MONITORING EDUCATIONAL EQUITY AND LEARNING OUTCOMES AT THE PRIMARY LEVEL: IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT GOALS ACHIEVEMENT

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ABSTRACT

Achieving equitable and quality primary education is central to the global development agenda articulated in the United Nations' Sustainable Development Goals (SDGs), particularly SDG 4, which seeks to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." While substantial progress has been made in expanding access to primary schooling worldwide, disparities in learning outcomes persist across socioeconomic status, gender, geographic location, disability, and linguistic background. These inequities undermine not only individual life chances but also broader social and economic development trajectories. It explores conceptual frameworks for understanding equity in education, distinguishing between equality of access, equality of participation, and equality of learning achievement. The study highlights the importance of disaggregated data, formative and summative assessments, and national and international large-scale assessments in identifying learning gaps. It further analyses the use of learning metrics aligned with global indicators, including those developed by the UNESCO, to track progress toward SDG 4 targets. It also considers the implications of digital data systems and education management information systems (EMIS) for strengthening transparency and evidence-based policymaking. The findings suggest that effective monitoring must move beyond enrolment and completion rates to focus on meaningful learning outcomes and contextualized measures of equity. Strengthening national assessment capacity, investing in teacher development, and fostering community engagement are identified as critical strategies for closing learning gaps. The paper concludes that robust, equity-sensitive monitoring systems are indispensable for accelerating progress toward the SDGs and ensuring that primary education serves as a foundation for inclusive and sustainable development.

Keyword:

Educational equity; Primary education; Learning outcomes; Sustainable Development Goals; United Nation, Inclusive education; Education monitoring and evaluation; Education Management Information Systems.

1. INTRODUCTION

Education is widely recognized as a fundamental human right and a cornerstone of sustainable development. At the global level, the United Nations has positioned education at the center of its 2030 development agenda through the Sustainable Development Goals (SDGs), particularly Goal 4, which calls for inclusive and equitable quality
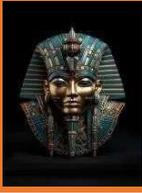
education for all. Primary education, as the foundation of lifelong learning, plays a critical role in shaping cognitive development, social integration, and future economic participation. However, despite significant gains in school enrolment and completion rates over the past decades, profound disparities in learning outcomes persist within and across countries. This "learning crisis" highlights a shift in global education discourse from schooling to learning, emphasizing not only whether children are in school but whether they are learning effectively. Consequently, monitoring systems must evolve to capture both access and quality dimensions, with particular attention to equity in outcomes. Educational equity extends beyond equal treatment; it requires targeted strategies to address structural disadvantages and ensure that all learners have meaningful opportunities to succeed. Effective monitoring of equity and learning outcomes at the primary level is therefore essential for identifying gaps, informing policy interventions, and evaluating progress toward SDG 4 targets. Disaggregated data by gender, socioeconomic status, disability, geographic location, and other relevant characteristics are critical for revealing hidden inequalities and guiding resource allocation. International organizations such as UNESCO have developed global indicators and reporting frameworks to support countries in tracking progress toward SDG 4. At the same time, national governments are increasingly investing in assessment systems, Education Management Information Systems (EMIS), and data-driven decision-making processes. Yet, challenges remain, including data reliability, limited technical capacity, political constraints, and the risk of narrowing educational goals to what is easily measurable. By situating monitoring within a broader development context, the study underscores its vital role in ensuring that primary education contributes to inclusive, sustainable, and transformative societal progress.

2. REVIEW OF LITERATURE:-

This review examines existing literature on monitoring educational equity and learning outcomes at the primary level, focusing on implications for Sustainable Development Goals (SDGs) achievement. Refers to ensuring all students have access to quality education, regardless of socio-economic background, geography, or demographics (UNESCO, 2017). Refers to the knowledge, skills, and competencies students acquire through education (ASER, 2019). Include assessments, evaluations, and tracking systems to measure educational equity and learning outcomes. Sustainable Development (SD) encompasses an ambitious global agenda for the development of resilient, socially just human life within the limits of planet Earth. With 17 globally agreed upon goals, 169 targets and well over 200 indicators, the Sustainable Development Goals (SDGs) are currently the core normative framework for global sustainability efforts (e.g., Biermann et al., 2017; Biermann et al., 2022). Although the SDGs are not without controversy due to their inherently conflicting goals (Hickel, 2019; Holden et al., 2017; Spangenberg, 2017), the general necessity and urgency to move toward global sustainability is virtually undisputed in academia and international politics (e.g., Richardson et al., 2023; Rockström et al., 2023; United Nations General Assembly, 2023). As important as the SDGs are, the findings of the mid-term report on their implementation are very sobering (Sachs et al., 2023): Currently, none of the 17 goals are on track, and in some cases, progress is reported to be going backwards. Nonetheless, the authors remind us that all of the goals are still achievable (ibid.). To be able to meet this commitment as well as the objective set in SDG 4.7, it is of critical importance to systematically monitor and evaluate the degree to which ESD and sustainability are being integrated within education systems (Brent Edwards et al., 2020; Kioupi & Voulvoulis, 2019; Stepanek Lockhart, 2018). Such data provide the basis for observing trends, identifying progress and gaps as well as deriving necessary policy measures to strengthen the implementation of ESD. As with all SDGs, the development of concrete and facilitative indicators for the integration of sustainability in education is crucial for its governance and practical implementation (Biermann et al., 2017; Hák et al., 2016; Kim, 2023). Currently, the global indicator for target 4.7 of the SDGs is described as the "extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment" (UNESCO, 2017, 2019a, 2019b). However, this indicator has not yet been sufficiently operationalized for independent and scientific assessments (Brent Edwards et al., 2020; Giangrande et al., 2019). Monitoring is currently based on countries' self-reporting using a dichotomous (yes/no) assessment scheme as well as qualitative highlighting of best-practice cases (UNESCO, 2019a, 2019b). This reliance on countries' self-reporting results in a bias toward positive reporting (e.g., Nazir et al., 2011), which most likely does not reflect the real status of target 4.7. Taking the example of Germany, the current score on the global indicator for SDG 4.7.1 is reported at 1.0 for national education policies (range: 0–1), 0.904 for curricula, 0.95 for teacher education and 0.917 for student assessment (Destatis, 2023). However, the results derived from independent data from the national monitoring of ESD in Germany (e.g., Grund & Brock, 2020; Holst et al., 2020) are significantly different. While there is considerable support for the integration of ESD into the

German education system, including through a large participatory multi-stakeholder process (Nationale Platform BNE c/o BMBF, 2017; Singer-Brodowski et al., 2020), the discrepancies between self-reporting scores and evaluations by independent monitoring provide good reasons for complementing countries' self-reporting on SDG 4.7 with independent evaluations to allow for evidence-informed policy-making (Lingard, 2013).Various authors have already conducted document analyses on ESD (e.g., Beveridge et al., 2019; Fredriksson et al., 2020; De Haan, 2021; Holst et al., 2020; Krah et al., 2021). However, evaluating the results of these studies has often proved difficult and, because of the lack of clear criteria for "sufficient" or "satisfactory" ESD implementation, it has not been possible to compare evaluations across different contexts and over time. This also accounts for past document analyses as part of the monitoring of ESD in Germany, where the focus has primarily been on whether the goals set by stakeholders themselves were met and how the observed status compared to other contexts described in the international literature (Holst et al., 2020).

3. OBJECTIVES:-

The primary objective of this study is to examine how monitoring educational equity and learning outcomes at the primary level contributes to the achievement of the Sustainable Development Goals (SDGs), particularly SDG 4 on inclusive and equitable quality education, as adopted by the United Nations.

The specific objectives are:

1. To conceptualize educational equity in primary education.
2. To clarify the theoretical and policy foundations of equity, distinguishing it from equality, and to identify key dimensions of disadvantage affecting primary-level learners.
3. To analyze existing monitoring frameworks and indicators.
4. To assess disparities in primary-level learning outcomes.
5. To examine how learning outcomes vary across socioeconomic status, gender, geographic location, disability, and other relevant characteristics using disaggregated data.
6. To evaluate the effectiveness of education data systems.
7. To identify policy strategies for strengthening equity-focused monitoring.
8. To propose evidence-based recommendations for improving data quality, accountability mechanisms, and targeted interventions aimed at reducing learning gaps.
9. To explore the implications for SDG achievement.
10. To analyze how improved monitoring of equity and learning outcomes can accelerate progress toward SDG 4 and contribute to broader sustainable development outcomes.
11. Collectively, these objectives aim to provide a comprehensive framework for understanding the role of monitoring systems in promoting equitable learning and supporting the global education agenda.

4. METHODOLOGY:-

This study adopts a mixed-methods research design to examine how monitoring educational equity and learning outcomes at the primary level contributes to achieving the Sustainable Development Goals (SDGs), particularly SDG 4 as endorsed by the United Nations. The methodology integrates quantitative analysis of education data with qualitative policy review to provide a comprehensive and contextualized understanding of monitoring systems.

5. RESEARCH DESIGN:-

1. A descriptive and analytical research design is employed. The study combines:
2. Quantitative analysis of primary-level education indicators and learning outcomes.
3. Qualitative document analysis of policy frameworks, monitoring guidelines, and national education strategies.
4. Comparative case analysis of selected countries to identify best practices and systemic challenges.
5. This triangulated approach enhances validity by drawing on multiple sources of evidence.

DATA SOURCES:-

The study utilizes both secondary and, where applicable, primary data sources.

## 6. SIGNIFICANCE OF THE STUDY:-

This study is significant in advancing scholarly, policy, and practical understanding of how monitoring educational equity and learning outcomes at the primary level can accelerate progress toward the Sustainable Development Goals (SDGs), particularly SDG 4. As emphasized by the United Nations, achieving inclusive and equitable quality education is foundational to eliminating poverty, reducing inequalities, and promoting sustainable economic growth. By focusing on monitoring systems, this research addresses a critical mechanism through which education systems can be held accountable and improved. The study provides evidence-based insights for policymakers, education planners, and development partners on how to design and implement equity-sensitive monitoring frameworks. By highlighting the importance of disaggregated data and robust assessment systems, it supports more targeted allocation of resources to marginalized populations. The findings can guide national governments and institutions such as UNESCO in refining indicators and reporting mechanisms aligned with SDG 4. Effective monitoring systems enhance transparency in educational governance. This study underscores the role of data in identifying hidden disparities in learning outcomes, thereby promoting accountability at school, district, and national levels. By shifting the focus from enrolment rates to actual learning achievements, the research contributes to a more comprehensive understanding of education quality. Despite increased access to schooling, many children fail to acquire foundational literacy and numeracy skills. This study is significant because it examines how systematic monitoring can detect early learning gaps and inform timely interventions. Strengthening primary-level assessment systems ensures that learning deficits are identified before they become entrenched, thereby improving long-term educational trajectories. Educational inequities often mirror broader social and economic inequalities. By emphasizing fairness in learning opportunities and outcomes, this study contributes to ongoing debates on social justice in education. It highlights the moral and developmental imperative of prioritizing disadvantaged groups, ensuring that no child is left behind in the pursuit of sustainable development. The study adds to the existing literature by integrating theoretical perspectives on equity with practical monitoring frameworks. It identifies gaps in current data systems and proposes strategies for strengthening research-based decision-making. This contributes to interdisciplinary scholarship linking education policy, development studies, and public administration. Finally, the study demonstrates that monitoring educational equity is not solely an educational concern but a broader development issue. Primary education outcomes influence labor market participation, health outcomes, civic engagement, and intergenerational mobility. By improving monitoring mechanisms, countries can better align education reforms with the wider objectives of sustainable and inclusive development. The global commitment to equitable and quality education has generated an extensive body of scholarship examining disparities in access, participation, and learning outcomes at the primary level. Since the adoption of the Sustainable Development Goals by the United Nations, research has increasingly focused on measuring progress toward SDG 4, particularly Target 4.1, which emphasizes that all girls and boys should complete free, equitable, and quality primary education with relevant learning outcomes. This shift has reframed educational discourse from enrollment expansion toward learning quality and equity.

7. CONCEPTUALIZING EDUCATIONAL EQUITY:-

The literature distinguishes between equality and equity in education. Equality typically refers to the uniform distribution of resources or opportunities, whereas equity emphasizes fairness and the provision of additional support to disadvantaged groups to achieve comparable outcomes. Scholars such as Amartya Sen, through the capability approach, argue that educational justice should be evaluated not only by resource allocation but also by individuals' real opportunities to achieve valued functioning's. Similarly, John Rawls' theory of justice underscores the importance of arranging social institutions to benefit the least advantaged members of society. These theoretical foundations have informed contemporary frameworks for analysing disparities in primary education. Empirical research highlights that inequities in primary education are strongly correlated with socioeconomic status, gender, geographic location, language, and disability. Studies consistently demonstrate that children from low-income households and rural communities face systemic barriers that affect both school attendance and learning achievement. Gender disparities, while narrowed globally, remain pronounced in certain regions, particularly in fragile and conflict-affected contexts.

8. MONITORING LEARNING OUTCOMES: -

The shift toward learning outcomes gained prominence in response to evidence that schooling does not automatically translate into learning. Large-scale international assessments have played a critical role in shaping
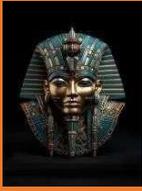
this discourse. For example, the Organisation for Economic Co-operation and Development's Programme for International Student Assessment (PISA) and the International Association for the Evaluation of Educational Achievement's Progress in International Reading Literacy Study (PIRLS) have revealed significant cross-national and within-country disparities in literacy and numeracy skills. Although these assessments often focus on students beyond primary grades, their findings underscore the foundational importance of early learning. At the primary level, national assessments and citizen-led assessments have gained traction as tools for diagnosing learning gaps. Research emphasizes that assessment systems must balance accountability with pedagogical improvement. Overemphasis on high-stakes testing may narrow curricula and exacerbate inequities, particularly for marginalized learners. Conversely, formative assessments and classroom-based evaluations are associated with improved teaching practices and more responsive instruction.

## 9. DATA SYSTEMS AND DISAGGREGATION:-

Effective monitoring of equity requires robust data systems capable of disaggregating information across multiple dimensions. The role of administrative data collected through Education Management Information Systems (EMIS) has been widely discussed in the literature. Scholars note that while EMIS can enhance transparency and planning efficiency, many low- and middle-income countries face challenges related to data accuracy, timeliness, and coverage. Global monitoring efforts led by UNESCO, particularly through its Institute for Statistics, have contributed to the development of standardized indicators for SDG 4. However, researchers caution that global indicators may not fully capture contextual realities, and there is a need for locally relevant measures that reflect linguistic diversity, cultural contexts, and varied learning trajectories.

10. EQUITY-FOCUSED POLICY INTERVENTIONS:-

The literature also explores policy interventions aimed at reducing inequities in primary education. Conditional cash transfers, school feeding programs, targeted teacher deployment, inclusive education policies, and mother-tongue instruction have shown varying degrees of effectiveness in improving access and learning outcomes. Evidence suggests that multifaceted approaches—combining financial, pedagogical, and community-based strategies—are more likely to produce sustained improvements. At the same time, scholars highlight tensions between global accountability pressures and national sovereignty in education policymaking. While international benchmarks provide valuable comparative insights, excessive reliance on standardized metrics may incentivize superficial compliance rather than meaningful reform.

11. CONCLUSION:-

This study has examined the critical role of monitoring educational equity and learning outcomes at the primary level in advancing the Sustainable Development Goals (SDGs), particularly SDG 4 on inclusive and equitable quality education. While significant progress has been made in expanding access to primary schooling worldwide, persistent disparities in learning outcomes continue to undermine the transformative potential of education. Ensuring that all children not only attend school but also acquire foundational literacy and numeracy skills remains a central challenge for education systems globally. The findings underscore that educational equity must move beyond equal provision of resources toward fairness in outcomes. Disaggregated and equity-sensitive monitoring systems are essential for identifying achievement gaps related to socioeconomic status, gender, geographic location, disability, and other dimensions of marginalization. By systematically tracking these disparities, policymakers and stakeholders can design targeted interventions that address structural disadvantages and promote inclusive learning environments. Institutions such as UNESCO, working in coordination with the United Nations, have developed global frameworks and indicators to support countries in measuring progress toward SDG 4. However, the effectiveness of these frameworks ultimately depends on national capacity to collect reliable data, implement robust assessment systems, and utilize evidence in policymaking. Strengthening Education Management Information Systems (EMIS), investing in teacher professional development, and fostering community engagement are critical components of a comprehensive equity-oriented monitoring strategy. The study also highlights that monitoring should not be viewed solely as a technical or administrative function. Rather, it is inherently normative and political, shaping priorities, accountability structures, and resource allocation decisions. When designed thoughtfully, monitoring systems can promote transparency, empower stakeholders, and drive continuous improvement. Conversely, poorly designed systems may reinforce existing inequalities or narrow educational goals to easily measurable outcomes. In conclusion, achieving sustainable development through education requires more than expanded access; it demands measurable, equitable learning for all children at the primary level. Robust and
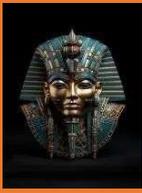
inclusive monitoring systems serve as both a diagnostic tool and a catalyst for reform. By aligning national monitoring practices with global development commitments, countries can strengthen the foundation of primary education and move closer to realizing the vision of inclusive, equitable, and sustainable development for all.

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