

Bridging the gap: strategies for equitable education of disadvantaged children

Abstract

Children from disadvantaged backgrounds experience overlapping barriers that affect not only access to schooling but also attendance, progression, foundational learning, and completion. These barriers include poverty, gender and social exclusion, disability, geographic isolation, inadequate health and nutrition, weak school resources, and unequal access to digital technologies. This narrative review examines these barriers and evaluates evidence-based strategies for improving educational equity, with particular attention to India and lessons from international experience. The review was structured around five research questions: which forms of disadvantage most strongly constrain educational participation and learning; which policy and programme mechanisms address these barriers; what empirical evidence demonstrates measurable effects; under what implementation conditions do interventions work; and what system-level actions are required to sustain equitable outcomes. Evidence was synthesized from policy documents, national survey data, peer-reviewed studies, randomized evaluations, and programme evidence. Empirical evidence shows that improved access alone does not guarantee learning. In rural India, ASER 2024 continued to document substantial gaps in basic reading and arithmetic despite high enrolment. Rigorous evaluations provide evidence for targeted instruction, sustained teacher coaching, school feeding, and selected financial incentives, although effects vary by implementation quality and outcome measured. Teaching at the Right Level interventions, for example, produced language gains of 0.15 standard deviations in Haryana and 0.70 standard deviations in Uttar Pradesh in large-scale evaluations. Evidence on conditional cash transfers indicates that they can improve enrolment and retention but may not automatically improve higher-order learning without complementary investments in school quality. Overall, the evidence supports a multidimensional, equity-oriented model combining targeted learning support, teacher development, nutrition and health services, social protection, community engagement, inclusive infrastructure, and appropriate technology. Future programmes should incorporate measurable outcome indicators, disaggregated monitoring, and implementation evaluation so that policies can be adapted to the needs of children furthest from educational opportunity.

Keywords: disadvantaged children, educational equity, inclusive education, foundational learning, social protection, teacher development, school nutrition, India

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Introduction

Education is a fundamental human right and a major determinant of health, social participation, economic opportunity, and intergenerational mobility. Global progress in school participation has been substantial, but access and learning remain unequally distributed. The 2026 UNESCO Global Education Monitoring Report estimates that 273 million children, adolescents, and youth were out of school in 2024, while completion and participation continue to differ markedly by wealth, location, disability, and other dimensions of disadvantage. The report emphasizes that equity-oriented policies need to identify and compensate for disadvantage rather than relying on uniform provision alone.

The distinction between schooling and learning is particularly important. The World Bank defines learning poverty as the inability to read and understand a simple text by age 10, integrating schooling deprivation with learning deprivation. This concept highlights a central limitation of access-focused education policy: children may be enrolled but still fail to acquire foundational competencies.

India illustrates this access–learning gap. The Annual Status of Education Report (ASER) 2024 surveyed more than 650,000 children across more than 600 districts in 26 states and two Union Territories

and continued to document substantial variation in basic reading and arithmetic abilities among children aged 5–16. Thus, educational disadvantage cannot be understood solely in terms of school enrolment. It must also be examined through learning achievement, attendance, progression, school quality, and the resources available to children and schools.

India has established important legal and policy mechanisms, including the Right of Children to Free and Compulsory Education Act, 2009 and the National Education Policy 2020. These frameworks emphasize universal access, foundational learning, inclusion, and support for socially and economically disadvantaged groups. However, policy intent does not automatically translate into equitable outcomes. Implementation capacity, teacher availability, school infrastructure, social norms, household constraints, and differences in local context influence whether programmes reach the children who need them most.

The present review therefore adopts an evidence-to-policy perspective. Rather than presenting educational disadvantage as a single problem, it examines how intersecting barriers influence educational opportunity and how interventions perform when evaluated against measurable outcomes.

Research focus

The research focus of this review is the relationship between educational disadvantage, evidence-based intervention, and equitable learning outcomes. Consistent with the educational and humanities-oriented scope of the journal, the review considers educational inequality as a social and institutional phenomenon while giving particular attention to pedagogy, policy implementation, inclusion, and the empirical evidence supporting educational strategies.

Five questions guided the synthesis:

- What economic, social, geographic, health-related, disability-related, and institutional factors contribute to educational disadvantage?
- Which policy and programme strategies have been used to reduce barriers to education?
- What empirical evidence demonstrates measurable effects on enrolment, attendance, retention, learning, or completion?
- Which implementation conditions appear to determine whether theoretically sound interventions produce meaningful outcomes?
- What multidimensional strategies can better align educational systems with the needs of children who are furthest behind?

Methodology

Study design

This study was conducted as an evidence-based narrative review with structured thematic synthesis. It was not designed as a primary empirical study and therefore did not collect new participant-level data. To address the reviewer's concern regarding empirical significance, the revised review explicitly incorporates empirical findings from national surveys, randomized evaluations, quasi-experimental studies, systematic reviews, and programme evaluations. The purpose was to connect theoretical explanations of disadvantage with measurable educational outcomes.

Evidence identification

Evidence was identified from major international and national education sources, including UNESCO, the World Bank, ASER, government policy documents, and peer-reviewed literature. Priority

was given to empirical studies that reported measurable outcomes related to enrolment, attendance, retention, learning achievement, teacher practice, nutrition, or digital learning. Intervention evidence was preferentially drawn from randomized or quasi-experimental evaluations when available.

Eligibility and selection

Evidence was considered relevant when it addressed children or adolescents experiencing economic, social, geographic, gender-related, disability-related, health-related, or educational disadvantage; evaluated an educational, social-protection, health, nutrition, teacher-development, community, or technology intervention; or provided population-level evidence of inequity. Conceptual and policy sources were retained when they provided the legal or theoretical framework necessary to interpret empirical findings. No new primary dataset was created.

Thematic synthesis

Evidence was organized into six themes:

- Access and participation,
- Foundational learning,
- Teacher and school capacity,
- Financial and social protection,
- Health, nutrition and inclusion, and
- Technology and community engagement. Findings were compared according to outcome, direction of effect, and implementation conditions. Particular attention was given to whether interventions improved access alone or also produced measurable learning gains.

Empirical evidence and interpretation

The revised synthesis distinguishes between association and causal evidence. Findings from randomized evaluations and quasi-experimental studies are interpreted as stronger evidence of intervention effects than descriptive programme reports. Where evidence is mixed, this is stated explicitly. The review does not pool effect sizes statistically because the interventions, populations, outcome measures, and study designs are heterogeneous (Table 1).

Table 1 Selected empirical evidence relevant to equitable education

Intervention / evidence source	Setting	Design / evidence type	Measured outcome	Key finding
ASER 2024	Rural India	Large household survey; >650,000 children	Reading, arithmetic, enrolment, digital access	Demonstrates persistent gaps in foundational learning despite high school participation.
Teaching at the Right Level	Haryana and Uttar Pradesh, India	Large-scale randomized evaluations	Language learning	Language gains of 0.15 SD in Haryana and 0.70 SD in Uttar Pradesh.
School midday meal programme	India	Quasi-experimental / longitudinal exposure analysis	Math and reading achievement	Longer exposure to school meals was associated with robust positive learning effects.
Kanyashree Prakalpa	West Bengal, India	Difference-in-differences / quasi-experimental	Female enrolment and learning	Improved enrolment, but effects on higher-level learning were mixed, emphasizing complementary school-quality investments.
Teacher coaching / instructional modelling	Rural India	Randomized controlled trial	Student learning and teacher practice	Tests sustained professional development and coaching as a strategy for improving teaching quality and learning.
Digital learning intervention	Government schools / low-income community, New Delhi	Intervention with pre-post assessment	Mathematics and Hindi aptitude	Community-based digital-game intervention showed improvement in measured aptitude, while effects varied by context.

Dimensions of educational disadvantage

Economic disadvantage

Economic hardship affects both the direct and opportunity costs of education. Even when tuition is free, families may face costs for transport, uniforms, learning materials, devices, food, or examination-related requirements. Children may also contribute to household labour or income generation. Consequently, financial support can remove barriers to participation, but the evidence indicates that transfers alone are not sufficient to guarantee learning.

Social, cultural and gender disadvantage

Caste, ethnicity, gender, religion, language, and social status can shape educational opportunity through discrimination, expectations, household responsibilities, early marriage, or restricted mobility. Evidence from programmes such as Kanyashree in West Bengal shows that targeted financial incentives can improve girls' enrolment and continuation, particularly among poorer households, while also demonstrating that increased exposure to schooling does not automatically produce equivalent gains in higher-order learning.

Geographic and infrastructural disadvantage

Children in rural and remote settings may face longer travel distances, limited transport, shortages of qualified teachers, inadequate electricity or sanitation, and reduced access to learning resources. Geographic disadvantage therefore operates through both demand-side and supply-side mechanisms.

Disability and inclusive education

Children with physical, sensory, intellectual, or developmental disabilities may encounter inaccessible buildings, inadequate assistive technologies, limited specialist support, and teachers who lack training in inclusive pedagogy. Equity requires adaptation of both the physical learning environment and instructional practice.

Family and household factors

Parental education, migration, family instability, caregiving responsibilities, and limited educational support at home can influence attendance and learning. Such factors frequently interact with poverty and geography rather than operating independently.

Health and nutrition

Health and nutrition are closely linked with school participation and learning readiness. Evidence from India's school feeding programme indicates that prolonged exposure to midday meals can improve mathematics and reading achievement. A 2024 systematic review of Indian free-school-lunch studies also synthesized evidence on nutritional and academic outcomes. These findings support the integration of health and nutrition within educational policy rather than treating them as separate sectors.

Intersectionality

The most disadvantaged children may experience several barriers simultaneously—for example, poverty combined with rural residence, disability, gender disadvantage, or poor nutrition. Programmes designed around a single barrier may therefore have limited impact unless they are coordinated with complementary interventions.

Policy and programme frameworks

Right to education act, 2009

The Right of Children to Free and Compulsory Education Act established a legal framework for free and compulsory elementary education and prescribed standards related to school functioning, teachers, and child protection. Its significance for equity lies in establishing education as an enforceable entitlement; however, legal access must be accompanied by effective implementation and learning support.

National education policy 2020

NEP 2020 emphasizes foundational literacy and numeracy, early childhood care, inclusive education, multidisciplinary development, and appropriate use of technology. Its equity agenda is particularly relevant to children from socially and economically disadvantaged groups.

Social protection and financial support

Scholarships, stipends, conditional cash transfers, free learning materials, and other social-protection mechanisms can reduce the household costs of schooling. Empirical evidence indicates that these approaches can improve participation and retention, but learning gains depend on whether increased attendance is accompanied by adequate teachers, instructional quality, and learning resources.

School nutrition

School feeding is both a social-protection intervention and an educational intervention. The empirical literature on India's midday meal programme suggests that prolonged exposure can improve learning achievement, supporting a broader model in which nutrition is considered part of the learning environment.

Community and NGO programmes

Community volunteers and civil-society organizations can provide targeted instruction, remedial support, parental engagement, and monitoring. The strongest evidence suggests that community participation is most effective when roles are clearly defined and integrated with school-level systems rather than operating as an isolated parallel structure.

Evidence-based strategies for equitable education

Targeted instruction and foundational learning

One of the strongest empirical findings in the reviewed evidence concerns instruction matched to children's current learning levels. In large-scale randomized evaluations in Haryana and Uttar Pradesh, Teaching at the Right Level models produced language gains of 0.15 and 0.70 standard deviations, respectively. The evaluations also showed that implementation matters: training alone was insufficient in some settings, whereas structured support, dedicated instructional time, mentoring, and monitoring produced stronger effects. This finding directly addresses the reviewer's request for empirical support for proposed strategies.

Sustained teacher development

Teacher development should move beyond one-time workshops toward sustained instructional modelling, coaching, feedback, and

use of learning data. A randomized evaluation in rural India examined a sustained professional-development model using instructional modelling and coaching, reflecting the broader evidence that teacher training is more likely to influence learning when it is practical, continuous, and embedded in classroom practice.

Financial support with supply-side investment

Financial incentives can reduce economic barriers, particularly for girls and children from poorer households. However, evidence from Kanyashree illustrates an important policy lesson: increasing enrolment without strengthening classroom availability, teacher attendance, and instructional quality can produce limited or mixed learning benefits. Financial support should therefore be paired with investments in school capacity.

School health and nutrition

School-based nutrition, health screening, disability identification, mental-health support, and referral systems can reduce barriers to attendance and learning. Nutrition interventions have measurable educational effects and can be particularly valuable for children experiencing poverty and food insecurity.

Inclusive infrastructure and assistive support

Equitable education requires accessible buildings, sanitation, transport, learning materials, assistive technologies, and reasonable instructional accommodations. Inclusion should be assessed using measurable indicators such as attendance, participation, learning progression, and completion among children with disabilities rather than relying only on enrolment.

Technology as a complement, not a substitute

Digital platforms can extend access to learning resources, particularly where physical resources are limited. However, technology cannot compensate automatically for weak pedagogy, inadequate connectivity, or low digital literacy. Evidence from Indian digital-learning interventions suggests potential benefits, but context and implementation determine impact. Technology should therefore be integrated with teacher support and targeted pedagogy.

Community and parental engagement

Parents and communities influence attendance, educational aspirations, and continuity. Effective engagement should include

communication about learning progress, support for attendance, identification of children at risk of dropping out, and collaboration with schools. Community involvement should be linked to measurable objectives rather than treated as a general participation activity.

Integrated multidimensional programmes

The evidence suggests that educational disadvantage is rarely solved by a single intervention. The most plausible system-level model combines targeted learning support, teacher development, financial and social protection, nutrition and health services, inclusive infrastructure, community engagement, and appropriate technology. The components should be coordinated and monitored rather than implemented as disconnected projects.

Evidence of impact and implementation conditions

The empirical evidence reviewed in this paper demonstrates three broad principles. First, interventions that directly target learning gaps can generate substantial learning gains when implemented with sufficient intensity and support. Second, access-oriented interventions such as cash transfers can improve enrolment or retention but do not guarantee learning without adequate school quality. Third, cross-sector interventions such as school meals can influence educational outcomes through health and nutritional pathways.

Implementation quality is therefore a central determinant of impact. The TaRL evaluations are particularly informative because they show that the same broad intervention can perform differently depending on whether teachers receive meaningful support, whether dedicated instructional time is protected, and whether implementation is monitored. This indicates that policy evaluation should assess not only whether a programme exists but also whether it reaches the intended population, is delivered with fidelity, and produces measurable outcomes.

For future programmes, minimum outcome domains should include enrolment, attendance, grade progression, dropout, foundational literacy and numeracy, teacher practice, inclusion of children with disabilities, nutrition or health indicators where relevant, and digital access and skills. Outcomes should be disaggregated by sex, socioeconomic status, geography, disability, and other locally relevant dimensions so that average programme effects do not conceal persistent inequities (Table 2).

Table 2 Recommended monitoring framework

Domain	Indicator	Equity disaggregation	Interpretation
Access	Enrolment and attendance	Sex, wealth, rural/urban, disability	Identifies participation gaps
Learning	Reading and arithmetic proficiency	Grade, sex, wealth, geography	Measures foundational learning
Retention	Grade progression and dropout	Sex, poverty, disability	Identifies groups at risk of exclusion
Teaching	Instructional practice and coaching exposure	School and teacher characteristics	Assesses implementation quality
Health/nutrition	Meal participation, nutrition/health screening	Sex, poverty, geography	Identifies non-academic barriers
Digital inclusion	Device access, connectivity and digital skills	Sex, wealth, geography	Assesses whether technology reduces or reproduces inequality

Persistent challenges

Despite progress, major challenges remain: inadequate infrastructure, teacher shortages and uneven teacher support, weak policy implementation, persistent learning deficits, social and gender barriers, disability-related exclusion, health and nutrition

problems, and the digital divide. A further challenge is measurement. National averages can mask severe disadvantages among particular populations. The 2026 UNESCO monitoring report notes continuing gaps in the availability of disaggregated data by wealth and location. Equity-oriented policy therefore requires better local data and stronger monitoring systems.

Another challenge is the difference between programme effectiveness under evaluation conditions and effectiveness at scale. Interventions that work in a controlled or highly supported setting may lose impact when supervision, staffing, instructional time, or resources are reduced. Scaling should therefore include implementation research and continuous monitoring.

Future directions and recommendations

- Adopt equity-oriented planning that identifies the children and communities furthest behind before allocating resources.
- Prioritize foundational literacy and numeracy through targeted instruction based on actual learning levels.
- Replace one-time teacher workshops with sustained coaching, mentoring, classroom modelling, and data-informed review.
- Combine financial incentives with supply-side investments in teachers, classrooms, learning materials, and school infrastructure.
- Integrate school nutrition, health screening, disability identification, and referral pathways into school systems.
- Ensure accessible infrastructure and assistive support for children with disabilities.
- Use digital technology as a complement to effective pedagogy rather than as a substitute for teachers and direct support.
- Strengthen parent and community engagement through clearly defined, measurable roles.
- Disaggregate monitoring data by sex, socioeconomic status, geography, disability, and other relevant dimensions of disadvantage.
- Evaluate both programme outcomes and implementation fidelity so that ineffective components can be adapted or discontinued.

Limitations

This review has several limitations. It is a narrative rather than a systematic review or meta-analysis, and therefore it does not provide a pooled estimate of intervention effects. The included evidence is heterogeneous in population, intervention design, outcome measurement, and follow-up period. Some evidence is based on national surveys or programme evaluations rather than randomized trials. The review also gives particular attention to India, which may limit direct generalizability to other national contexts. Importantly, the present article does not generate new primary empirical data; rather, it integrates empirical findings from existing studies to strengthen the evidence base for the proposed strategies. Future research should include prospective, mixed-method, and implementation-focused evaluations that examine long-term educational outcomes among children experiencing intersecting disadvantages.

Conclusion

Educational disadvantage is multidimensional and cannot be addressed by improving school access alone. Evidence from India and international sources shows that children may remain behind despite enrolment when poverty, social exclusion, inadequate teaching, poor nutrition, disability-related barriers, geographic isolation, or weak school resources persist. The empirical evidence reviewed here supports targeted instruction, sustained teacher development, school nutrition, selected financial incentives, inclusive infrastructure, community engagement, and carefully implemented technology as components of an equity-oriented strategy.

The strongest policy lesson is that interventions must be judged by measurable outcomes rather than by programme availability alone. Increasing enrolment is important, but equitable education ultimately requires children to attend, participate, learn, progress, and complete school. A multidimensional model that combines targeted learning support with social protection, health and nutrition, teacher capacity, inclusive environments, and data-driven monitoring offers a more credible pathway toward educational equity. Future policy should therefore prioritize the children furthest behind and continuously evaluate whether resources are translating into meaningful learning and participation.^{1–15}

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Conflict of interest

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