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Comparative Analysis of Access, Equity, and Quality in Education: A Study of India and Zambia

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Abstract: *This comparative study examines India's and Zambia's education systems through the access, equity, and quality framework—three pillars central to Sustainable Development Goal 4 (SDG 4). Although both nations share colonial pasts, they are otherwise distinct in context concerning size, governance, and resources. India possesses one of the world's largest education systems serving over 250 million students in a federal system with wide linguistic and socio-economic diversity. Zambia has a smaller, more concentrated system with its own special challenges of resource adequacy, dependence on donors, and rural-urban inequalities. The research method employs a desk review strategy, combining government reports, international documents, and academic literature to allow systematic comparative analysis.*

Historical Context and Evolution

The two countries inherited colonial systems of education for administrative ends rather than for mass literacy. India's colonial education system, established in Macaulay's Minute of 1835, created a class of English-educated elite and excluded women, rural populations, and lower castes. Literacy at independence in 1947 stood below 20%. Post-independence reforms like the Kothari Commission (1964-66), National Education Policies (1968, 1986, 1992), and Right to Education Act (2009) expanded access slowly. The National Education Policy 2020 outlined holistic reforms such as a 5+3+3+4 curriculum system, early childhood education focus, multilingual education, and digital inclusion.

Zambia had fewer than 100 university graduates at independence in 1964. Post-independence reforms under President Kaunda maximized nation-building through the Education Act of 1966 and free primary education. But economic recessions and structural adjustment programs in the 1980s reduced education budgets. Recent reforms—the 1996 "Educating Our Future" policy, 2013 Curriculum Framework, and 2022 Free Education Policy—are focused on access, skills alignment, and equity, though financing and rural access concerns persist.".

Access to Education

Both countries posted impressive primary school gains. India boasts near-universal primary enrollment (over 95% GERs), while Zambia has primary GERs in excess of 100%. Secondary schooling, however, shows limitations. India's secondary GER rose from 58% (2000) to more than 80% (2020) with vast interstate variation. Zambia's secondary GER is 55-60%, limited by infrastructure shortcomings and implicit costs. Tertiary education shows abysmal extremes: India's GER at 28% in 2020, while Zambia's is below 5%.

Gender equity improved significantly at primary (GPI nearing 1.0) levels in both countries. There remain gaps at secondary and tertiary levels, particularly in rural areas. Zambian girls also face other obstacles like early marriage, pregnancy, and domestic duties. Policy interventions removed overt barriers, but implicit costs, inadequate infrastructure, language issues, and socio-cultural attitudes continue to limit equal access for marginalized populations.

Equity Dimensions

Equity problems are multi-faceted in both countries. In India, the issues are due to caste, class, and socio-economic division, as Scheduled Castes, Scheduled Tribes, and Other Backward Classes remain left behind. These disparities are being met with government measures in terms of mid-day meals, selective scholarships, and the Rights of Persons with Disabilities Act (2016) and complemented by interventions by NGOs. The digital divide remains significant, as rural areas remain lack decent connectivity and ICT infrastructure.

Zambia's equity problems are primarily geographic and health. Rural children face long distances, poor infrastructure, and a shortage of teachers. Orphans and vulnerable children, particularly those with HIV/AIDS impacts, face additional barriers. Government interventions like free basic education, bursaries, and community schools have raised access, although roll-out is constrained by resources and dependence on donors.

Quality of Education

Quality problems are significant across both systems. Historically, India's emphasis was on performance in exams and rote learning, rather than fostering critical thinking and problem-solving capabilities. NEP 2020 attempts to shift towards interdisciplinary, competency-based learning, although implementation varies at the state level. Teacher shortages, uneven geographic spread of trained teachers, and low professional development retard progress. Digital initiatives (DIKSHA, SWAYAM, smart classrooms) hold much promise but are bogged down by infrastructure.

Zambia's issues of quality concern the lack of teacher training and adequate resources. The schools in rural settings lack trained educators and exposure to continuous professional development. Competency-based approaches came with the 2013 Curriculum Framework, but due to insufficient materials and training, its adoption has been impacted. International tests (PISA-D for India, SACMEQ for Zambia) indicate knowledge gaps, particularly in problem-solving and critical thinking.

Comparative Synthesis and Cross-Learning

The report indicates both congruence and divergence. Both countries share colonial legacies, commitment to international paradigms (EFA, MDGs, SDG 4), and rural-urban disparities, gender inequality, and teacher training problems. They differ greatly in scale, administration, and language of education policies. India's federal system allows experimentation at the state level but produces uneven outcomes, whereas Zambia's central system allows easy policy roll-out but discourages local variation.

Critical cross-learning opportunities emerge. Zambia learns from India's digital learning platforms of scalable models to respond to teacher shortages and rural-urban inequalities. India learns from Zambia's continued early-grade mother tongue instruction policy to boost foundational literacy and Zambia's attention to localized curriculum and community relations.

Conclusion and Future Directions

Both countries have long-term issues including dropout rates, quality of teachers, sustainable financing, the digital divide, and skill mismatches. SDG 4 target achievement entails moving beyond increasing access to automatically address quality and equity through increased public investment, supportive teacher professional development, equal digital infrastructure, labor market needs-conforming curriculum change, and climate-resilient education systems. While there is great variability in contexts, both nations are likely to benefit from cross-national argument and learning from one another and the borrowing of successful innovations. Sustainable development requires not only policy reform but robust implementation structures, civic engagement, and sustained political and financial commitment to inclusive, equitable, quality education for all children.

Keywords – Comparative Study, Education, India, Zambia, Access, Equity, Quality

1. Introduction

Comparative education has emerged as a relevant field of study in educational research where scholars and policymakers can compare and contrast similarities and differences among national education systems. Examining the way societies organize, provide, and mold education, comparative studies yield findings that cross cultural as well as political boundaries. Such analyses are particularly relevant for nations with similar historical backgrounds but unequal population and development contexts. Cross-national research illuminates universal concerns—such as access, equity, and quality—as well as context-dependent innovations which are at hand to guide international education discourse (Bray, Adamson, & Mason, 2014; Crossley & Watson, 2003).

1.1 Background of Comparative Education Research

Access, equity, and quality are central to international education. Access concerns learners' registration and progression; equity concerns guaranteeing balance between gender, social groups, and geography; and quality concerns meaningful and effective learning outcomes (UNESCO, 2015; Tikly & Barrett, 2011). Each of these elements underpins SDG 4 in promoting inclusive, equitable, and lifelong learning and offering a framework in which to compare educational systems in developmental and social inequality contexts (United Nations, 2015).

1.2 Importance of access, equity, and quality in Global Education Debate

India and Zambia form a recent comparative case as post-colonial nations whose education systems were designed to support colonial occupation. Post-independence—India in 1947, Zambia in 1964—both prioritized education for nation-building (Kelly, 1991; Tilak, 2020). India's large, federal system struggled to expand access between states and languages, while Zambia, with fewer resources and people, relied on donors. Both still have gaps in access, equity, and quality (Ministry of Education, 2020; Mulenga, 2018; World Bank, 2021).

1.3 Why compare India and Zambia

Picking India and Zambia for comparison with access, equity, and quality provides insights for three reasons. To begin with, both countries are signed on to international education agendas such as EFA, MDGs, and SDGs (UNESCO, 2015; World Bank, 2018). Secondly, India constitutes a large-scale system, while Zambia constitutes a small Sub-Saharan African setting, making differences of

scale and realization possible (Sifuna, 2019). Third, by identifying convergences and divergences, cross-learning becomes key: Zambia can borrow India's strategies to expand access and add technology, while India can learn from Zambia's emphasis on communities and localized learning (Tikly, 2019).

1.4 Research Objectives and Guiding Questions

The research aims to: examine historical and modern education systems; evaluate access, progression, and completion; explore equity in gender, geography, and marginalized groups; examine quality in curriculum, pedagogy, teacher training, and learning achievement; and establish cross-national lessons and policy lessons. Main questions are: What have been the effects of historical and structural factors on access, equity, and quality? What are the differences and similarities in policies and practices? What are the implications for policymakers, educators, and development partners?

1.5 Methodology

This study uses a conceptual and desk review approach with a mix of secondary sources such as government reports, international reports, and academic literature. While not empirical, it provides systematic comparative analysis and sets an agenda for future studies (Punch & Oancea, 2014). Briefly, the introduction frames an India-Zambia comparison in international education debate, situates it clearly, and establishes its purpose, intentions, and approach, and the ground for a close investigation of access, equity, and quality.

2. Historical Evolution of Education Systems

2.1 India: Colonial roots, post-independence plan, expansion of schooling, literacy campaigns.

India's modern education system was created during colonial days for the British administration needs. After Macaulay's Minute of 1835, the study of English was meant to generate English-educated middlemen to the disadvantage of mass literacy and also vocational training (Nurullah & Naik, 1972). Mission schools provided access slightly, yet women, rural residents, and lower castes remained excluded (Basu, 2006).

After independence in 1947, when literacy was below 20%, India began wide-ranging reform. The University Education Commission (1948–49), Secondary Education Commission (1952–53), and Kothari Commission (1964–66) promoted universal elementary education, expanded secondary and higher education, and brought schooling into national development goals. The National Education Policies (1968, 1986/1992), the National Literacy Mission (1988), and Sarva Shiksha Abhiyan (2001) emphasized literacy, equity, and perseverance. The Right of Children to Free and Compulsory Education Act of 2009 made education a right, while NEP 2020 introduced structural reforms, early childhood education, multi-lingual education, and digital education (Ministry of Education, 2020). Despite progress, disparities in access and quality across gender, caste, and urban/rural areas continue (ASER, 2022).

2.2 Zambia: Colonial model, post-1964 reforms, human resource development orientation, donor dominance.

Just like in India, Zambia had inherited a colonial education structure that worked for the British government's interests. During Northern Rhodesia, there were extremely few opportunities for Africans to get an education, aiming to produce a small number of clerks, artisans, and lower-level workers (Carmody, 2004). Most education came through missionaries, focusing on religious instruction, making access unequal and restricted; fewer than 100 Zambians had undergone university education by the time of independence in 1964 (Kelly, 1991; 1999).

Following independence, education took center stage in nation-building under President Kenneth Kaunda. The Education Act of 1966 and First National Development Plan invited free primary education for everybody and improvement in the development of secondary and tertiary levels to supplement human resource gaps (Mwanza, 2017). Economic recessions during the 1970s and structural adjustment policies in the 1980s curtailed public spending, widening inequalities and diminishing quality (Carmody, 2004; World Bank, 1995).

Reforms from the 1990s—e.g., 1996 Educating Our Future policy, 2013 Curriculum Framework, and 2022 Free Education Policy—have focused on access, skill alignment, and inclusivity. Issues remain in finance, teacher deployment, and rural access (Government of Zambia, 2006; World Bank, 2021).

2.3 Legacy impacts on access, equity, and quality today.

Colonial legacies remain influential on access, equity, and quality in India and Zambia. Colonial elitist education in India created caste, class, and gender disparities; post-independence widening increased access, but rural and poor groups remain disadvantaged, and quality is compromised through over-enrolled classrooms and imbalanced teacher allocation (Tilak, 2020; ASER, 2022). Colonial abandonment in Zambia created severe human resource deficits; post-independence restructuring increased access, but economic pressures, donor dependency, and rural-urban disparities limit equity. The two countries show that while access has grown, quality and fair education remains an ongoing issue based on historical and socio-economic determinants (Mulenga, 2018; World Bank, 2021).

3. Structural Overview of Education Systems

A comparative understanding of Indian and Zambian education systems requires an examination of their modern structures, which reflect historical imprints, policy changes, and developmental priorities. Both countries have tried to juxtapose their systems with universal educational structures

while confronting local socio-economic realities. This section provides an overview of the organizational patterns, governance arrangements, and key features of their education systems.

3.1 India: 5+3+3+4 structure under NEP 2020

The National Education Policy (NEP) 2020 has proposed a new curricular and pedagogical structure in India, replacing the earlier 10+2 structure with a 5+3+3+4 structure (Government of India, 2020). This begins with the foundational stage (age 3–8), which includes three years of pre-primary and the first two years of primary education. It is followed by the preparatory stage (ages 8–11, grades 3–5), the middle stage (ages 11–14, grades 6–8), and the secondary stage (ages 14–18, grades 9–12). The reconfiguration is centered on flexibility, multidisciplinary learning, and competency-based education. Particular emphasis is placed on early childhood care and education (ECCE), introduction of vocational subjects, and integrated development, encompassing both access and quality.

3.2 Zambia: 7–5–4 structure

Zambia follows a 7–5–4 education system, beginning with seven years of primary education, five years of secondary education (two years of junior secondary and three years of senior secondary), and four years of tertiary education (MoE, 2016). Teacher shortages and overcrowded classrooms are chronic problems despite the primary cycle being nominally free and universal (Mulenga & Kabombwe, 2019). Secondary education has expanded over the last decades, though transition rates from primary to secondary still remain constrained by socio-economic disparities and infrastructural capacity. Unlike India, Zambia places more emphasis on completion of basic education as a foundation for human capital development, founded on the government's long-established policy of "education for development" (Kelly, 1991).

3.3 Roles of government, private, and community-based schools

In India and Zambia, the state is the principal supplier of education, even if private and community actors play an increasingly significant part. India's federal system entails a split of roles between central and state governments, with government schools reaching rural and disadvantaged groups. The rapid growth of low-cost private schools, especially in urban areas, fills access and quality gaps but generates equity concerns (Kingdon, 2020). In Zambia, mission and community schools, often with NGO support, expand access in poor rural areas (Musonda, 2018). While non-state providers boost participation, there are questions of teacher quality, inputs, and long-term sustainability, revealing equity issues.

3.4 Higher Education and Vocational Training Systems

India boasts one of the biggest higher education systems globally, with over 40 million students in public and private universities, including elite IITs and IIMs (Aithal & Aithal, 2019). NEP 2020 is concerned with multidisciplinary curricula, research, vocational integration, and flexible pathways, but employability, quality, and regional disparities are areas of challenge. Zambia's smaller but growing sector, led by the University of Zambia and Copperbelt University, is concerned with access, TVET, and skills development, though financing, infrastructure, and industry connections are limited (Chituta, 2020; ILO, 2018). Both countries show trade-offs between expanding access and preserving quality, with higher education being central for labor market matching.

4. Access to Education

Access to education is the internationally accepted foundation for human capital development and national progress. Both Zambia and India have made deliberate policy efforts towards expanding education opportunities, usually framed within global agendas like the Education for All (EFA) movement, the Millennium Development Goals (MDGs), and increasingly now the Sustainable Development Goals (SDGs). Yet, even with significant achievement, deeply rooted barriers related to poverty, gender, geography, and infrastructure continue to bind universal access. Trends in enrollment, gender and geographical disparities, significant policy interventions, and barriers to access are addressed in this section for India and Zambia, with cross-country comparison of success and challenges.

4.1 Trends in enrollment (primary, secondary, tertiary)

India

India operates the world's second-largest education system with over 250 million students on several levels (Government of India, 2020). It has achieved near-universal primary enrollment with Gross Enrollment Ratios (GERs) consistently greater than 95% during the last ten years (UNESCO, 2021). Secondary schooling has also grown from around 58% in 2000 to over 80% in 2020, though contrasts remain between states and rural vs. urban areas (World Bank, 2022). In the third tier, India has seen rapid growth, with GER growing from 10% in 2005 to about 28% in 2020 (AISHE, 2021). This expansion has been led by private school growth, but with problems of quality and equity.

Zambia

Zambia's development has centered on universal primary education. Following policy reform in the early 2000s and the recent free education policy of 2022, primary GER is over 100%, a sign of widespread participation (MoE, 2022). Transition to the second level of education remains a problem with GERs remaining in the range of 55–60%, limited by weak infrastructure in schools and high costs of uniforms, board, and stationery (Mulenga & Kabombwe, 2019). Tertiary level enrollment remains way less than India with GER lower than 5% (UNESCO, 2021). Expansion remains

through public and private universities, though capacity is still limited, particularly in technical and vocational streams.

4.2 Gender parity and rural-urban differences

India

India has made significant progress towards gender equality, particularly at the primary level, where the Gender Parity Index (GPI) is nearly 1.0 (UNESCO, 2021). Discrepancies at secondary and tertiary levels still exist but have decreased. The participation of females at the tertiary level, for example, has increased with women contributing nearly 49% of the enrollments in 2020 (AISHE, 2021). However, rural–urban inequalities persist: urban children are far more likely to gain secondary and tertiary education than rural children. Further, caste, tribality, and socio-economic status reinforce access inequalities, and excluded groups exhibit higher dropout rates (Kingdon, 2020).

Zambia

The gender gap in Zambia is clearly seen at secondary and tertiary levels. While primary school enrollment is in balance, girls are not as likely to move to secondary school because they encounter early marriage, pregnancy, and domestic duties (Musonda, 2018). Rural girls also face further hindrances related to long distances to schools and unhygienic sanitation facilities. For the tertiary stage, fewer women participate compared to men, even if special scholarships and affirmative action have made attempts to correct underrepresentation (MoE, 2016). Rural–urban disparities are high, and urban areas have better-resourced schools and higher completion rates.

4.3 Policy interventions

India

India's access policies have been wide-ranging:

- Right to Education (RTE) Act, 2009: Enforced elementary education as a child's right for children aged 6–14 and made free and compulsory education obligatory (Tilak, 2018).
- Sarva Shiksha Abhiyan (SSA) and then Samagra Shiksha Abhiyan: Nationwide programs for universalizing elementary education through physical expansion, teacher recruitment, and mobilization at the grassroots level.
- National Education Policy (NEP) 2020: Re-defines universal access, advancing the vision to pre-primary and secondary levels. It also suggests 100% Gross Enrollment at the school level by 2030 in tandem with SDG 4 targets (Government of India, 2020).

Both these policies have significantly boosted enrollment but still remain plagued by dropout rates, particularly at upper-primary and secondary levels.

Zambia

The nation has made some substantial policy interventions:

- Primary Education Policy of 2002, and its subsequent extension to all education levels in 2022, removed the fee of tuition as a barrier to enrollment (MoE, 2022).
- Vision 2030 and the Seventh National Development Plan prioritizes universal access to quality education as a key development strategy.
- Donor interventions, such as the World Bank's Supporting Women's Livelihoods program and the USAID-funded Let's Read Zambia program, have supplemented government actions to improve access, literacy, and retention.

Apart from these measures, Zambia is hampered by donor dependency and structural long-term inequality.

4.4 Barriers to access

India and Zambia both face numerous systemic and socio-cultural barriers:

- Poverty and cost of living: Although tuition is free, implicit costs—uniforms, transportation, textbooks—restrict enrollment, particularly in rural areas (UNESCO, 2015).
- Infrastructure shortfalls: Overcrowding, poor hygiene, and lack of electricity undermine attendance and persistence in both countries.
- Instructional language: In India, the medium of instruction varies by state, making changes more difficult; in Zambia, the dominance of English as a medium of instruction is a barrier to rural students who are raised on local languages (Simwinga, 2019).
- Geographic inequalities: Remote rural areas of both countries experience school accessibility challenges, resulting in higher dropout rates and lower completion rates.
- Social and cultural norms: Gendered expectations, child marriages, and child labor disproportionately impact girls in Zambia and the marginalized sections of Indian society.

4.5 Comparative Discussion: Achievements and Gaps

India and Zambia are similar in their pursuit of universal access where they have both attained near-universal primary enrollment through India's RTE and Zambia's free education initiative. Secondary and tertiary levels continue to be bottlenecks. India's large system makes possibilities available but leads to access imbalance between different states, while Zambia's smaller system has allowed localized innovation like community schools though resources limiting extension at a higher level. Both countries have improved gender parity, though Zambia lags behind post-primary. Poverty, rural disadvantage, and language problems afflict both countries; India also has caste as well as socio-economic stratification,

while Zambia experiences rural–urban and gender norms. Ensuring equitable progression and addressing systemic barriers remains a key challenge.

5. Equity in Education (1,000–1,200 words)

5.1 Social, gender, regional, linguistic definitions of equity in education.

Education equity is the principle of fairness in learning and teaching, where quality education is offered to all students regardless of their socio-economic, geographic, or cultural status. Equality requires the same provision or opportunity for everybody, whereas equity requires fulfilling the differing needs and tackling institutional barriers in a way that leads to equal outcomes (UNESCO, 2015). Some of the main aspects of equity include:

- Social equity: Reducing inequalities on the basis of caste, ethnicity, class, and economic status.
- Gender equity: Ensuring equal access and opportunities for male and female learners.
- Regional equity: Reducing disparities between urban and rural areas in infrastructure, teacher availability, and school facilities.
- Linguistic equity: Providing education in learners' mother tongues while promoting multilingual competencies.

5.2 India: SC/ST/OBC marginalized groups, gender disparities, urban-rural, digital divide.

India's equity challenges have historical, socio-economic, and geographical orientations. Marginalized groups, including Scheduled Castes, Scheduled Tribes, and Other Backward Classes, have had limited exposure to education in the past. Strategies like the RTE Act (2009), SSA, and RMSA aim to fill gaps (Kingdon, 2007). Gender gaps are present, especially in rural India, in spite of initiatives like Beti Bachao, Beti Padhao and girls' scholarships. Urban-rural inequities impact infrastructure, teacher availability, and digital connectivity. Urban schools have better facilities and ICT penetration, while rural schools lack and have limited internet, with the COVID-19 pandemic having highlighted the digital divide (NUEPA, 2020).

5.3 Zambia: Rural children, orphans, girl child education, vulnerable children.

In Zambia, equity concerns are extremely geographically contingent, socio-economically driven, and health-exposed. Rural children primarily suffer from distance to school, poor quality of classrooms, and untrained teachers, and these affect enrollments and the quality of learning (Kelly, 1991). Orphans and vulnerable children, especially those who have been HIV/AIDS-affected, experience additional barriers to education due to economic and social issues.

Gender disparities are addressed by government interventions such as free primary education, bursaries, and community sensitization programs, but still exist, particularly in rural settings where boys' education is prioritized by culture (Sampa, 2015). Children with disabilities rely on the interventions of the government complemented by NGOs to have access to learning materials and access to inclusive education environments.

5.4 Inclusive education for children with disabilities.

India and Zambia have made efforts to place children with disabilities in mainstream schooling. India's Rights of Persons with Disabilities (RPWD) Act, 2016, provides a structure for accessible education and inclusive classrooms. Zambia's Education Act, 2011, also promotes inclusion of special needs students. These legislative policies have not been sufficient because of inadequate infrastructure, lack of adequate teacher training, and attitudes that limit full participation. NGOs of the two nations fill these gaps by utilizing resources, teacher training, and sensitization of the community (Sharma & Desai, 2020; UNICEF, 2020).

5.5 Government and NGO initiatives.

Government initiatives targeted for equity in India are:

- Mid-day meals to enhance retention and nutritional levels.
- Scholarships to disadvantaged girl and students.
- ICT-based learning programs to address the digital divide.

NGOs such as Pratham, Teach for India, and Room to Read support literacy programs, teacher training, and community outreach, particularly in under-served communities.

Government initiatives in Zambia are:

- Free Basic Education to remove economic barriers.
- Bursaries and scholarships for girls and vulnerable children.
- Community schools to improve access in hard-to-reach communities.

NGOs and external actors (e.g., UNICEF, Plan International) fill gaps in government work with infrastructure support, teacher training, and lobbying for inclusive practice. These partnerships are particularly required in resource-poor rural and disadvantaged populations.

5.6 Comparative analysis: similarities, differences, lessons.

Similarities:

- Frontline countries have urban-rural disparities and gender gaps in education.
- Marginalized and vulnerable population requires targeted interventions.

- Inclusive education for disabled children is supported by legislation and NGO initiatives.

Differences:

- India's challenges are largely castes, language, and socio-economic stratification-based issues, while Zambia's challenges are based on geography, poverty, and health-based vulnerabilities.
- India employs country-level government schemes and legal mandates, while Zambia employs donor-funded and community-based programs mainly.

Lessons Learned:

- Equity improvement is achieved through multi-stakeholder coordination (government, NGOs, and communities).
- Policies must be accompanied by effective implementation, monitoring, and community participation.
- E-learning can fill gaps but needs equal access to prevent widening disparities.
- Quality education for all necessitates investment in infrastructure, teacher training, and curriculum adjustment.
- Both policy and socio-cultural interventions are needed to address gender disparities.

6. Education Quality

6.1 Key indicators (curriculum, pedagogy, teacher training, learning outcomes).

The quality of education refers to how far learning processes, teaching practices, and organizational conditions can equip learners with knowledge, skills, and competences to achieve personal, social, and economic development. UNESCO (2014) mentions some of the key indicators of quality of education:

- Relevance and coherence of curriculum: The curriculum has to serve national and global needs, be inclusive, and nurture critical thinking, creativity, and problem-solving.
- Pedagogical practices: Effective teaching methods, student-centered approaches, and innovative instructional approaches are critical for effective learning.
- Teacher education and professional expertise: Teachers' subject knowledge, pedagogical capabilities, and continuous professional development contribute significantly to learning outcomes.
- Learning outcomes: Measured in terms of academic achievement, skill acquisition, and the ability to use knowledge in real-life situations.
- Monitoring and assessment systems: Monitoring systems are used to hold people accountable, expose gaps, and support ongoing improvement.

6.2 India: Culture of examinations, teacher shortages, ICT integration, NEP 2020 reforms.

India's school system has a complex interplay of reforms and issues for quality.

Curriculum and Pedagogy:

India has traditionally emphasized memorization of material and test performance, resulting in a strong exam culture. While the students perform extremely well in standardized tests, much is not developed with respect to higher-order thinking, creativity, and problem-solving skills. The National Education Policy (NEP 2020) is designed to overcome these gaps by promoting competency-based learning, interdisciplinary curricula, and experiential pedagogy (Ministry of Education, 2020).

Teacher Education and Shortages

Quality of teachers remains a top concern. The shortages of teachers and the inequitable distribution of skilled teachers in most of rural schools remain a challenge. Pre-service and in-service training of teachers is present, though coverage, quality, and access to continuous professional development differ considerably (Kingdon, 2007). NEP 2020 aims at the improvement in teacher education by improving teacher training institutes, professional development, and assessment of performance.

ICT Integration

Digital technology has been introduced to the classroom gradually through initiatives such as DIKSHA, SWAYAM, and smart classrooms. Integration of ICT attempts to facilitate pedagogy, accessibility, and participation in learning but infrastructural gaps and exclusion from the digital world are significant hindrances, particularly in rural areas (NUEPA, 2020).

Assessment and Monitoring

India's assessment structure relies predominantly on summative exams, but over time there is shifting towards formative and competency-based evaluation. Nation-wide surveys, such as the National Achievement Survey (NAS), track learning achievements in literacy and numeracy, providing effective feedback for policy intervention.

6.3 Zambia: Teacher training, curriculum re-designs (2013 framework), resource shortages.

Zambia has made good progress in expanding access but remains behind in improving quality.

Teacher Qualifications and Pedagogy:

Quality of teachers is one of the prime determinants of learning outcomes in Zambia. There are fewer qualified and subject-specialist-trained teachers, especially in rural schools. There are some continuous professional development programs available, though they are restricted because of limited resources (Kelly, 1991). Pedagogy is still primarily

teacher-based with infrequent employment of experimental or learner-centered approaches.

Curriculum Reforms:

The 2013 Curriculum Framework introduced competency-based approaches, emphasizing skill acquisition, critical thinking, and practice. The curriculum aimed to align primary and secondary education with global standards and the demands of the marketplace, though challenges were observed in its implementation due to insufficient teaching materials and appropriately trained staff (Sampa, 2015).

Resource Shortages:

Zambian learning institutions tend to have poor classrooms, textbooks, and teaching materials. Rural schools are particularly disadvantaged, impacting quality and learning participation. NGOs and donors fill the gap for government intervention with school materials and teacher training programs.

Monitoring and Assessment

The evaluation approaches in Zambia are being modified, with examination at the level of the schools supplemented by national testing. Systematic monitoring and testing are scarce, however. Literacy and numeracy benchmarks are provided by international surveys such as Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), though coverage is still limited.

6.4 International assessments and SDG indicators.

SDG 4 is concerned not merely with access but with inclusive learning and quality (UN, 2015). International monitoring systems like PISA, TIMSS, and SACMEQ provide comparative data on achievement, teaching, and learning environment. India's PISA-D outcome shows literacy and numeracy proficiency but problem-solving and critical thinking deficits. Zambia's SACMEQ data show rural-urban and gender disparities. The two examples highlight that access is insufficient; there must be systemic investment in teachers, curriculum, teaching, and assessment for quality.

6.5 Comparative analysis: strengths, weaknesses, innovations.

Strengths:

- India's NEP 2020 introduces future-oriented reforms in curriculum, pedagogy, and teacher development.
- Zambia has embraced competency-based curriculum reform and has strong international cooperation in the area of teacher training and assessment programs.
- Both countries are increasingly applying ICT to support teaching and learning.

Weaknesses:

- In India, exam culture and uneven teacher allocation still hinder holistic learning.
- In Zambia, teacher shortages, limited professional development, and resource constraint hinder quality education.
- Both countries lack systematic, formative monitoring and assessment.

Innovations:

- India's DIKSHA platform and digital learning courses are exemplary models of scalable ICT integration.
- Zambia's competency-based and practical skills orientation in curriculum reform.
- Collaborative NGO-government programs in both countries enable teacher growth, remedial education, and inclusive education.

Lessons Learned:

- Quality education requires simultaneous attention to curriculum, pedagogy, teacher growth, and resources.
- Competency-based practices improve critical thinking and work-world competence but require sufficient teacher training and resources.
- ICT has the potential to improve quality but requires infrastructure and teacher capacity development.
- International measures offer valid benchmarks but need to feed back into local interventions specific to local realities.

7. Policy Frameworks and Global Alignment

Indian as well as Zambian education policy is based on national vision for development but is aligned with international education agendas—mainly EFA, MDGs, and SDG 4. Global partners are also significant influencers, financers, and monitors of reforms.

7.1 India: NEP 2020, RTE Act, Digital India for Education.

India's RTE Act of 2009 made schooling for children aged 6–14 years as universal primary education and gender equality in line with EFA and MDG objectives (Government of India, 2009). Although the enrollment is improved, infrastructure, quality of teachers, and chronic implementation are issues. The NEP 2020 revisions span early childhood to higher education with emphasis on foundational literacy, multidisciplinary curriculum, flexible pathways, vocational education, and inclusivity (Ministry of Education, 2020; Ashokkumar, 2025), in line with SDG 4 and raising public expenditure on education to 6% of GDP (Rangarajan et al., 2023). Online platforms such as SWAYAM, DIKSHA, and NDLI enhance access and make learning inclusive (NDLI, 2021; Wikipedia, 2025).

7.2 Zambia: Vision 2030, National Education Policy, Curriculum Framework.

Zambia's Vision 2030 targets "innovative and productive lifelong education and training for all" with curricula responsive to social and economic needs (Republic of Zambia, 2007). The National Education Policy (2011) and the Curriculum Framework (2013) prioritize inclusive, learner-centred education, vocational proficiency, multilingual education, equity, and gender equality. Recent reforms, for example, the Free Education Policy, waive primary and secondary school costs to make doors wider (Zambian Government, 2022). UNESCO reports greater progress toward universal primary and near-universal lower secondary, with the focus now turning to upper secondary and TVET (UNESCO, 2016). Policies aim to address SDG 4 targets for access, equity, and relevant skills (Zambia UN, 2025).

7.3 Alignment with EFA, MDGs, SDGs and SDG 4

During the EFA and MDG era, global goals were mainstreamed within national plans by India and Zambia. India's RTE framework emphasized universal primary education and gender equality through the inclusion of MDGs 2 and 3, whereas Zambia emphasized universal basic education and gender parity. SDG 4 is more inclusive now, with emphasis on access, quality, equity, lifelong learning, and relevant skills (Zambia UN, 2025). India's NEP 2020 aligns with SDG 4, focusing on inclusive learning, flexible pathways, teacher training, and curriculum renewal (Ministry of Education, 2020; UNESCO, 2024). Zambia similarly nationalizes SDG 4 through free primary education, equality of genders, improved learning outcomes, and technical/vocational reforms (UNESCO, 2016).

7.4 Role of international partners (UNESCO, World Bank, UNICEF, DFID).

International and bilateral actors increasingly drive, fund, and monitor education reforms. UNESCO provides technical support, policy guidance, and SDG 4 coordination in the two countries (UNESCO, 2016; 2024). UNICEF promotes early childhood development, equity, and child-right strategies. The World Bank and multilateral institutions fund large-scale interventions—education systems, infrastructure, teacher training, and e-projects. DFID/FCDO funds rural and disadvantaged education, particularly in Zambia. They support monitoring SDG 4 progress, conduct evaluations, and facilitate cross-country learning, filling gaps in resources and making sure global standards guide the national education plans.

8. Comparative Synthesis: Access, Equity, and Quality

A comparative overview of access, equity, and quality in India and Zambia provides both shared legacies as well as divergent paths informed by governance, language, resources, and sociolinguistic complexity. In comparing their education systems, there are intersections rooted in colonial history, literacy drives, and rural-urban disparities; divergence in scale, language planning, and governance; and potential lessons they may learn from each other.

8.1 Convergences: colonial influence, literacy drives, rural challenges.

India and Zambia acquired English and elite-preferred colonial education systems. After independence, both continued to democratize through mass recruitment and literacy drives. The Primary Literacy Programme and 2013 Curriculum Framework of Zambia use local languages to increase literacy and reduce dropout rates (Ministry of Education, Republic of Zambia, 2013; Thomas et al., 2023). India's NEP 2020, SSA, and RTE Act promote free primary education and equity (Ministry of Education, Government of India, 2020). Rural-urban disparities in teachers, infrastructure, and outcomes continue to plague equity.

8.2 Divergences

8.2.1 Scale and complexity (India in comparison with Zambia).

India's magnitude, its linguistic heterogeneity (hundreds of languages and dialects), and its federal structure make it more complicated to formulate policy that is implementable in highly different states. NEP 2020 measures must balance uniformity with state autonomy, and this tends to result in varying implementation and outcomes. Zambia, being multilingual but smaller in size and population, is thus less resource-constrained in terms of geography and size; accordingly, some of the reforms (e.g., language-of-instruction policy at lower levels) can be legislated more uniformly and (hypothetically) more easily policed across fewer levels of administration.

8.2.2 Language policy

In India, NEP 2020 keeps the "three-language formula" intact, promoting flexibility and giving mother tongue or local language instruction precedence in primary grades. Implementation has variation across states, with debates on central versus state regulation and Hindi versus local languages. In Zambia, the 2013 Education Curriculum Framework reserves seven zone languages—Chitonga, Cinyanja, Icibemba, Kiikaonde, Lunda, Luvale, Silozi—to instruct in preschool and Grades 1–4. English is introduced at Grade 2 and utilized as a medium of instruction from Grade 5, with the local languages also utilized based on the zone. The two systems exhibit efforts to balance English and local languages in education.

8.2.3 Government structures (federal vs. centralized).

India has a federal system with considerable state and union territory freedom of action on issues of implementation of educational policy (language, medium of instruction, appropriation of infrastructure, deployment of teachers). This is likely to lead to considerable inequality in consequences: more affluent states or states with better performing

administrations may introduce reforms sooner and on a wider scale.

Zambia, however, has greater nationalized control over basic education with language of instruction, curriculum frameworks, and teacher standards established at the national level. Policy agencies such as the Ministry of Education exercise policy at the national level, while regulation of higher education is exercised by regulatory agencies. The central government in Zambia adopts more national guidelines and directives with less formal devolutions of core curricula than India.

8.2.4 The things that each country can learn from the other.

Things Zambia can learn from India:

- Scale innovations and digital delivery: India's experience with large scale digital platforms like DIKSHA, and PM e-Vidya, shows how digital infrastructure scaled up can fill rural-urban divides and make up for teacher shortages.

- Decentralization and policy flexibility: India's experimentation at the state level (e.g., language implementation, curriculum) can give Zambia advice on how to allow adaptation at a local level while maintaining central standards.

What India can learn from Zambia:

- Persistent early grades language policy: Zambia's open policy of using local languages to instruct in early grades and scheduled English transition is pedagogically sound and evidence-backed concerning children learning better in their home language (especially literacy and numeracy). India's NEP is in the same direction, but practice varies a great deal by state many times. Zambia's more uniform approach might have lessons in sustaining early grade building blocks.

- Localisation of curriculum and community participation: Zambia's policy encourages schools to employ tailored curricula to local knowledge, values, and contexts — especially at lower primary levels. India can also enhance further participation of communities in creating localized teaching-materials and contexts, especially within linguistically diverse regions.

8.2.5 Quality, Equity, and Access Implications

Quality of education depends upon policy implementation, e.g., trained teachers, access to study material—especially in local languages—and stable curricula. Zambia's language policy is strong on paper but weakened by teacher training and materials gaps, and India's size produces uneven state-level performance. Equity is language-bound, cost-bound, and geography-bound: linguistic minorities, rural children, and poorer communities face mismatched instruction, hidden costs, and lower outcomes. Increased access, particularly at the primary levels, but retention through to secondary levels is an issue. Language issues influence dropout rates, highlighting where access, equity, and quality converge.

9. Challenges and Future Directions

While significant advances have been achieved, India and Zambia continue to have structural and emergent challenges in delivering inclusive, high-quality education. These are critical to achieving SDG 4 and long-term national ambitions such as Vision 2047 (India) and Agenda 2063 (Africa/Zambia).

9.1 Recurring gaps (dropout, teacher quality, financing).

Retention and dropout are deep-seated issues. Though dropout has declined in India, secondary level dropout is high, particularly among girls, rural children, and other poor groups (Government of India, 2024). Though dropout is generally lower in Zambia, higher dropout among adolescent girls due to pregnancy, early marriage, and poverty (ActionAid Zambia, 2019) exists. Far distances to schools and inadequate boarding facilities worsen these (SpringerLink, 2025).

Teacher qualifications, shortages, and deployment also constrain learning outcomes. In India, the majority of teachers are disadvantaged by inadequate training, low morale, and high student burden (UNESCO, 2019). Zambia is also confronted with shortages of trained teachers, especially in rural settings, alongside poor infrastructure, low morale, and insufficient teaching materials (UNICEF Zambia, 2023).

Funding is another persistent issue. In India, school spending is still a far cry from NEP's 6 % of GDP goal (IJFMR, 2024). In Zambia, abolition of fees created room for equity but widened the funding gap. Zambia is projected to need to hire approximately 7,000 teachers annually and build 4,000 classrooms each year to meet future demands (World Bank, 2024). The funding deficit is approximated to be around K 4 billion annually for the ten-year period (World Bank, 2023).

9.2 Emerging challenges (ICT divide, globalization, unemployment mismatch).

ICT / Digital divide. The shift to digital learning, fueled by COVID-19, has exposed deep inequities. Availability of hardware, reliable internet, and computer skills is still uneven in India despite connectivity gains (Government of India, 2024). Zambia is even more brutally limited with most rural schools lacking electricity, internet, and ICT facilities (UNICEF Zambia, 2023).

Globalization & labor market mismatch. As economies become increasingly knowledge and technology based, the mismatch between the labor market and labor curriculum is increasingly raising concern. In Zambia and India alike, graduates lack the entrepreneurship, digital literacy, soft skills, or technical sector-specific skills required to enhance employability (UNESCO, 2019).

Unexpected shocks and resilience. Pandemics, weather events, and economic downturns can disrupt school attendance. For example, cholera outbreaks in recent times in Zambia have led to school reopening delays, negatively affecting continuity of attendance (SpringerLink, 2025).

9.3 Policy recommendations to both countries.

- Selective re-entry and support to retain. India must increase conditional cash transfers, remedial schooling, and safe schools, while Zambia must enhance the Re-entry Policy and provide more support for girls and rural learners (SpringerLink, 2025).
- Increase teacher capacity. Both countries must invest in professional development on an ongoing basis, mentoring, incentives to the rural schools, and accountability systems (UNESCO, 2019).
- Raise funds sustainably. India should raise its budget for education to reach NEP goals (IJFMR, 2024), while Zambia must diversify funding and raise efficiency in the distribution of funds (World Bank, 2023; World Bank, 2024).
- Fill digital gaps. Develop low-cost devices, offline learning platforms, and teacher training in digital pedagogy. India's such platforms as DIKSHA can be benchmarks, while Zambia can expand community-based digital centers (UNICEF Zambia, 2023).
- Industry linkage and curriculum reform. Embed technical competencies, entrepreneurship, and employability in curricula and expand vocational tracks sensitive to labor markets (UNESCO, 2019).
- Resilient systems. Embed early warning systems, disaster preparedness, and hybrid learning into education policy in both nations (Government of India, 2024; UNICEF Zambia, 2023).

9.4 Implications for SDG 4 and Agenda 2063 (Africa) / Vision 2047 (India).

For SDG 4, both countries need to move beyond access for reaching quality, equity, and lifelong learning. It is essential to bridge learning and dropout gaps, ensure equitable digital access, and link education with the future of work for the attainment of global goals.

For India's Vision 2047, education becomes the basis to become a knowledge-driven developed country on the independence centenary (IJFMR, 2024).

For Africa's Agenda 2063, education is core to the creation of well-educated, innovative citizens to drive inclusive growth. Continental performance will be directly informed by the development of Zambia in the implementation of free and fair education (World Bank, 2024).

If India can balance diversity and scale and Zambia can overcome infrastructure and fund constraints, both nations will not just push ahead towards SDG 4 but create human capital for sustainable long-term development.

10. Conclusion

10.1 Synthesis of findings

India and Zambia have a shared goal to increase access, equity, and quality in learning but are each faced with systems. India's huge, federal, diverse system is beset by exam-oriented learning, teacher shortages, and disparities between regions (Ministry of Education, Government of India, 2020; UNESCO, 2019). Zambia's small, resource-constrained system is beset by finance shortages, rural disparities, and over-reliance on external partners (World Bank, 2024; UNICEF Zambia, 2023). Both have colonial pasts and aim to align with global standards like SDG 4, EFA, and MDGs (ActionAid Zambia, 2019; UNESCO, 2019).

10.2 Comparative insights significance

Both aim for universal access, equity, and curriculum reforms but vary in scale, governance, and language policy. India operates multilingual, multi-layered governance (Subramanian, 2022), while Zambia emphasizes local language pedagogy and coordination with donors (Ministry of Education, Republic of Zambia, 2013). Learning is mutual: India can pick up the community efforts of Zambia, while Zambia may take up the digital innovations of India (SpringerLink, 2025; Government of India, 2024).

10.3 Final remarks

Toughening up education involves sustainable financing, improved teacher training, more equitable digitalization, and more labor-market-oriented curricula (World Bank, 2023; Ministry of Education, Republic of Zambia, 2013). With more robust systems and learning from each other, both countries can enhance inclusive, high-quality education for everyone (Ministry of Education, Government of India, 2020; UNICEF Zambia, 2023).

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