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RESEARCH ARTICLE

Equity by Design in Education: Sociological Pathways to Achieving SDG 4.5 for Marginalised Learners

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Abstract: The pursuit of Sustainable Development Goal 4.5 requires eliminating disparities in education and ensuring equitable access for marginalised groups. Yet systemic inequities shaped by socio-economic, gendered, ethnic, linguistic, and disability-related exclusions continue to undermine progress. This study adopts a qualitative sociological design grounded in critical pedagogy and intersectionality to analyse how educational equity can be intentionally embedded into the design of curriculum, pedagogy, and institutional policy. Drawing on interview data and case studies from underrepresented communities, the findings reveal that equity is most effective when treated as a structural principle guiding educational design, rather than a remedial after-intervention. Strategies such as inclusive curriculum frameworks, culturally responsive teaching, participatory decision-making, and community-centred policy development significantly improve learning outcomes for historically excluded learners. The study further shows that achieving SDG 4.5 requires rethinking assessment models, strengthening school–community partnerships, and instituting mechanisms for policy accountability. By reframing equity as a proactive sociological design paradigm, this research contributes to ongoing debates on educational justice and highlights transformative pathways for institutionalising equity-driven reforms.

Keywords: community policy, curriculum transformation, educational equity, inclusive pedagogy, intersectional justice, marginalised groups

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INTRODUCTION

Educational equity has emerged as a central concern in global development policy, particularly since the establishment of the Sustainable Development Goals (SDGs) in 2015. Among these, SDG 4.5 calls for the elimination of disparities in education, with an emphasis on ensuring equal access for marginalised populations, including learners disadvantaged by gender, socio-economic status, ethnicity, language, disability, or geographic location (United Nations, 2015). While this global mandate signals a heightened commitment to inclusive education, empirical evidence from diverse national contexts suggests that systemic inequalities remain deeply embedded within educational structures (Aikman & Rao, 2019; Tikly, 2020). As a result, the vision of equitable education continues to be undermined by institutional norms, curricular assumptions, pedagogical practices, and policy arrangements that reproduce long-standing social hierarchies.

Scholars have long argued that education is not a neutral enterprise but one embedded in power relations that shape what knowledge is valued, how learning is assessed, and whose identities are legitimised within the classroom (Apple, 2019; Freire, 2018; Giroux, 2020). For learners situated at the intersection of multiple marginalities—such as rural girls, minority-language speakers, indigenous youth, and children with disabilities—these power dynamics result in structural barriers that hinder access, participation, and achievement (Crenshaw, 1991; Collins, 2019). Therefore, the pursuit of SDG 4.5 cannot be reduced to expanding

enrolment or correcting individual disadvantages; rather, it requires a sociological examination of the institutional mechanisms that systematically exclude certain groups.

A growing body of research suggests that equity must move beyond remedial interventions toward a design-oriented paradigm in which equity is intentionally embedded into all aspects of educational systems. This concept—often described as equity by design—positions equity as a proactive and structural principle that informs curriculum development, pedagogical methodologies, assessment models, and policy frameworks (Reeves & Müller, 2021; Nemorin & Selwyn, 2017). Rather than viewing marginalised learners as “problems to be fixed,” equity by design conceptualises exclusion as the result of historically produced institutional arrangements that advantage dominant cultural and linguistic groups (Keddie, 2012; Ladson-Billings, 2021). Such an approach shifts responsibility from individual learners to educational systems themselves.

Central to the equity-by-design paradigm is the integration of critical pedagogy and intersectionality as theoretical lenses. Critical pedagogy highlights the emancipatory potential of education and encourages learners to interrogate oppressive structures (Freire, 2018). It demands that curricula centre learners’ lived experiences and treat education as a political act aimed at social transformation (Giroux, 2020). Intersectionality, first articulated by Crenshaw (1989, 1991), emphasises the interconnected nature of social identities and

the cumulative impact of multiple oppressions. When applied to education, intersectionality reveals that inequities cannot be addressed through single-axis frameworks that isolate gender from class, ethnicity from disability, or language from colonial legacies (Walby, 2020; Harris & Patton, 2019). Instead, equity requires a structural analysis capable of addressing the complex configurations of marginalisation that shape educational experiences.

Research across diverse contexts consistently shows that marginalised learners experience barriers in at least four domains: curriculum that fails to reflect their cultures and histories, pedagogical practices that privilege dominant linguistic norms, assessment systems that reproduce existing hierarchies, and institutional policies that lack enforcement mechanisms (Ainscow, 2020; Sriprakash et al., 2020; UNESCO, 2022). These structural obstacles create conditions under which “formal equality” may exist, such as nominal access to schooling, without translating into “substantive equity,” such as meaningful participation and successful learning outcomes (Tikly & Barrett, 2011). This distinction underscores the need to rethink educational systems so that equity becomes foundational rather than supplemental.

In addition to theoretical debates, empirical evidence supports the idea that education systems grounded in inclusive design principles lead to more equitable outcomes. Culturally sustaining pedagogies, for example, have been associated with increased engagement and academic success among indigenous, minority-language, and

immigrant learners (Paris & Alim, 2017; McCarty & Lee, 2014). Likewise, participatory governance models—where students, teachers, parents, and community stakeholders jointly shape school practices—have been shown to reduce power asymmetries and align educational systems with local needs (Bang et al., 2016; Warren & Mapp, 2011). These approaches directly challenge deficit-oriented models that position marginalised communities as passive recipients rather than decision-makers capable of advocating for institutional change.

Despite these promising innovations, education systems in many countries still rely on standardised testing regimes, rigid curricula, and monolingual instructional policies that disproportionately disadvantage learners from minoritised groups (Ball, 2021; May, 2012). Such systems often lack accountability measures to ensure that equity commitments are translated into practice. Without mechanisms to monitor the impacts of policy reforms, such as equity audits, disaggregated data reporting, or participatory evaluation, structural inequalities persist even when governments espouse commitments to inclusion (UNESCO, 2020).

Against this backdrop, the present study investigates how equity can be intentionally embedded into the design of educational systems. Using a qualitative sociological approach grounded in critical pedagogy and intersectionality, the research explores pathways through which institutions can move from superficial inclusion toward systemic transformation. The paper argues that equity by design represents a necessary

paradigm shift for achieving SDG 4.5, one that requires not only policy reform but a reconfiguration of pedagogical practices, assessment models, teacher preparation, and community participation.

The Introduction thus establishes the theoretical and empirical rationale for an equity-by-design approach. The remainder of the article builds on this foundation by presenting qualitative findings from case studies and interviews with educators, students, and community members, identifying key dimensions through which equity can be systematically embedded. The goal is to contribute to scholarly debates on educational justice while offering practical insights for institutions seeking to dismantle entrenched inequalities.

METHODS

Research Design

This study employed a qualitative sociological research design aimed at uncovering how equity principles are understood, implemented, and experienced within educational institutions serving marginalised communities. Qualitative methods were selected because they provide depth, contextual sensitivity, and interpretive flexibility necessary for analysing complex social phenomena such as power relations, institutional norms, and culturally situated educational practices (Denzin & Lincoln, 2018; Maxwell, 2013). The research design is grounded in two complementary theoretical frameworks-critical pedagogy and intersectionality-which guided data collection, coding, and interpretation.

The overarching research question explored how equity can be intentionally embedded into the design of curriculum, pedagogy, assessment, and institutional policy. Sub-questions examined (a) how marginalised learners and educators perceive institutional barriers; (b) what strategies schools employ to promote inclusion; and (c) which sociological mechanisms support sustainable equity outcomes.

Sampling Strategy

A purposive sampling strategy was adopted to ensure representation from individuals and institutions with direct experience in equity-related initiatives. Sampling sought to include participants from various types of marginalisation, including socio-economic disadvantage, minority languages, indigenous communities, gender-based exclusion, and disability. This approach aligns with qualitative standards that emphasise conceptual richness and diversity over statistical representativeness (Patton, 2015).

The study involved:

- 32 semi-structured interviews (12 teachers, 10 students, 5 school leaders, 5 community members) across three regions,
- Document analysis of equity-related policies, curriculum guidelines, and institutional reports, and
- Five school case studies were selected based on their explicit engagement with inclusion or equity initiatives.

Case-study schools varied in socio-demographic composition, geographic setting (urban, peri-urban, rural), and

governance type (public, community-run, NGO-supported). This allowed for cross-case comparison and identification of shared structural mechanisms across diverse contexts.

Data Collection Procedures

Semi-structured interviews were conducted using an interview guide organised around four themes: perceptions of equity and exclusion, experiences with curriculum and pedagogy, institutional decision-making structures, and visions of educational transformation. Interviewing allowed participants to articulate experiences in their own terms while enabling the researcher to probe emergent themes (Kvale & Brinkmann, 2015). Interviews lasted between 45 and 75 minutes and were audio-recorded with consent.

Document Analysis

Policy documents, curricula, teacher training manuals, and school-level equity plans were analysed to identify institutional commitments and practices. Document analysis supplemented interview and case-study data by providing insights into the normative frameworks that structure equity implementation (Bowen, 2009).

Case Studies

Case-study observations focused on classroom interactions, governance meetings, teacher collaboration sessions, and parent–community forums. These observations helped identify whether and how equity principles were enacted in everyday practice (Stake, 2006). Field notes were recorded systematically.

Data Analysis

The data were analysed using a hybrid thematic analysis approach that combined deductive and inductive strategies. Deductive codes were derived from critical pedagogy (e.g., “power relations,” “dialogic learning,” “oppressive structures”) and intersectionality (e.g., “gendered barriers,” “language marginalisation,” “intersecting exclusions”) (Braun & Clarke, 2021). Inductive coding allowed themes to emerge organically from participants’ narratives. Coding proceeded in three stages: open coding, axial coding, and thematic consolidation (Charmaz, 2014).

To ensure analytical rigour, the following procedures were employed:

- Triangulation across interviews, documents, and observations;
- Peer debriefing with two external qualitative researchers;
- Member checking through summary feedback sessions with selected participants;
- Reflexive journaling to monitor positionality and analytic decisions.

These steps enhanced credibility, dependability, and confirmability according to qualitative research standards (Lincoln & Guba, 1985).

Ethical Considerations

Participants received written and verbal information about the study, and informed consent was secured from adults and guardians of minors. Participants were given the option to withdraw at any time. To protect anonymity, pseudonyms were used,

and contextual identifiers were removed from transcripts. Audio files and field notes were stored on encrypted devices accessible only to the researcher.

Limitations

As with all qualitative studies, findings are context-specific and not generalisable in a statistical sense. However, the goal was analytic generalisation, developing theoretical insights relevant across contexts (Yin, 2018). Another limitation is that school-level access constraints reduced observational opportunities in two sites. Nonetheless, triangulation across multiple data sources strengthened the robustness of the findings.

FINDINGS

The findings of this study highlight a complex interplay of structural, cultural, and institutional dynamics that shape the experiences of marginalised learners and influence the degree to which educational systems embed equity as a foundational design principle. Analysis across interviews, case studies, and policy documents reveals five central themes: inclusive curriculum and epistemic representation, teacher capacity and professional autonomy, participatory governance and shared decision-making, assessment redesign and recognition of diverse learner identities, and systemic accountability for equity outcomes. Collectively, these findings illuminate the sociological mechanisms necessary to achieve what participants repeatedly described as “equity by design” -a proactive rather than reactive approach to educational transformation.

Inclusive Curriculum and Epistemic Representation

Across all five case-study schools, participants emphasised that curriculum design is a critical site where inequities are either reproduced or challenged. Teachers and students described mainstream curricula as reflecting dominant cultural narratives, linguistically privileged groups, and urban-centric histories and patterns aligned with observations made by Apple (2019) and Keddie (2012) regarding the reproduction of hegemonic knowledge in schooling. Students from indigenous and minority-language communities reported difficulty connecting with curricular materials that did not reflect their cultural realities or linguistic practices. One student articulated this disconnection by noting, “It feels like the books are written for someone who is not from here, not from us,” underscoring a broader epistemic exclusion.

Teachers who attempted to localise curricular content often faced structural constraints such as rigid national syllabi and high-stakes examination pressures, consistent with critiques of standardised curricula documented by Ball (2021). Despite these obstacles, three schools demonstrated practices aligned with culturally sustaining pedagogy (Paris & Alim, 2017), including the integration of local histories, community stories, and multilingual resources. These efforts led to noticeable improvements in learner engagement and classroom participation. Teachers reported that students showed higher motivation and confidence when learning materials resonated with their lived experiences.

Document analysis revealed that institutional equity frameworks often referenced inclusion rhetorically, but few provided actionable guidelines for curriculum adaptation. This gap between policy articulation and pedagogical implementation echoes UNESCO's (2020) observation that inclusion remains superficial when not institutionalised in curricular design processes. Consequently, inclusive curriculum practices frequently depended on individual teacher initiative rather than systemic support, rendering equity efforts uneven and vulnerable to institutional turnover.

Teacher Capacity, Critical Consciousness, and Professional Autonomy

Teacher capacity emerged as a second major theme, especially the degree to which educators possessed both the pedagogical skills and the professional autonomy to enact equity-oriented practices. Many teachers expressed a strong personal commitment to supporting marginalised learners but reported limited access to professional development in critical pedagogy, multilingual teaching strategies, disability-inclusive instruction, or trauma-informed approaches. This aligns with Ainscow's (2020) argument that teacher professional development is a primary mechanism for addressing educational inequity.

Participants frequently referenced systemic pressures such as performance-based evaluations, standardised testing demands, and rigid instructional timetables as constraints that limited their ability to adapt lessons for diverse learners. Such pressures reproduce what Giroux (2020)

terms "technocratic rationality," which reduces teaching to procedural compliance rather than fostering critical engagement with learners' social contexts.

Despite these constraints, teachers who adopted reflective and critical pedagogical stances—often informed by community engagement or prior activist experience—described using dialogic methods inspired by Freire's (2018) pedagogy of consciousness-raising. These educators facilitated discussions on identity, justice, and everyday inequalities, enabling learners to make connections between their educational experiences and broader social structures. Students responded positively to these dialogic practices, with several noting that such classrooms felt "more open," "fair," and "respectful of our voices."

The findings suggest that equity by design requires tackling not only pedagogical gaps but also structural limitations on teacher agency. Schools with decentralised governance structures provided teachers with greater autonomy to experiment with inclusive strategies, supporting observations by Reeves and Müller (2021) that institutional flexibility enhances equity implementation. Conversely, hierarchical school cultures constrained teacher creativity, reinforcing uniformity at the expense of responsiveness to diverse learner needs.

Participatory Governance and Shared Decision-Making

Participatory governance emerged as one of the strongest predictors of meaningful equity implementation across the case-study sites. In schools where students, parents, and

community members were actively involved in planning processes, institutional decisions were more aligned with local needs and cultural contexts. This reflects existing research showing that community-school collaboration strengthens educational equity by redistributing decision-making power (Warren & Mapp, 2011).

Two schools established community advisory committees where parents, especially women and minority-language speakers, participated in deliberations about curriculum adaptation, resource allocation, and behavioural policies. These committees also functioned as accountability spaces where community members could voice concerns about exclusion or inequitable treatment. Participants described these structures as fostering a sense of collective responsibility and trust, leading to higher school attendance and more positive learner engagement.

In contrast, schools lacking participatory structures exhibited lower levels of transparency, less culturally relevant programming, and greater dependence on externally imposed policy directives. Students in these schools frequently reported feeling that “decisions are made far away,” reinforcing the hierarchical distance between institutional authority and learners’ lived experiences.

Participatory structures not only enhanced representation but also served as platforms for negotiating cultural expectations, addressing discrimination, and promoting linguistic inclusion. For example, one community forum facilitated discussions on incorporating indigenous ecological

knowledge into the science curriculum, an initiative later implemented in classroom practice. These findings echo Bang et al.’s (2016) argument that community epistemologies enrich and expand the boundaries of school knowledge.

Overall, shared governance appears central to designing equitable educational environments, demonstrating that equity cannot be achieved through top-down reforms alone but must emerge from collaborative, relational, and culturally grounded processes.

Assessment Redesign and Recognition of Diverse Learner Identities

Assessment practices were identified as a fourth major theme, with participants consistently highlighting the misalignment between standardised testing frameworks and the diverse identities, languages, and cultural practices of learners. Teachers noted that assessments prioritising monolingual and highly academic forms of knowledge positioned minority students at a disadvantage, mirroring trends observed by May (2012) and Tikly and Barrett (2011).

Case-study observations revealed that schools adopting alternative assessment models-such as project-based evaluations, multilingual oral presentations, and portfolios-were better able to capture learners’ strengths and cultural competencies. These methods allowed students to demonstrate knowledge through narrative practices, collaborative work, and multimodal expression, reflecting McCarty and Lee’s (2014) call for assessment

practices that honour indigenous and community-based epistemologies.

Students repeatedly described alternative assessments as “fairer” and “less stressful,” with many noting that they could express themselves more confidently when assessments were not tied exclusively to standardised written formats. Teachers reported that such assessments offered a more holistic picture of student learning and supported higher-order skills such as critical thinking, creativity, and problem-solving.

Despite these benefits, the adoption of equitable assessment practices remained limited due to policy constraints. National examination requirements pressured schools to prioritise test preparation, often at the expense of creative or culturally responsive assessments. This tension underscores the need for alignment between classroom-level innovation and system-level reform, supporting UNESCO’s (2022) call for assessment systems that recognise diverse learner identities and pathways.

Systemic Accountability and Institutionalisation of Equity Practices

The final theme concerns accountability structures that support or inhibit equity implementation. Across all sites, participants described a policy landscape where equity was widely endorsed rhetorically but weakly institutionalised in practice. Many schools lacked mechanisms for monitoring equity outcomes, evaluating the impacts of reforms, or reporting disparities across socio-economic, linguistic, or gender lines. These findings reinforce global concerns about the superficial

adoption of inclusion policies without substantive follow-through (UNESCO, 2020).

In schools where accountability was institutionalised through equity audits, disaggregated data analysis, or community reporting systems, participants observed greater transparency and responsiveness. These tools allowed schools to identify patterns such as disproportionately high dropout rates for girls, lower achievement scores among minority-language learners, or unequal access to extracurricular opportunities. The presence of such data facilitated targeted interventions and strengthened commitments to SDG 4.5.

One school adopted an “equity dashboard” that tracked attendance, achievement, and participation indicators. Teachers and community members used these metrics to collaboratively design improvement strategies, illustrating how accountability mechanisms can foster a culture of continuous equity-oriented reflection. This aligns with Walby’s (2020) emphasis on the role of institutional structures in advancing intersectional justice.

However, most schools in the study lacked similar mechanisms. Participants expressed frustration that government inspection systems focused predominantly on academic performance metrics rather than on issues related to discrimination, inclusivity, or learner well-being. This mismatch underscores the importance of systemic alignment: without top-level accountability structures, school-level innovations risk being isolated, fragmented, and unsustainable.

Taken together, these five themes illustrate that achieving equity by design requires a holistic transformation of educational institutions. Curricular change, teacher development, participatory governance, assessment redesign, and systemic accountability must be interconnected rather than implemented in isolation. At their core, the findings reveal that equity is not an incidental outcome but a sociologically grounded, structurally embedded process that requires continuous negotiation among stakeholders. The insights generated by this study contribute to broader discussions on educational justice by demonstrating how equity can be intentionally designed into the fabric of schooling to advance SDG 4.5.

DISCUSSION

The findings of this study illuminate the sociological pathways through which equity can be intentionally embedded in educational systems, offering a conceptual and practical framework for advancing SDG 4.5. This discussion synthesises the emergent themes with existing scholarship on critical pedagogy, intersectionality, inclusive curriculum, participatory governance, assessment reform, and accountability systems. The core claim emerging from both data and theory is that equity by design requires a transformation of the educational architecture itself—curriculum, pedagogy, assessment, governance, and policy—rather than piecemeal interventions targeting individual learners. In doing so, this section situates the study within broader debates on educational justice and articulates

implications for policy, practice, and future research.

Equity by Design as a Paradigm Shift in Educational Thinking

Equity in most educational systems is conceptualised through compensatory frameworks: remediation for low-performing students, targeted interventions for girls or minority-language speakers, or resource allocations for children with disabilities. While these measures are valuable, they do not disrupt the foundational structures that reproduce exclusion (Ainscow, 2020; Tikly & Barrett, 2011). The findings affirm that equity by design—treating equity as a structural principle rather than a remedial strategy—constitutes a significant departure from these traditional approaches.

Participants emphasised that marginalisation is not solely the result of individual disadvantage but emerges from the way institutions organise knowledge, regulate behaviour, structure participation, and distribute power. This aligns with critical sociological arguments that education systems uphold dominant norms by determining what counts as legitimate knowledge and who has access to institutional decision-making (Apple, 2019; Giroux, 2020). As Crenshaw (1989, 1991) and Collins (2019) have argued, marginalised learners experience exclusion through intersecting axes of identity—gender, race, class, language, and disability—which educational structures often ignore.

The concept of equity by design, therefore, demands a paradigm shift: from viewing education as a neutral public good to

recognising it as a sociopolitical institution that can either reproduce or dismantle systemic inequalities. Thematically, the findings underscore that achieving SDG 4.5 requires a historically informed, intersectional, and participatory approach that reconfigures how education systems are conceptualised and operationalised.

Curricular Transformation as a Sociopolitical Process

The findings clearly identify curriculum as one of the primary sites where equity or inequity is produced. The dominance of nationalised, standardised curricula marginalises learners whose cultural knowledge, linguistic repertoires, and worldviews differ from those of the dominant group. This corresponds with longstanding critiques that curricula embody ideological assumptions rooted in social hierarchies (Apple, 2019; Keddle, 2012).

Participants' experiences resonate with the concept of epistemic justice, which demands that learners' cultural and experiential knowledge be recognised as legitimate forms of understanding (Fricker, 2007). Students reported feeling alienated from curricula that ignored their histories or excluded their linguistic identities. Teachers attempting to localise content encountered institutional constraints, illustrating the structural rigidity of curricular systems.

Culturally sustaining pedagogies (Paris & Alim, 2017) provide a corrective by positioning students' cultural identities not merely as background influences but as central resources for learning. When schools incorporated local histories, indigenous

ecological knowledge, or multilingual resources, students demonstrated higher engagement. These findings reaffirm research showing that culturally relevant curricula promote positive academic and socio-emotional outcomes (McCarty & Lee, 2014; Ladson-Billings, 2021).

Curriculum development is inherently political. Choices about whose stories matter and whose languages are legitimised reflect broader power relations within society. Thus, equitable curriculum design must address not only representation but also the redistribution of epistemic authority—who gets to decide what knowledge is included. This echoes Freire's (2018) insistence that schooling must be a locus of dialogue rather than domination.

In the context of SDG 4.5, curricular reform must integrate local communities in decision-making, diversify textual and linguistic materials, and create curricular guidelines that allow teachers flexibility while maintaining structural coherence.

Teachers as Agents of Equity: Capacity, Autonomy, and Critical Consciousness

Teachers play a central role in determining whether equity becomes embedded in everyday practice. However, the findings reveal that educators often operate within systemic constraints—standardised testing regimes, limited autonomy, inadequate training—that restrict their ability to enact inclusive pedagogies.

Teachers who demonstrated advanced commitments to equity drew heavily on reflective and dialogic practices consistent with critical pedagogy (Freire, 2018; Giroux,

2020). Yet most teachers lacked access to professional development that cultivates this critical consciousness. This gap aligns with Ainscow's (2020) argument that inclusive education requires ongoing professional learning embedded in teachers' daily realities.

The study found that teacher creativity in adapting curriculum or assessment practices flourished in schools with more decentralised governance. In contrast, hierarchical cultures constrained teacher agency and led to reliance on rote instruction. Reeves and Müller (2021) similarly emphasise that autonomy is a structural precondition for equity by design, enabling teachers to respond to diverse learner needs.

Teachers often act as intermediaries between global policy directives and local community realities. Their ability to mediate these tensions determines whether reforms translate into equitable practices. As such, empowering teachers through professional development, collaborative learning communities, and participatory governance structures is essential for achieving systemic transformation.

Participatory Governance: Power Redistribution and Community Agency

Participatory governance emerged as one of the strongest enablers of equity across the case-study schools. Institutions that engaged parents, students, and community members in decision-making demonstrated greater alignment with local cultural and linguistic contexts.

Participatory governance disrupts hierarchical power dynamics that characterise traditional schooling. The findings echo Warren and Mapp's (2011) conclusion that community organising strengthens school reform by enabling marginalised groups to assert their rights. When communities influence curriculum decisions, resource allocation, and behavioural policies, schools become more equitable and responsive.

Community forums served as spaces for negotiating cultural expectations and addressing discrimination. For instance, the incorporation of indigenous ecological knowledge into science curricula demonstrates how participation can lead to culturally meaningful educational practices. Bang et al. (2016) argue that such co-design expands the epistemological scope of schooling, enabling more equitable knowledge production.

Participatory governance functions not only as a form of democratic engagement but also as an accountability mechanism. When communities monitor school practices, they create bottom-up pressure that complements formal accountability structures. This aligns with Walby's (2020) contention that intersectional justice requires institutional mechanisms that amplify the voices of those most affected by inequity.

Assessment Reform and Recognition of Diverse Identities

Assessment emerged as one of the most persistent structural barriers to equity. Standardised tests prioritise narrow academic competencies, often aligned with dominant

cultural and linguistic norms (May, 2012). This disproportionately disadvantages minority-language speakers, indigenous learners, and students from lower socioeconomic backgrounds.

Participants' experiences confirmed that standardised assessments reinforce inequities by evaluating students through culturally narrow metrics. Tikly and Barrett (2011) argue that quality education must be locally relevant and socially just, criteria that standardised assessments frequently fail to meet.

Schools experimenting with alternative assessments-portfolio-based evaluations, multilingual oral presentations, project-based work-demonstrated greater inclusivity. These methods align with McCarty and Lee's (2014) call for assessments that reflect community epistemologies and recognise multimodal expressions of knowledge.

Students and teachers alike described alternative assessments as more reflective of students' strengths. Such practices foster a sense of fairness and belonging, which is essential for learners historically marginalised within traditional schooling structures.

Despite evidence of the benefits, alternative assessment practices remained limited due to national examination policies. System-wide reform is thus essential to harmonise classroom-level innovation with broader policy frameworks. UNESCO (2022) similarly urges governments to rethink assessment systems to ensure alignment with inclusive and equitable learning pathways.

Systemic Accountability and the Political Economy of Equity

The final theme concerns the institutional and policy-level mechanisms that either support or undermine equity implementation. Participants frequently highlighted a disconnect between policy rhetoric and institutional practice, reflecting UNESCO's (2020) global findings on the superficial adoption of inclusion policies.

Schools with explicit equity monitoring tools-equity audits, disaggregated data dashboards, community reporting systems-demonstrated more sustainable equity outcomes. These practices align with Walby's (2020) emphasis on structural accountability for intersectional justice. By identifying patterns of exclusion, such tools provide a basis for targeted interventions and iterative improvement.

In many cases, government inspection frameworks focused narrowly on academic performance indicators while ignoring dimensions of equity such as discrimination, representation, or well-being. This reflects a broader political economy of education in which market logics and performance metrics overshadow social justice commitments (Ball, 2021; Sriprakash et al., 2020).

Community participation offers a counterbalance to these limitations by enabling bottom-up accountability. When families and local leaders have access to disaggregated data and decision-making forums, they can hold institutions accountable in ways that formal policies may neglect.

Implications for Advancing SDG 4.5

The insights generated through this study hold several implications for achieving SDG 4.5. The findings underscore that policy commitments alone are insufficient. Achieving equity requires systemic redesign across curriculum, pedagogy, assessment, governance, and accountability structures. Without embedding equity in these domains, reforms remain fragile and inconsistent.

Intersectionality provides a critical analytic lens for grounding equity efforts in the lived experiences of learners. Policies that address only single dimensions of disadvantage—gender, poverty, disability—fail to recognise the complexity of intersecting barriers. Intersectional approaches ensure that equity interventions benefit those most systematically marginalised.

Teacher development must include critical pedagogy, cultural responsiveness, and collaborative learning. Furthermore, decentralised governance structures that grant teachers flexibility enhance their ability to enact equity-oriented practices.

Meaningful participation of communities fosters culturally relevant education, strengthens accountability, and enhances learner engagement. Schools must therefore institutionalise participatory governance structures rather than relying on ad hoc engagements.

Assessment practices must accommodate diverse linguistic, cultural, and cognitive ways of knowing. Without transforming assessment systems, other equity measures risk being undermined.

Accountability systems must move beyond performance metrics to include equity indicators such as representation, fairness, participation, and well-being. Transparency through disaggregated data and community engagement is essential.

This discussion demonstrates that equity by design is both a theoretical framework and a practical pathway for transforming educational systems. It requires recognising education as a sociopolitical institution shaped by power relations and historical inequalities. By embedding equity into curriculum, pedagogy, governance, assessment, and accountability, institutions can dismantle entrenched barriers and create conditions for meaningful inclusion.

Equity by design thus offers a comprehensive, intersectional, and justice-oriented framework for realising SDG 4.5. It urges policymakers, educators, and communities to move beyond superficial inclusion toward deep, systemic transformation—a transformation capable of fostering equitable and sustainable futures for all learners, especially those historically pushed to the margins of education.

CONCLUSION

This study demonstrates that achieving Sustainable Development Goal 4.5 requires a fundamental transformation of how educational equity is conceptualised and operationalised. The findings strongly indicate that equity cannot be treated as a peripheral intervention or an after-the-fact corrective to systemic exclusion. Instead, it must be embedded intentionally into the architecture of educational systems through a

design-oriented, sociologically informed approach. Equity by design thus represents a paradigmatic shift that situates equity as a structural principle shaping curriculum, pedagogy, assessment, governance, and accountability.

The research highlights that inequities persist not because of a lack of policy commitments but due to the entrenched ways in which institutions organise knowledge, regulate participation, and distribute authority. Marginalised learners continue to face curricular erasure, linguistic discrimination, culturally narrow assessment practices, and limited representation in institutional decision-making. These barriers illustrate the deeply systemic nature of exclusion and underscore the need for intersectional analyses that address how gender, class, language, disability, and ethnicity interact within educational structures.

Several key pathways for transformation emerged from the study. Inclusive and culturally sustaining curricula enable learners to see their identities reflected in knowledge systems. Teacher empowerment through autonomy, professional development, and critical pedagogical training strengthens educators' capacity to implement equity-oriented practices. Participatory governance provides communities with meaningful decision-making power, enabling more culturally grounded and responsive institutional practices. Additionally, rethinking assessment systems to recognise diverse epistemologies and modes of expression is essential for dismantling standardised

mechanisms that disproportionately disadvantage marginalised learners. Finally, robust accountability frameworks-featuring equity audits, disaggregated data, and community oversight-ensure that rhetorical commitments to inclusion translate into sustained practice.

Ultimately, the study argues that equity by design offers a comprehensive pathway for dismantling historical inequalities and building educational systems where all learners can thrive. By reframing equity as a proactive and structural commitment, this research contributes to ongoing debates on educational justice and offers actionable guidance for policymakers, educators, and communities striving to realise the full vision of SDG 4.5.

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Conflicts of Interest

The author declares no conflicts of interest.

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