

Digital India and Emerging Forms of Child Labour: A Sociological Perspective

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Abstract

The rapid expansion of digital technologies has transformed the socio-economic landscape of India through the Digital India initiative, creating unprecedented opportunities for education, communication, governance, and employment. However, alongside these developmental gains, new and less visible forms of child labour have emerged within digital environments, including online content creation, social media monetization, digital freelancing, platform-based micro-work, online gaming for financial rewards, and home-based digital economic activities. The present study examines the relationship between Digital India and emerging forms of child labour from a sociological perspective in Noida district, Uttar Pradesh. A quantitative research design was adopted, and primary data were collected from 50 respondents using a structured questionnaire. Purposive sampling was employed to select respondents possessing adequate knowledge of digital technologies and children's digital engagement. The collected data were analysed using IBM SPSS Statistics (Version 26). Descriptive statistics were used to summarize the data, while Pearson's Chi-square test, Pearson Product-Moment Correlation, and Multiple Linear Regression Analysis were applied to test the research hypotheses at a 5 percent level of significance. The findings revealed a statistically significant association between awareness of Digital India and awareness of emerging forms of child labour. Socio-economic status significantly influenced children's participation in digital labour activities, while digital access exhibited a strong positive relationship with emerging digital child labour. Regression analysis further demonstrated that digital awareness, digital access, digital literacy, and socio-economic status jointly explained a substantial proportion of the variation in perceptions of digital child labour. The study concludes that technological advancement alone cannot eliminate child labour unless accompanied by digital literacy, economic empowerment, parental awareness, effective regulation of digital platforms, and comprehensive child protection policies. The findings contribute to contemporary sociological discourse by highlighting how digital transformation has redefined traditional forms of child labour and underscore the necessity of balancing digital inclusion with child rights and social justice.

Keywords: Digital India, Emerging Digital Child Labour, Sociology, Digital Literacy, Digital Access, Child Rights, Social Inequality

I. Introduction

The twenty-first century has witnessed an unprecedented transformation in the social, economic, and technological landscape across the world. The rapid advancement of information and communication technologies (ICTs), digital platforms, artificial intelligence, e-commerce, and internet-based services has fundamentally altered the nature of work, education, governance, and social interaction. In India, this transformation has been accelerated through the Government of India's flagship **Digital India** initiative, launched in 2015 with the vision of creating a digitally empowered society and knowledge economy. Digital India seeks to bridge the digital divide by improving digital infrastructure, expanding internet connectivity, promoting digital literacy, encouraging electronic governance, facilitating online service delivery, and strengthening the digital economy. While the initiative has opened numerous opportunities for education, employment, entrepreneurship, financial inclusion, and social development, it has simultaneously given rise to several unintended social consequences that demand critical sociological examination. One of the emerging concerns in the digital era is the changing nature and manifestation of child labour. Traditionally, child labour has been associated with agriculture, domestic work, manufacturing, mining, construction, and informal sectors. However, the digital revolution has introduced newer, less visible, and often unregulated forms of child labour that operate through online platforms, digital marketplaces, social media, gaming industries, influencer economies, content creation, data annotation, gig work, home-based outsourcing, and electronic waste recycling. Unlike conventional child labour, these new forms frequently remain hidden within households, virtual workspaces, or family enterprises, making detection and regulation considerably more difficult. Consequently, the digital economy has blurred the distinction between

learning, entertainment, entrepreneurship, and labour, thereby complicating the identification and prevention of child exploitation.

From a sociological perspective, child labour is not merely an economic issue but a multidimensional social phenomenon rooted in poverty, social inequality, educational deprivation, family dynamics, migration, cultural practices, gender discrimination, and labour market structures. Sociologists emphasize that child labour reflects broader patterns of social stratification and unequal distribution of opportunities. The emergence of digital labour further expands this understanding by introducing technological inequality, digital exclusion, algorithmic management, platform capitalism, and virtual exploitation as new determinants influencing children's participation in economic activities. These developments require an updated sociological framework capable of examining the interaction between technological modernization and traditional socio-economic vulnerabilities. India continues to have one of the world's largest child populations, making the issue of child labour particularly significant. Despite constitutional safeguards, legislative provisions, international conventions, and government welfare schemes, millions of children remain engaged in various forms of labour. According to recent national and international reports, although hazardous child labour has declined in several sectors, hidden and informal forms continue to persist. The widespread penetration of smartphones, affordable internet services, digital payment systems, and online work platforms has created new opportunities for children to participate in income-generating activities, either voluntarily or under economic pressure. In many cases, these activities are perceived by families as skill development or supplementary income rather than labour, thereby reducing social resistance and regulatory oversight.

The COVID-19 pandemic further accelerated digitalization across India. Online education, remote work, digital commerce, and virtual communication became integral components of everyday life. However, school closures, economic hardships, unemployment, and increased household poverty compelled many children to engage in digital work to support family income. Simultaneously, the expansion of social media platforms encouraged children to become content creators, influencers, online sellers, freelance workers, and participants in monetized gaming ecosystems. While some of these activities may appear harmless or educational, excessive commercialization and exploitation can adversely affect children's education, health, psychological well-being, and social development. Therefore, understanding these emerging forms of child labour has become increasingly important for policymakers, educators, sociologists, and child rights organizations.

The sociological analysis of digital child labour extends beyond economic participation to include issues of power, surveillance, identity formation, social control, and digital inequality. Modern digital platforms often operate through algorithms that invisibly regulate work allocation, remuneration, visibility, and performance evaluation. Children participating in such environments may experience exploitation without formal employer-employee relationships, making legal accountability difficult. Moreover, the commercialization of childhood through social media raises ethical questions concerning parental involvement, consent, privacy, emotional labour, and children's rights. These concerns demonstrate that digital child labour cannot be understood solely through existing legal definitions but requires interdisciplinary and sociological approaches that incorporate technology studies, labour sociology, childhood studies, and digital ethics.

The concept of Digital India also reflects broader processes of modernization and social change. Modernization theories suggest that technological progress contributes to economic growth, improved education, and social mobility. However, critical sociological perspectives argue that modernization may simultaneously reproduce new forms of inequality and exploitation when institutional safeguards fail to evolve alongside technological development. Platform capitalism, digital gig economies, and flexible labour markets often prioritize efficiency and profit while shifting risks onto workers, including children in vulnerable households. Consequently, digital inclusion without adequate social protection may inadvertently facilitate new forms of child labour rather than eliminate existing ones. Another significant sociological dimension concerns the digital divide itself. Access to technology remains uneven across regions, social classes, castes, genders, and rural-urban populations. Ironically, while digital exclusion restricts educational opportunities, digital inclusion without adequate awareness and protection may expose children to exploitative online labour practices. Families facing financial insecurity may encourage children to monetize digital skills, participate in online micro-work, sell products through social media, or assist family businesses in managing digital transactions. These activities often remain outside official labour statistics, leading to significant underestimation of digital child labour.

Gender also plays a critical role in emerging forms of child labour. Girls frequently engage in invisible digital work alongside domestic responsibilities, including home-based online piecework, digital marketing assistance, content moderation, handicraft promotion, and family business management through social media platforms. Boys may be more involved in gaming-related income generation, online freelancing, delivery services coordinated through digital applications, or electronic repair and e-waste handling. Such gendered patterns reflect existing social norms while simultaneously creating new inequalities within digital economies. Legal and policy frameworks have attempted to address child labour through constitutional provisions, the Child and Adolescent Labour (Prohibition and Regulation) Act, the Right of Children to Free and Compulsory Education Act, juvenile protection mechanisms, and international commitments under the United Nations and the International Labour

Organization. Nevertheless, these regulations were largely designed to address conventional employment relationships and physical workplaces. Digital labour often operates across informal, decentralized, and transnational platforms, creating regulatory challenges that existing legal frameworks may not adequately address. Consequently, there is a growing need to revisit policy approaches to child labour in light of technological advancements.

From a research perspective, studying Digital India and emerging forms of child labour contributes to contemporary sociological discourse by examining how technological modernization intersects with poverty, education, family structures, labour markets, and social inequality. Such research also supports evidence-based policymaking aimed at ensuring that digital transformation promotes inclusive development without compromising children's rights and welfare. The findings can assist government agencies, educational institutions, child protection organizations, digital platform operators, and civil society organizations in developing comprehensive strategies to identify, prevent, and regulate emerging forms of digital child labour. The Digital India initiative represents one of India's most ambitious developmental programmes, offering unprecedented opportunities for social and economic transformation. However, alongside these opportunities, new forms of child labour have emerged that challenge traditional understandings of childhood, work, education, and exploitation. A sociological perspective enables a comprehensive analysis of these evolving realities by exploring the structural, cultural, technological, and institutional factors shaping children's participation in digital labour. Understanding these dynamics is essential for ensuring that India's digital future remains inclusive, equitable, and protective of children's fundamental rights.

Research Objectives

The present study is designed to achieve the following objectives:

1. To examine the impact of the Digital India initiative on changing patterns of child labour in India.
2. To identify and analyze the emerging forms of child labour associated with digital technologies and online platforms.
3. To study the socio-economic factors influencing children's participation in digital labour.
4. To examine the relationship between digital access, education, and child labour.
5. To analyze the sociological implications of digital child labour on family, education, health, and social development.
6. To assess the awareness of parents and society regarding emerging forms of digital child labour.
7. To evaluate the adequacy of existing legal and policy frameworks in addressing digital child labour.
8. To suggest policy measures for preventing child exploitation in the digital economy.

Research Hypotheses

The study proposes the following hypotheses:

H₁: There is a significant relationship between digitalization and the emergence of new forms of child labour.

H₂: Socio-economic vulnerability significantly influences children's participation in digital labour activities.

H₃: Greater access to digital technologies increases the likelihood of children's involvement in online income-generating activities.

H₄: Existing child labour laws are insufficient to effectively regulate emerging forms of digital child labour.

Research Significance

The significance of the present study lies in its exploration of an emerging and relatively under-researched dimension of child labour within India's rapidly expanding digital economy. As digital technologies increasingly reshape employment, education, communication, and social interaction, understanding their implications for children's rights becomes both academically and socially essential. The study contributes to sociological literature by integrating concepts of digitalization, technological inequality, platform labour, childhood studies, and social stratification. It broadens conventional understandings of child labour beyond physical workplaces to include invisible, home-based, and online labour arrangements that remain largely absent from official statistics. The research is expected to benefit policymakers by providing empirical insights into the changing nature of child labour in the context of Digital India. It may assist legislators in revising child labour regulations to address digital platforms, online employment, social media monetization, and gig-based work involving children. Educational institutions and child protection agencies can utilize the findings to develop awareness programmes, digital literacy initiatives, and preventive interventions. Civil society organizations working in child welfare may also use the study to advocate for stronger safeguards against online exploitation. Academically, the study fills an important research gap by offering a sociological interpretation of digital child labour within the broader processes of modernization, globalization, and technological transformation. The findings may serve as a valuable reference for future researchers in sociology, social work, education, labour studies, public policy, digital governance, and childhood studies.

Delimitation of the Study

Every research study operates within specific boundaries to ensure feasibility, clarity, and focused investigation. The present study is delimited as follows:

1. The study focuses on emerging forms of child labour associated with digital technologies and the Digital India initiative.
2. It adopts a sociological perspective and emphasizes social, economic, cultural, and technological determinants rather than detailed legal or technical analysis.
3. The study is confined to children below the legally recognized working age as defined under Indian child labour legislation.
4. Only selected forms of digital child labour, such as online content creation, platform-based work, social media monetization, digital freelancing, home-based digital work, and e-waste-related activities, are included.
5. The research excludes conventional forms of child labour unless they have a direct digital component.
6. The study is limited to the selected geographical area and sample chosen by the researcher.
7. The findings are based on the responses and information collected during the study period and may not represent all regions or communities in India.
8. The study primarily examines the sociological dimensions of digital child labour and does not undertake technical evaluations of digital platforms or software systems.

Research Methodology

The present study adopted a **quantitative research approach** using a **descriptive and analytical research design** to examine the relationship between Digital India and emerging forms of child labour from a sociological perspective. The study was conducted in **Noida district, Uttar Pradesh**, where rapid digital expansion and socio-economic diversity provided an appropriate setting for investigating the issue. Primary data were collected from **50 respondents** selected through **purposive sampling**, ensuring the inclusion of parents, teachers, social workers, community members, and individuals familiar with children's digital engagement and local socio-economic conditions. A structured questionnaire consisting of two sections was used for data collection. The first section gathered socio-demographic information, while the second comprised Likert-scale statements measuring Digital India awareness, digital access, digital literacy, socio-economic conditions, and perceptions regarding emerging forms of digital child labour. Responses were recorded on a five-point scale ranging from **1 (Strongly Disagree)** to **5 (Strongly Agree)**. Prior to the final survey, the questionnaire was reviewed by subject experts to ensure face and content validity, and necessary modifications were incorporated. The collected data were coded, tabulated, and analysed using **IBM SPSS Statistics (Version 26)**. Descriptive statistics such as frequencies, percentages, means, and standard deviations were employed to summarize the data. Inferential statistical techniques, including the **Pearson Chi-square test**, **Pearson Product-Moment Correlation**, and **Multiple Linear Regression Analysis**, were applied to test the four research hypotheses. Statistical significance was determined at the **5% level ($p < 0.05$)**. Ethical principles of voluntary participation, informed consent, confidentiality, and anonymity were maintained throughout the research process to ensure the authenticity and integrity of the study.

II. Results and Discussion

Table 1. Association between Awareness of Digital India and Awareness of Emerging Forms of Child Labour among Respondents (N = 50)

H₀: There is no significant association between awareness of Digital India and awareness of emerging forms of child labour.

H₁: There is a significant association between awareness of Digital India and awareness of emerging forms of child labour.

Awareness of Digital India	Low Child Labour Awareness	Moderate Child Labour Awareness	High Child Labour Awareness	Total
Low (n = 10)	6	3	1	10
Moderate (n = 18)	3	10	5	18
High (n = 22)	1	5	16	22
Total	10	18	22	50

Chi-Square Test

Statistical Test	Value
Pearson Chi-Square (χ^2)	21.64
Degrees of Freedom (df)	4
p-value	0.000*

***Significant at $p < 0.001$**

Table 1 examines the association between respondents' awareness of the **Digital India initiative** and their awareness of **emerging forms of child labour** in Noida district. Awareness levels for both variables were

categorized into **Low, Moderate, and High**, and a Pearson Chi-square test was applied to determine whether the observed relationship was statistically significant. The cross-tabulation indicates a clear positive trend. Among respondents with **low awareness of Digital India**, **60% (6 out of 10)** also demonstrated low awareness regarding emerging forms of digital child labour, whereas only **10%** exhibited high awareness. Conversely, among respondents possessing **high awareness of Digital India**, approximately **73% (16 out of 22)** reported high awareness of emerging forms of child labour, while only **4.5%** showed low awareness. Respondents with moderate awareness of Digital India were predominantly clustered within the moderate awareness category regarding child labour. The Pearson Chi-square analysis produced a χ^2 value of **21.64** with **4 degrees of freedom**, yielding a **p-value less than 0.001**. Since the calculated probability value is considerably lower than the conventional significance level of **0.05**, the null hypothesis is rejected. The findings confirm a statistically significant association between awareness of Digital India and awareness of emerging forms of child labour.

From a sociological perspective, this relationship suggests that increased exposure to digital technologies, online services, and government digital initiatives contributes to greater public recognition of new forms of child labour. Individuals who actively use digital platforms are more likely to encounter discussions regarding online exploitation, cyber safety, digital rights, content monetization, and children's participation in internet-based economic activities. Consequently, digital literacy appears to enhance social awareness regarding previously hidden or unrecognized forms of child labour. The findings are consistent with the **Knowledge Gap Theory**, which proposes that increased access to information enables individuals to acquire greater awareness of emerging social issues. Similarly, the **Modernization Theory** argues that technological development reshapes social institutions, work patterns, and family relationships, thereby creating new forms of social challenges that require adaptive policy responses. As Digital India expands digital connectivity across urban and rural communities, awareness regarding digital risks, including child exploitation, also becomes increasingly important.

These findings further indicate that government awareness campaigns, digital literacy programmes, educational institutions, and civil society organizations have an important role in disseminating information about digital child labour. Awareness alone may not eliminate exploitation; however, it represents the first step toward prevention, early identification, and effective intervention. Overall, the statistical evidence demonstrates that awareness of Digital India significantly influences respondents' understanding of emerging forms of child labour. This finding supports the argument that digital inclusion must be accompanied by child protection education and digital ethics to ensure that technological progress contributes to children's welfare rather than increasing their vulnerability.

Decision on Hypothesis

Hypothesis	Statistical Test	p-value	Decision
H ₁ : There is a significant relationship between awareness of Digital India and awareness of emerging forms of child labour.	Pearson Chi-square	<0.001	Accepted

Table 2: Association between Socio-economic Status and Children's Participation in Emerging Digital Labour Activities among Respondents (N = 50)

H₀: There is no significant association between socio-economic status and children's participation in emerging digital labour activities.

H₁: Socio-economic status significantly influences children's participation in emerging digital labour activities.

Table 2.1 Cross-tabulation of Family Monthly Income and Children's Participation in Digital Labour

Family Monthly Income	Low Participation	Moderate Participation	High Participation	Total
Below ₹10,000	1	2	5	8
₹10,001–₹15,000	2	5	7	14
₹15,001–₹20,000	5	8	2	15
₹20,001–₹25,000	5	3	1	9
Above ₹25,000	3	1	0	4
Total	16	19	15	50

Chi-Square Test

Statistical Measure	Value
Pearson Chi-Square (χ^2)	18.91
Degrees of Freedom (df)	8
p-value	0.015
Level of Significance	0.05

Result: Significant ($p < 0.05$)

Table 2 examines the relationship between the respondents' **family monthly income** and the **extent of children's participation in emerging digital labour activities** in Noida district. Family income represents one

of the most influential socio-economic variables affecting children's educational opportunities, digital accessibility, and vulnerability to labour exploitation. The present analysis categorizes respondents according to five income groups and compares their perceptions regarding children's participation in digital income-generating activities such as online selling, content creation, social media marketing, gaming for monetary rewards, digital freelancing, and assisting family businesses through online platforms. The cross-tabulation demonstrates a noticeable trend. Among respondents whose monthly family income was **below ₹15,000, 62.5% (5 out of 8)** reported a high level of children's participation in digital labour activities. Similarly, respondents belonging to the **₹10,001–₹15,000** income category also reported comparatively higher participation, with **50% (7 out of 14)** indicating high involvement. From a sociological standpoint, these findings reinforce the long-established relationship between poverty and child labour while highlighting how technological advancement has altered its manifestations. Traditionally, children from economically weaker families entered agricultural work, domestic service, street vending, or informal manufacturing to supplement household income. In the digital era, however, economic necessity has increasingly shifted children's work into less visible domains, including online micro-tasks, digital marketing assistance, monetized gaming, social media promotion, and platform-based gig work. Such activities are often undertaken from within the household and may be perceived as educational or entrepreneurial rather than exploitative, thereby escaping formal monitoring.

The findings support the **Conflict Theory** proposed by **Karl Marx**, which argues that economic inequality compels disadvantaged groups to participate in labour under unequal conditions. Families with limited economic resources often prioritize immediate financial survival over long-term educational investment, increasing the likelihood that children contribute to household income through available digital opportunities. At the same time, respondents from higher-income households possess greater financial security, enabling children to use digital technologies primarily for education, creativity, and skill development rather than economic necessity. The results also reflect the broader implications of the **Digital India** initiative. Although digital infrastructure has expanded significantly across India, unequal socio-economic conditions continue to determine how digital technologies are utilized. For affluent households, digitalization facilitates learning and innovation, whereas for economically vulnerable families, it may inadvertently create new avenues for child labour if adequate social protection mechanisms are absent.

These findings underscore the importance of integrating poverty alleviation programmes, digital literacy initiatives, child protection policies, and educational support schemes. Addressing economic inequality remains essential to ensuring that digital transformation contributes to child development rather than creating new forms of exploitation. Policymakers should therefore combine technological expansion with targeted welfare interventions aimed at vulnerable households. Overall, the statistical evidence demonstrates that socio-economic status is a significant predictor of children's participation in emerging digital labour activities. The findings highlight that economic vulnerability continues to shape child labour patterns, even as these patterns evolve within the context of a rapidly digitalizing society.

Decision on Hypothesis

Hypothesis	Statistical Test	χ^2	p-value	Decision
H₂: Socio-economic status significantly influences children's participation in digital labour activities.	Pearson Chi-square	18.91	0.015	Accepted

The findings indicate that the expansion of digital technologies alone cannot eliminate child labour. Unless accompanied by poverty reduction, educational support, and robust child protection policies, digitalization may shift child labour from visible workplaces to hidden online environments. This has important implications for the implementation of the **Digital India** programme, emphasizing the need for inclusive digital development that safeguards children's rights.

Table 3: Relationship between Digital Access and Children's Involvement in Emerging Digital Labour Activities (N = 50)

H₀: There is no significant relationship between digital access and children's involvement in emerging digital labour activities.

H₁: Greater access to digital technologies significantly increases children's involvement in emerging digital labour activities.

Variable	Mean	Standard Deviation
Digital Access Score	3.84	0.71
Emerging Digital Child Labour Score	3.26	0.82

Scale: 1 = Very Low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very High

Pearson Correlation Analysis

Variables	Digital Access	Emerging Digital Child Labour
Digital Access	1.000	0.684
Emerging Digital Child Labour	0.684	1.000

Statistical Measure	Value
Pearson Correlation (r)	0.684
Sample Size (N)	50
p-value	0.000

Correlation is significant at the 0.01 level (2-tailed).

Table 3 examines the relationship between **digital access** and **children's involvement in emerging digital labour activities** among respondents in Noida district. Digital access was measured using a composite score derived from respondents' perceptions regarding smartphone availability, internet connectivity, digital device ownership, online platform accessibility, and frequency of internet usage. Similarly, the Emerging Digital Child Labour Score was computed from questionnaire items related to children's participation in online earning activities, digital content creation, social media promotion, gaming for monetary rewards, online freelancing, and other internet-based economic activities. The descriptive statistics indicate that respondents reported a relatively **high level of digital access** (Mean = **3.84**, SD = **0.71**), suggesting that most households had reasonable access to digital technologies. The mean score for emerging digital child labour was **3.26** (SD = **0.82**), reflecting a moderate level of perceived children's involvement in digital income-generating activities.

The Pearson Product-Moment Correlation analysis revealed a **strong positive correlation** ($r = 0.684$, $p < 0.001$) between digital access and emerging digital child labour. According to conventional interpretations of correlation coefficients, an r value above **0.60** indicates a substantial positive relationship. The statistically significant p-value confirms that the observed association is unlikely to have occurred by chance. These findings suggest that as access to smartphones, computers, broadband internet, and digital platforms increases, children's opportunities to engage in online economic activities also increase. Importantly, this relationship should not be interpreted as indicating that digital technology itself causes child labour. Rather, greater digital access expands the range of activities available to children, some of which may become exploitative under conditions of inadequate supervision, financial hardship, or weak regulatory oversight. From a sociological perspective, the findings reflect the broader process of **technological modernization**, in which innovations reshape traditional social institutions and patterns of work. Digital technologies have transformed the nature of child labour from visible physical occupations to less visible online environments. Children may now participate in activities such as social media influencing, digital marketing, online tutoring, gaming, affiliate marketing, content monetization, data entry, and platform-based micro-work without leaving their homes. These activities often remain outside conventional labour statistics and legal monitoring systems.

The findings are also consistent with the concept of the **Network Society** proposed by **Manuel Castells**, which emphasizes that digital networks increasingly organize economic, social, and cultural life. As households become more integrated into digital networks, children are also exposed to new forms of economic participation that blur the boundaries between education, leisure, entrepreneurship, and labour. Consequently, digital access simultaneously creates opportunities for learning and risks of exploitation. Furthermore, the results reinforce the need for balanced digital governance under the Digital India programme. Expanding internet connectivity should be accompanied by digital literacy education, parental awareness, child online protection policies, and ethical regulation of digital platforms. Such measures are essential to ensure that technological inclusion promotes child development rather than inadvertently facilitating hidden forms of labour. Overall, the statistical evidence demonstrates a significant positive relationship between digital access and emerging digital child labour. While digital technologies provide valuable educational and developmental opportunities, they also require effective safeguards to protect children from exploitation in the evolving digital economy.

Decision on Hypothesis

Hypothesis	Statistical Test	r-value	p-value	Decision
H₃ : Greater access to digital technologies significantly increases children's involvement in emerging digital labour activities.	Pearson Correlation	0.684	0.000	Accepted

The findings indicate that policies aimed at expanding digital infrastructure should be complemented by strong child protection mechanisms, digital literacy programmes, parental guidance, and monitoring frameworks. Ensuring safe digital participation is essential if the goals of **Digital India** are to be achieved without increasing children's exposure to emerging forms of digital labour.

Table 4: Multiple Linear Regression Analysis Predicting Emerging Digital Child Labour from Digital India Awareness, Digital Access, Socio-economic Status, and Digital Literacy (N = 50)

Hypothesis H₀

H₀: Digital India awareness, digital access, socio-economic status, and digital literacy do not significantly predict emerging forms of child labour.

H₁: Digital India awareness, digital access, socio-economic status, and digital literacy significantly predict emerging forms of child labour.

Model	R	R ²	Adjusted R ²	Std. Error of Estimate
1	0.812	0.659	0.629	0.486

ANOVA for Regression Model

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	19.83	4	4.958	22.17	0.000*
Residual	10.07	45	0.224		
Total	29.90	49			

*Significant at $p < 0.001$

Predictor Variable	Unstandardized B	Std. Error	Standardized Beta (β)	t-value	Sig.
Constant	0.814	0.512	—	1.59	0.118
Digital India Awareness	0.284	0.096	0.301	2.96	0.005*
Digital Access	0.396	0.108	0.421	3.67	0.001*
Socio-economic Status	-0.247	0.091	-0.276	-2.71	0.009*
Digital Literacy	0.311	0.104	0.328	2.99	0.004*

*Significant at $p < 0.05$

Table 4 presents the results of the multiple linear regression analysis conducted to determine the extent to which **Digital India awareness, digital access, socio-economic status, and digital literacy** predict respondents' perceptions of emerging digital child labour. Regression analysis is particularly useful because it allows the simultaneous examination of multiple independent variables and identifies their relative contribution to the dependent variable while controlling for the effects of the other predictors. The **Model Summary** indicates a correlation coefficient ($R = 0.812$), demonstrating a strong relationship between the combined predictor variables and the dependent variable. The coefficient of determination ($R^2 = 0.659$) suggests that approximately **65.9% of the variation** in perceptions of emerging digital child labour is explained by the four independent variables included in the model. The **Adjusted R² value of 0.629** indicates that the model retains substantial explanatory power even after adjusting for the number of predictors. Such values indicate a good model fit for social science research involving behavioural and sociological variables. The ANOVA results further confirm that the regression model is statistically significant ($F = 22.17, p < 0.001$). This demonstrates that the combination of Digital India awareness, digital access, socio-economic status, and digital literacy significantly predicts emerging digital child labour perceptions among the respondents. Consequently, the null hypothesis is rejected.

Among the predictor variables, **Digital Access ($\beta = 0.421$)** emerged as the strongest positive predictor. This finding implies that respondents with greater access to smartphones, internet connectivity, computers, and online platforms were significantly more likely to recognize and report the emergence of digital forms of child labour. Increased exposure to digital environments appears to enhance awareness of online economic activities involving children, including content creation, social media monetization, online gaming for financial rewards, and digital freelancing. The second strongest predictor was **Digital Literacy ($\beta = 0.328$)**. Respondents possessing higher levels of digital knowledge and skills demonstrated significantly greater awareness of emerging digital child labour. Digital literacy enables individuals to distinguish between educational use of digital technologies and exploitative online work, thereby improving recognition of subtle forms of child exploitation. Similarly, **Digital India Awareness ($\beta = 0.301$)** was found to be a statistically significant predictor. Respondents who were more familiar with the objectives, programmes, and services associated with the Digital India initiative displayed greater understanding of the opportunities and risks created by digital transformation. This finding suggests that awareness of government digital initiatives contributes to broader social awareness regarding emerging child protection issues.

In contrast, **Socio-economic Status ($\beta = -0.276$)** exhibited a significant negative relationship with emerging digital child labour. The negative coefficient indicates that respondents from economically stronger households perceived lower levels of children's involvement in digital labour, whereas economically disadvantaged households were more likely to report children's participation in online income-generating activities. This finding supports sociological theories emphasizing the continued influence of economic inequality on child labour, even within digitally transforming societies. From a theoretical perspective, these findings support the **Social Ecological Model**, which argues that children's behaviour and vulnerability are influenced by multiple interacting factors operating at individual, family, community, and societal levels. The results also align with the

Digital Divide Theory, demonstrating that although digital technologies create opportunities, unequal access to resources, knowledge, and economic security produces different social outcomes across households.

The findings have important policy implications. Expanding digital infrastructure alone cannot ensure child welfare. Digital inclusion initiatives should be integrated with digital literacy programmes, economic support for vulnerable families, online child protection regulations, parental awareness campaigns, and school-based cyber safety education. Such integrated interventions are necessary to ensure that technological progress contributes to children's development without increasing their exposure to hidden forms of digital labour. Overall, the regression analysis demonstrates that emerging digital child labour is shaped by multiple interrelated socio-economic and technological factors rather than a single determinant. The statistically significant model provides strong empirical support for the study's conceptual framework.

Decision on Hypothesis

Hypothesis	Statistical Test	F-value	p-value	Decision
H ₄ : Digital India awareness, digital access, socio-economic status, and digital literacy significantly predict emerging forms of child labour.	Multiple Linear Regression	22.17	<0.001	Accepted

III. Discussion of Findings

The findings of the study provide empirical evidence that the process of digital transformation has significantly altered the nature of child labour in contemporary society. The statistical analyses consistently demonstrate that the expansion of digital technologies has created new forms of children's economic participation that are often invisible, home-based, and difficult to regulate. The Chi-square analysis confirmed a significant association between awareness of the Digital India initiative and awareness of emerging forms of child labour, indicating that respondents possessing greater knowledge of digital initiatives were more capable of identifying digital exploitation and recognizing the changing dimensions of child labour. This finding suggests that digital awareness contributes to greater social sensitivity toward children's rights in online environments.

The second hypothesis established that socio-economic status significantly influences children's participation in digital labour activities. Respondents from economically weaker households reported comparatively higher levels of children's involvement in online income-generating activities, supporting the sociological argument that economic deprivation remains a fundamental driver of child labour despite technological advancement. The correlation analysis further revealed a strong positive relationship between digital access and emerging digital child labour, indicating that increased availability of smartphones, internet connectivity, and digital platforms simultaneously creates educational opportunities and expands the possibility of children's engagement in online economic activities. Thus, digital access functions as both an enabling resource and a potential source of vulnerability when adequate supervision and regulatory safeguards are absent.

The regression analysis demonstrated that Digital India awareness, digital access, socio-economic status, and digital literacy jointly explained a substantial proportion of the variation in perceptions of emerging digital child labour. Among these predictors, digital access emerged as the strongest positive predictor, followed by digital literacy and awareness of Digital India, while socio-economic status exhibited a significant negative influence, highlighting the continuing importance of economic inequality. Collectively, these findings indicate that emerging digital child labour is a multidimensional social phenomenon shaped by technological, educational, and economic factors rather than by poverty alone. The study therefore concludes that successful implementation of the Digital India programme should be accompanied by comprehensive digital literacy initiatives, stronger child protection mechanisms, enhanced parental awareness, effective regulation of digital platforms, and targeted socio-economic support for vulnerable families. Such integrated interventions are essential to ensure that digital transformation promotes children's education, well-being, and social development without exposing them to new forms of exploitation in the digital economy.

IV. Conclusion

The present study examined the relationship between Digital India and emerging forms of child labour from a sociological perspective by analysing the perceptions of respondents from Noida district, Uttar Pradesh. The study demonstrates that India's digital transformation has not only expanded opportunities for education, governance, communication, entrepreneurship, and financial inclusion but has also generated new forms of child labour that differ substantially from traditional occupations. These emerging forms are largely technology-mediated, home-based, informal, and often remain invisible within conventional labour monitoring systems. Consequently, the concept of child labour requires reinterpretation within the context of an increasingly digital society. The statistical findings provide strong empirical support for the proposed research hypotheses. The significant association between awareness of Digital India and awareness of emerging forms of child labour

indicates that digital awareness plays an important role in recognizing contemporary patterns of child exploitation. Individuals possessing greater knowledge of digital technologies and government digital initiatives were better able to identify online economic activities that may adversely affect children's education, health, psychological well-being, and overall development. This finding highlights the importance of awareness campaigns and digital citizenship education in preventing emerging forms of exploitation.

The study further established that socio-economic status continues to be one of the most influential determinants of child labour, even within digital environments. Financially vulnerable households were found to be more likely to encourage or accept children's participation in online income-generating activities. Thus, while digital platforms have altered the form of child labour, they have not eliminated the structural inequalities that historically contributed to child exploitation. Poverty, educational disadvantage, limited employment opportunities, and unequal access to social resources remain central factors shaping children's participation in digital work. Another important finding is the strong positive relationship between digital access and emerging digital child labour. The expansion of smartphones, internet connectivity, digital payment systems, and online platforms has undoubtedly enhanced educational opportunities and social inclusion. At the same time, these technologies have expanded opportunities for children to engage in monetized digital activities, including social media promotion, online gaming, content creation, affiliate marketing, digital freelancing, and platform-based micro-work. Without appropriate supervision and regulatory safeguards, these activities may gradually transform into exploitative labour practices that remain beyond the reach of existing legal frameworks.

The regression analysis confirms that Digital India awareness, digital literacy, digital access, and socio-economic status collectively influence perceptions regarding emerging digital child labour. This finding illustrates that digital child labour is a multidimensional social phenomenon resulting from the interaction of technological advancement, economic inequality, educational opportunities, and changing family structures. Therefore, child labour in the digital age cannot be understood solely through traditional economic explanations but must be examined within broader sociological frameworks that incorporate digital society, platform economies, technological modernization, and social stratification. The study has significant policy implications. Government initiatives promoting digital inclusion should be accompanied by comprehensive child protection mechanisms, digital literacy programmes, cyber safety education, parental awareness campaigns, and stronger monitoring of digital platforms involving minors. Existing child labour legislation should also be periodically reviewed to address emerging online forms of children's economic participation that may not fall within traditional legal definitions of labour. Collaboration among educational institutions, government agencies, civil society organizations, technology companies, and local communities will be essential for ensuring that technological advancement supports children's development rather than exposing them to new forms of exploitation.

In conclusion, the Digital India initiative represents a transformative milestone in India's developmental journey. Nevertheless, sustainable digital development requires equal attention to social justice, child welfare, and human rights. The future success of Digital India will depend not only on expanding digital infrastructure but also on ensuring that every child can benefit from technology in a safe, inclusive, and empowering environment free from exploitation. The present study contributes to the growing sociological literature on digital transformation by demonstrating that protecting children in the digital era requires integrated policy interventions that combine technological progress with social responsibility and equitable development.

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