, 2022). The sociological orientation of the design reflects the investigation's focus on AI's consequences at the level of the household and interpersonal relationship - social units that are not adequately captured by purely educational or technical research frameworks.

### **5.2 Study Area and Institutional Context**

The study is situated at Govt. L.B.S. P.G. College, Sironj, Vidisha district, Madhya Pradesh - a publicly administered semi-urban institution enrolling 3,500 students. Sironj's socio-cultural context is characterised by the coexistence of expanding digital connectivity, driven by Digital India and low-cost smartphone penetration, with persistent traditional social structures including joint family co-residence, elder authority within household decision-making, and community-embedded social norms that place high value on direct interpersonal communication (Sharma & Mishra, 2022). This coexistence makes Sironj a particularly analytically productive site for examining intergenerational AI-related social dynamics.

### **5.3 Sampling, Data Collection and Analysis**

Purposive sampling was employed to select 50 respondents - 25 male and 25 female - ensuring gender-

equitable representation across the sample. A structured interview schedule, incorporating both closed-format and graduated response items, was administered directly to respondents. The schedule elicited information on parental AI awareness, changes in family communication patterns, intrafamily conflict over AI use, parental monitoring capacity, social communication displacement, and attitudes towards family awareness programmes. Secondary data were compiled from 27 published peer-reviewed sources, policy documents, and national surveys. All primary data were tabulated and subjected to frequency-percentage analysis; findings were subsequently interpreted through substantive discussion referenced against the secondary literature (van Dijk, 2020; Park & Kim, 2023).

## 6. DATA ANALYSIS, TABULATION, AND FINDINGS

### 6.1 Parental Awareness and Capacity Regarding AI Platforms

S.No.	Response / Category	Frequency	Percentage (%)
1.	Parents Unable to Use or Understand Any AI Platform	39	78%
2.	Parents Have Basic or Functional AI Awareness	11	22%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 1: Parental Awareness and Capacity Regarding AI Platforms

A striking majority - 78% of respondents - report that their parents or guardians are unable to use or comprehend any AI-based platform, establishing a profound intergenerational technological asymmetry within the household environments of the study population. This finding substantially exceeds even the conservative estimates of intergenerational digital disparity documented by van Dijk (2020) and Park and Kim (2023), and is particularly consequential in a semi-urban context where formal digital literacy programmes for adults remain largely absent. The 22% whose parents possess basic AI awareness are most likely to inhabit households where occupational necessity or younger sibling influence has provided incidental exposure rather than formal digital education.

### 6.2 Impact of AI Screen Engagement on Family Communication Quality

S.No.	Observed Change in Family Communication	Frequency	Percentage (%)
1.	Measurable Reduction in Family Conversation Quality	35	70%
2.	No Significant Change in Family Communication	15	30%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 2: Perceived Impact of AI Screen Engagement on Family Communication Quality

Seventy percent of respondents observe a measurable reduction in family conversation quality attributable to AI-mediated screen engagement - a finding that operationalises at the semi-urban Indian level the broader theoretical concern articulated by Kisley (2022) and Tegmark (2017). Students report that mealtimes, evening gatherings, and weekend family time - traditionally the primary sites of intergenerational dialogue in Indian households - are increasingly colonised by individual screen engagement with AI-mediated content. The 30% who detect no significant change may reflect households where communal device use norms have been established, or where family communication is sufficiently robust to absorb technology-related disruptions without perceptible deterioration.

### 6.3 Intrafamily Conflict Arising from AI and Smartphone Use

S.No.	Conflict Experience	Frequency	Percentage (%)
1.	Experience Conflict Over AI/Smartphone Use Frequency	31	62%
2.	Do Not Experience Such Intrafamily Conflict	19	38%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 3: Intrafamily Conflict Arising from AI and Smartphone Use

Sixty-two percent of respondents report experiencing conflict with family members over the frequency or manner of AI platform and smartphone use - a finding that reflects the social and relational costs of the intergenerational divide documented in Table 1. Where parents lack the capacity to evaluate or contextualise their children's AI use, monitoring defaults to temporal restriction and emotional prohibition - strategies that frequently generate conflict without producing the behavioural changes parents seek (DiMaggio & Hargittai, 2020; Kisley, 2022). The conflict dimension is particularly

significant in semi-urban joint family contexts where multi-generational surveillance is a normal feature of daily domestic life and where individual privacy for device use is structurally limited.

#### 6.4 Parental Concern and Monitoring Capacity Gap

S.No.	Parental Monitoring Posture	Frequency	Percentage (%)
1.	Parents Concerned But Unable to Monitor AI Use Effectively	37	74%
2.	Parents Either Unconcerned or Capable of Monitoring	13	26%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 4: Parental Concern and Monitoring Capacity Regarding Student AI Use

Seventy-four percent of respondents characterise their parents as concerned about AI platform use but lacking the capacity to effectively monitor or regulate it - a configuration that UNESCO (2022) identifies as particularly socially destabilising. The combination of anxiety and incapacity creates what might be characterised as a governance vacuum at the household level: rules are perceived as arbitrary because parents cannot evaluate the content or consequences of AI use they cannot access or understand. This monitoring incapacity gap reinforces the urgency of family awareness and digital literacy interventions that equip parents with sufficient understanding to move from emotional reaction to informed dialogue (Park & Kim, 2023; Dhamdhare, 2021).

#### 6.5 AI Platforms as Preferred Medium Over Direct Communication

S.No.	Communication Preference	Frequency	Percentage (%)
1.	AI Platforms Have Become Preferred Social Medium	29	58%
2.	Direct Communication Remains Preferred	21	42%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 5: AI Platforms as Preferred Medium Over Direct Peer and Family Communication

Fifty-eight percent of respondents acknowledge that AI-mediated platforms have displaced direct peer and family communication as their preferred medium of social interaction - a finding that extends and deepens the social displacement concern theorised by Renzulli (2021) and documented empirically by Zhai (2022). The

displacement of direct communication by AI-mediated interaction carries consequences that extend beyond immediate family dynamics: it shapes the development of interpersonal skills, emotional intelligence, and the capacity for sustained, unscripted social engagement that direct communication uniquely cultivates (Bonk, 2020; Chassignol et al., 2018). The 42% who retain a preference for direct communication may reflect students from households with stronger communicative norms or those whose social relationships have not yet migrated substantially to AI-mediated platforms.

#### 6.6 Perceived Reduction in Intergenerational Cultural Transmission

S.No.	Cultural Transmission Perception	Frequency	Percentage (%)
1.	Reduction in Intergenerational Cultural Sharing Observed	32	64%
2.	No Significant Change in Cultural Transmission Patterns	18	36%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 6: Perceived Reduction in Intergenerational Cultural Transmission

Sixty-four percent of respondents observe a perceptible reduction in intergenerational cultural sharing - the transmission of values, practices, oral histories, and community knowledge between elder and younger family members - attributable to AI-mediated screen displacement of traditional communicative occasions. This finding resonates with Tegmark's (2017) broader argument about AI's civilisational consequences and with Kisley's (2022) specific documentation of AI's impact on intimate and familial bonds. The erosion of cultural transmission mechanisms has implications extending well beyond individual households: in semi-urban Indian contexts, such transmission is the primary channel through which community identity, local knowledge, and social cohesion are reproduced across generations.

#### 6.7 Gender Differential in Intergenerational AI Conflict

S.No.	Gender and Conflict Pattern	Frequency	Percentage (%)
1.	Female Students Reporting Higher Intrafamily AI Conflict	18	72% of female respondents
2.	Male Students Reporting Intrafamily AI Conflict	13	52% of male respondents
<b>Total</b>	<b>Total Conflict-Reporting Respondents</b>	<b>31</b>	<b>62% of total sample</b>

Table 7: Gender Differential in Reported Intrafamily AI-Related Conflict

Within the 62% of respondents reporting intrafamily AI-related conflict (Table 3), a pronounced gender differential is evident: 72% of female respondents report such conflict, compared to 52% of male respondents. This asymmetry reflects established sociological patterns in Indian semi-urban households, where female students typically face greater scrutiny of device use, more restrictive household norms regarding screen time, and stronger family expectations of participation in domestic communication and relational maintenance (van Dijk, 2020; DiMaggio & Hargittai, 2020). The heightened conflict experience of female students suggests that the social costs of the intergenerational AI divide are not uniformly distributed across gender - a finding with direct implications for gender-sensitive policy design.

### 6.8 Student Support for Family AI Awareness Programmes

S.No.	Attitude Towards Family Awareness Programmes	Frequency	Percentage (%)
1.	Support Structured Family AI Awareness Programmes	33	66%
2.	Do Not Support or Indifferent to Such Programmes	17	34%
<b>Total</b>	<b>Total Respondents</b>	<b>50</b>	<b>100%</b>

Table 8: Student Support for Structured Family AI Awareness Programmes

Sixty-six percent of respondents express positive endorsement for the development and delivery of structured family awareness programmes on AI - a finding of significant policy relevance. The majority student endorsement signals that young people themselves recognise the social and relational costs of the intergenerational divide and desire institutional support for bridging it. UNESCO (2022) and Ministry of Education (2020) policy frameworks both provide enabling normative foundations for such programmes; the present finding establishes corresponding demand at the community level. Dhamdhare (2021) and Agarwal and Srivastava (2022) document the comparative success of family-inclusive digital literacy interventions in Indian educational contexts, suggesting that programme effectiveness is likely to be enhanced by the student endorsement observed here.

## 7. TESTING OF RESEARCH HYPOTHESES

H1 - Parental AI Incapacity Constitutes a Measurable Intergenerational Divide: ACCEPTED. Seventy-eight percent of respondents (Table 1) confirm that their parents lack any capacity to use or understand AI platforms, establishing a profound intergenerational technological asymmetry consistent with van Dijk (2020) and Park and Kim (2023).

H2 - AI Screen Engagement Has Measurably Reduced Family Communication Quality: ACCEPTED. Seventy percent of respondents (Table 2) observe deterioration in family conversation quality attributable to AI-mediated screen engagement, corroborating Kisley (2022) and Bonk (2020).

H3 - Divergent AI Attitudes Generate Intrafamily Conflict: ACCEPTED. Sixty-two percent of respondents (Table 3) report conflict with family members over AI use, with a pronounced gender differential (Table 7), consistent with DiMaggio and Hargittai (2020) and van Dijk (2020).

H4 - Students Support Family AI Awareness Programmes: ACCEPTED. Sixty-six percent of respondents (Table 8) endorse structured family AI awareness initiatives as a mechanism for reducing intergenerational tension and building shared digital literacy, consistent with UNESCO (2022) and Dhamdhare (2021).

## 8. CONCLUSIONS

1. The finding that 78% of students' parents are unable to use or understand any AI platform establishes the intergenerational technological asymmetry at Sironj as both profound and socially consequential - far exceeding the levels at which informal household adjustment mechanisms can adequately compensate.

2. The reported reduction in family communication quality by 70% of respondents confirms that AI-mediated screen engagement is not socially neutral; it actively displaces the communicative occasions through which intergenerational bonds are sustained and cultural transmission occurs.

3. Intrafamily conflict over AI use, reported by 62% of respondents with a pronounced gender asymmetry, demonstrates that the intergenerational divide generates social friction costs that are experienced differentially

across gender - with female students bearing a disproportionate burden.

4. The monitoring incapacity gap - wherein 74% of parents are described as concerned but unable to regulate AI use effectively - creates conditions of household governance failure that cannot be resolved through parental authority alone but require external institutional support.

5. The displacement of direct communication by AI-mediated platforms, acknowledged by 58% of respondents, represents a structural shift in how young people satisfy social and relational needs - with long-term consequences for interpersonal skill development that warrant sustained scholarly and institutional attention.

6. The perceived erosion of intergenerational cultural transmission, documented by 64% of respondents, situates the intergenerational AI divide within a broader sociological concern: the attenuation of the mechanisms through which community identity, oral knowledge, and social norms are reproduced across generational cohorts.

7. The strong student endorsement of family AI awareness programmes (66%) provides institutional actors with both the justification and the community receptivity to design and deliver targeted intergenerational digital inclusion interventions.

8. Collectively, these findings establish that the intergenerational AI divide in semi-urban Sironj is not merely a technological literacy gap but a multi-dimensional social problem requiring coordinated response from educational institutions, community organisations, local governance bodies, and state-level policy frameworks.

## 9. RECOMMENDATIONS

1. Educational institutions, in partnership with local governance bodies, should design and deliver structured Family AI Awareness Workshops targeting parents and guardians of enrolled students - focusing not on technical proficiency per se, but on building sufficient understanding to support informed household dialogue about AI use (UNESCO, 2022; Dhamdhare, 2021).

2. Gender-sensitive programme design should explicitly address the heightened intrafamily AI conflict experienced by female students, engaging with household

norms around female device use in ways that are culturally respectful but progressively equity-affirming (van Dijk, 2020; DiMaggio & Hargittai, 2020).

3. Intergenerational digital literacy initiatives should be incorporated into the community outreach mandate of public colleges like LBS Sironj, positioning the institution as a centre of AI awareness for the broader community rather than solely an educational provider for enrolled youth (Ministry of Education, 2020; Gupta & Pathak, 2023).

4. Family communication guidelines - developed collaboratively by students, parents, and institutional faculty - should be produced and distributed as practical resources for managing AI use within household environments, drawing on the normative frameworks established by UNESCO (2022) and NEP 2020.

5. Students should be equipped, through formal curriculum components, with the communicative competencies needed to serve as effective AI mediators within their own households - translating technical knowledge into accessible guidance that reduces parental anxiety and builds shared household AI literacy (Sharma & Mishra, 2022; NCERT/CIET, 2024).

6. Future research should employ ethnographic and longitudinal methods to investigate the dynamics of AI-related intergenerational communication within specific household types - joint family, nuclear family, single-parent - to generate the contextually granular evidence needed for precision policy design (Park & Kim, 2023; Kisley, 2022).

## 10. REFERENCES

- Agarwal, S., & Srivastava, M. (2022). Artificial intelligence in education: Prospects and challenges. *Journal of Emerging Technologies and Innovative Research*, 9(6), 112–119.
- Amar Ujala Survey. (2025). 93% students and teachers believe AI has a positive impact on education in India. Amar Ujala, New Delhi.
- Baker, R. S., & Smith, L. (2019). A review of the state of AI in education research. *NPJ Science of Learning*, 4(1), 1–8. <https://doi.org/10.1038/s41539-019-0056-x>

- Bonk, C. J. (2020). The perfect e-storm: Examining digital learning and AI integration in higher education. *Educational Technology R&D*, 68(4), 1895–1919.
- Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial intelligence trends in education: A narrative overview. *Procedia Computer Science*, 136, 16–24.
- Cope, B., & Kalantzis, M. (2021). Towards a new learning: The Scholar social knowledge workspace. *E-Learning and Digital Media*, 18(2), 100–123.
- Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2023). Chatting and cheating: Ensuring academic integrity in the era of ChatGPT. *Innovations in Education and Teaching International*, 1–12.
- Deng, X., & Yu, Z. (2023). A meta-analysis of the relationship between AI tool use and student critical thinking. *Thinking Skills and Creativity*, 48, 101298.
- Dhamdhare, S. N. (2021). Role of artificial intelligence in transforming Indian education. *International Journal of Computer Applications*, 175(27), 12–19.
- DiMaggio, P., & Hargittai, E. (2020). Digital inequality: From unequal access to differentiated use. In *Social Inequality* (pp. 355–400). Russell Sage Foundation.
- Gupta, R., & Pathak, S. (2023). AI adoption in Indian higher education: Trends, barriers and policy implications. *Indian Journal of Educational Technology*, 5(2), 44–58.
- Hagerty, A., & Rubinov, I. (2019, July 18). Global AI ethics: Social impacts and ethical implications. arXiv. <https://arxiv.org/abs/1907.07892>
- Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign, Boston.
- India Brand Equity Foundation (IBEF). (2025). AI adoption spreads across sectors as Indian workforce seeks upskilling. <https://ibef.org>
- Kasneci, E., Sessler, K., Kuechemann, S., Bannert, M., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of LLMs for education. *Learning and Individual Differences*, 103, 102274.
- Kisley, E. (2022). *Relationships 5.0: How AI, VR and robots will reshape our emotional lives*. Oxford University Press.
- Lo, C. K. (2023). What is the impact of ChatGPT on education? A rapid review of the literature. *Education Sciences*, 13(4), 410.
- Ministry of Education, Government of India. (2020). National Education Policy 2020. MoE, New Delhi. <https://www.education.gov.in>
- NCERT/CIET. (2024, November). Online training programme on artificial intelligence in education. <https://ciet.ncert.gov.in/activity/eaie>
- Park, S., & Kim, S. (2023). Intergenerational digital divide in the age of AI: Evidence from Asian households. *Telematics and Informatics*, 78, 101934.
- Renzulli, J. S. (2021). Technology, talent and the future of creativity: How AI changes gifted education. *Gifted Child Quarterly*, 65(3), 209–223.
- Sharma, A., & Mishra, P. (2022). Digital India and the rise of AI-driven applications: Opportunities for semi-urban youth. *Journal of Social Science and Technology*, 7(1), 33–45.
- Tegmark, M. (2017). *Life 3.0: Being human in the age of artificial intelligence*. MIT Press.
- UNESCO. (2022). Recommendation on the ethics of artificial intelligence. UNESCO, Paris. <https://unesdoc.unesco.org/ark:/48223/pf0000381137>
- van Dijk, J. A. G. M. (2020). *The digital divide*. Polity Press.
- Zhai, X. (2022). ChatGPT user experience: Implications for education. SSRN Working Paper. <https://ssrn.com/abstract=4312418>