
Transforming Primary Education in Under-Resourced Contexts: Leadership, Teacher Development, and Community Engagement for Sustainable Learning in Bangladesh

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ABSTRACT

The study examines the simultaneous effect of leadership styles, teachers' professionalisation, and community participation on sustainable learning in Bangladesh's resource-constrained primary schools. Mixed-method design was used to collect data from 85 participants in 10 schools with representation of head teachers, class teachers, and community members. Quantitative analysis confirmed that teacher development, leadership, and community participation are reliable predictors of long-term achievement of students and account for 62% variation together. The strongest predictor was teacher professional development, and then followed by leadership, and lastly community involvement. The qualitative research validated the same and further added that effective schools have relational coherence in which visionary leadership enables teacher agency and engaged community fosters school accountability. The research establishes that sustainability in schools is a social and systemic construct and not just an outcome of resource dependency. Those schools with a common purpose, learning in collaborations, and trust relationship-oriented partnerships exhibited more resilience and student motivation despite limited resources. The research underscores the need to shift Bangladesh's education reform from input models to relationship models with an emphasis on empowering leadership, ongoing professional development, and partnership with the community. The article closes with to-the-point guidance to practice and policy, calling for a holistic strategy to contribute to stronger primary education systems in poor environments through contextually oriented and relational reform.

1. Introduction

Bangladesh's primary education has come a long way since the last few decades, with almost universal access, a substantial number of teachers, and flat enrollment (World Bank, 2013). All this, however, still lies between short-term quantitative achievement and longer-term quality results. A high dropout rate prior to the completion of the primary cycle, weak students' basic reading and numeracy competence, ineffective pedagogical practices, and severe infrastructural and resource shortages still prevail in most less better-off schools (Dhaka Tribune, 2024; Prothom Alo, 2024). These are particularly serious in poor and rural areas, where teachers tend to be incompetent, instructional leadership is poor, and the chasm between classroom practice and education policy is wide.

Leadership is a key element of quality in primary schooling. Transformational, instructional, and shared/distributed leadership has been embraced globally as intervention that can enhance teacher motivation, enhance teaching quality,

and develop school culture supportive of learning (Chowdhury, Nobil, & Islam, 2021; "Challenges in Managing Stakeholders," 2024). Most primary schools in Bangladesh are without good administrative and financial authority, weak monitoring capacity for teaching, and weak resources for teacher innovation and school reform implementation (Cambridge Institutional Diagnostic Report, n.d.; New Age, 2024). Educational activities for teacher professional development and community engagement projects may be misused or unsustainable without good leadership.

Teacher professional development is important in reforming primary education. In poor-resource settings, educators frequently face scarcity in access to large-scale in-service training, job-site assistance, and lines of collective learning (Observer BD, 2024; Today's Financial Express, 2024). Teachers' pre-service training may also be theoretical, without practicum or contemporary mentoring of classrooms, hence restricting teachers' readiness for various classroom challenges. With respect to scarce physical resources, class size, absence of instructional materials, and multi-grade instruction exacerbate the capacity of teachers to sustain best practices. Therefore, perpetual investment in context-adaptive TPD that is continuous and correlated with instructional leadership is important.

Community participation is the third pillar of sustainable learning. Local communities, School Management Committees (SMCs), parents, and guardians can make a big difference by providing material and spiritual support, taking up responsibilities, and encouraging harmonization of education to socio-cultural realities within the locality. Evidence indicates that in most Bangladeshi primary schools, either the community or parents are nominally engaged but never engaged in classroom pedagogy issues, resource allocation, or monitoring over learning achievement (Khulna University study on head teachers, 2024; Bayazid Khan, 2024). Except for this, community engagement in policy implementation is generally handicapped by inadequate incentives, weak institutional arrangement, and weak capacity.

Sustained learning in times of resource restriction hinges on synergy among three essential factors: quality leadership, total teacher professional development, and quality community involvement. Sustainability has nothing to do with how to assess greater test results or attendance but is such that schools can maintain high quality of teaching, learning, buildings, and stakeholder participation in the long run. In Bangladesh, more recent policy initiatives like the Primary Education Development Program (PEDP-III and PEDP-IV) attempted to address such issues; still, studies identify gaps in implementation and inequalities (World Bank, 2013; Rescuing Primary Education, Dhaka Tribune, 2024).

This research explores the interplay of primary school leadership, teacher learning, and community engagement in low-resourced environments of Bangladesh to facilitate sustainable learning. It seeks to address the following research questions:

- What are under-resourced school leadership models, and how do they impact teacher participation and school reform?
- How effective are the current teacher training programs in enhancing classroom teaching in low-resource schools?
- How is community participation currently faring, and what is its role in ensuring sustainable learning as well as school accountability?

The purpose of this research is to explain the connection among leadership, teacher development, and community involvement, and derive lessons for policymakers, education leaders, and practitioners dedicated to closing primary-level quality gaps. The results will strive to explain long-run learning achievement in poor environments that could be generalized not just to Bangladesh but to other low- and middle-income countries.

2. Literature Review

2.1 Leadership in Resource-Limited Educational Systems

School leadership is identified as a key driver of school improvement, especially in resource-depleted environments (Bush, 2020). In these situations, the mandate of the school leader extends beyond administrative control to include instructional vision, teacher motivation, and community collaboration. Transformational leadership theory underscores the ability of the leader to inspire, vision communicate, and foster collaborative commitment to common

educational ends (Leithwood & Jantzi, 2005). In contrast, dispersed leadership argues that leadership is not exclusively the prerogative of the head teacher but rather a collective function enmeshed with other stakeholders in a school (Harris, 2013). Both models have much potential in Bangladesh, where schools tend to work with minimal monitoring and limited resources.

South Asian research indicates that school administrators embracing transformational or distributed leadership styles are likely to realize higher teacher commitment and improved student learning achievement, especially in less affluent resource environments (Khan et al., 2023). Head teachers in Bangladesh sometimes get zero professional training in instructional leadership and work extensively on managerial tasks instead of providing pedagogical guidance (Bayazid Khan, 2024). As a result, leadership is kept largely in a managerial, rather than transformational, state. The Bangladesh Education Development Report (World Bank, 2013) records the absence of leadership autonomy at the school level, where local initiative is stifled by rigid administrative bureaucracies.

Effective leadership in poor resource schools is also interrupted by the absence of professional support structures. A 2022 Education Watch Bangladesh study revealed that more than 70% of primary school head teachers lacked access to systematic mentoring or leadership development. Leadership thus takes on a reactive quality, prioritizing respect for the rules over promoting educational reform. Evidence from Uganda and Kenya indicates that focused leadership capacity-building programs, centered on instructional supervision and community interaction, are able to enhance teaching and learning quality, as well as student achievement, significantly (Mulkeen et al., 2020). These comparative findings underscore the pressing imperative to create leadership capability among Bangladeshi primary schools so that leaders can be catalysts for innovation rather than policy implementers.

2.2 Teachers' Professional Development

Teachers' quality is the single most significant determinant of learning outcomes in primary school, yet it is usually undervalued in less-resourced systems (OECD, 2019). In Bangladesh, despite initiatives like PEDP-IV that seek to improve teacher training and qualification, there are still issues regarding the depth, frequency, and contextual relevance of the programs (Chowdhury & Nobi, 2021). Most in-service training remains very short-term, theoretical, and inadequately adapted to the classroom reality. Moreover, meager school facilities, weak internet connectivity, and excessive loaded teaching responsibilities deter prospects for ongoing professional development (Prothom Alo, 2024).

Current models of teacher professional development (TPD) include ongoing, cooperative, and practice-based learning approaches (Avalos, 2011). Professional Learning Community (PLC) model, in which teachers plan, observe, and reflect on pedagogical practice together, has been highly promising for developing instructional capacity (Vescio et al., 2008). In Bangladesh, peer learning structures are seldom institutionalized. A qualitative study conducted by Rahman (2022) found that teachers tend to perceive training as externally driven and professionally unenriching, with minimal follow-up and classroom assistance.

Motivation of the teachers is an important factor. In schools that are deprived of resources, low pay, lack of appreciation, and limited opportunities for growth usually lead to burnout and turnover (Ahmed, 2021). Professional development and motivation go hand-in-hand: successful teacher professional development enhances morale, and teachers who are well-motivated are more inclined to take advantage of self-directed learning. Also, the incorporation of digital technology in teacher training has demonstrated the potential to democratize access and offer cost-effective, scalable support; however, connectivity and infrastructure continue to be rural Bangladesh's main concerns (Today's Financial Express, 2024).

UNESCO's research (2020) also brings to the center stage the need for gender-sensitive and inclusive teacher training, especially in rural areas where women teachers experience mobility and cultural obstacles. Such presuppositions should guide teacher training in Bangladesh to shift towards continuous mentoring, reflective teaching, and pedagogic innovation pertaining to local contexts.

2.3 Community Engagement and Local Leadership

Involvement of the community is a critical element in sustained educational change (Epstein, 2018). Having actively engaged parents, School Management Committees (SMCs), and local leaders strengthens accountability, facilitates mobilization of resources, and promotes culturally responsive education. In settings with limited resources, initiatives from the community tend to offset institutional vulnerabilities-through volunteer instruction, maintenance of

infrastructure, or supervision of children (Bruns & Schneider, 2016). In Bangladesh, there is a wide-ranging variation in levels of involvement across settings and types of schools.

In spite of the Compulsory Primary Education Act (1990) and subsequent policy guidelines that made it obligatory to establish School Management Committees (SMCs) in all schools, effective participation is usually superficial. Alam and Rahman (2021) indicated in their study that SMC meetings rarely take place, decision-making rests with the head teachers, and parental impact on curriculum or pedagogy is minimal. Besides, political patronage and socio-economic inequality often prevent true representation since committee seats are usually distributed based on local connections rather than merits (Khulna University Study, 2024).

Notwithstanding this, there are excellent programs of community engagement. BRAC Education Programme has an impressive approach through the application of local volunteers, parent committees, and adaptive learning systems in order to meet community demands (BRAC, 2022). These efforts show that emphasizing local empowerment and ownership can yield positive learning outcomes, even in contexts of resource shortages. Of especial note is that successful participation hinges on willingness within the community as well as facilitation of leadership and institutional trust (Epstein, 2018). Hence, leadership, teacher development, and community involvement should be considered interdependent factors within a sustainable learning environment.

2.4 Conceptual Framework

This study is grounded in three different theoretical frameworks, which include Transformational Leadership Theory, Social Capital Theory, and the Sustainable Learning Model. The Transformational Leadership Theory (Bass & Avolio, 1994) assumes that leaders inspire and empower followers through the articulation of vision, the promotion of innovation, and provision of individualized support. Transformational leadership in elementary schools has direct ties to attempts to boost teacher motivation and organizational resilience in the face of constraints. Social Capital Theory (Putnam, 1993) emphasizes the significance of trust, norms, and networks in allowing coordinated action to take place. At the schooling level, strong social capital among teachers, administrators, and communities can enable cooperation, distribution of resources, and shared responsibility for learning performance-vital in situations of resource constraint.

The Sustainable Learning Model (Sterling, 2010) broadens the definition of academic achievement to include long-term adaptability, inclusivity, and situational sensitivity, in contrast to short-term measures of performance. The model emphasizes that sustainable learning needs to be systemic coordination between teaching methods, institution management, and the community. Collectively, these theories offer an integrated explanation of how elementary education evolved in resource-poor Bangladeshi settings. Together, these theories hypothesize that sustainability in education is not a matter of resources alone but also depends on relationships, visionary leadership, and social cohesion.

3. Methodology

This study employed a mixed-method research design to investigate the simultaneous effects of leadership styles, teacher professionalisation, and community participation on sustainable learning outcomes in resource-constrained primary schools in Bangladesh. The integration of quantitative and qualitative approaches enabled a comprehensive understanding of both the measurable relationships among variables and the contextual dynamics influencing school sustainability. The design was guided by the pragmatic paradigm, which acknowledges that complex educational phenomena are best understood through the combination of numerical data and participants' lived experiences.

3.1 Research Design and Participants

The study was conducted across ten primary schools selected purposively to represent diverse yet typical under-resourced contexts within Bangladesh's rural and peri-urban settings. The selection criteria included schools with limited material and infrastructural resources but with a history of stable operation under government or community management. Participants consisted of 85 individuals, including 10 head teachers, 55 classroom teachers, and 20

community representatives such as school management committee members and parents. This composition ensured a balanced representation of leadership, teaching, and community perspectives on sustainable learning practices.

3.2 Quantitative Phase

The quantitative component aimed to test the predictive relationships among leadership, teacher professionalisation, community participation, and sustainable learning outcomes. Data were collected through a structured questionnaire comprising validated Likert-scale items adapted from existing educational leadership and school improvement instruments. The variables measured included leadership styles (transformational, instructional, and participative), dimensions of teacher professional development (collaboration, reflective practice, and pedagogical enhancement), and community participation (involvement in decision-making and accountability mechanisms).

Data were analyzed using descriptive and inferential statistics with the aid of SPSS software. Multiple regression analysis was performed to determine the extent to which the three predictors—leadership, teacher professionalisation, and community participation—contributed to variations in sustainable learning outcomes. The quantitative findings indicated that these factors jointly accounted for 62% of the variance in sustainable learning, with teacher professionalisation emerging as the strongest predictor, followed by leadership and community participation respectively.

3.3 Qualitative Phase

To complement the statistical results and deepen understanding of the underlying mechanisms, the study conducted a qualitative inquiry through semi-structured interviews and focus group discussions. Data were collected from a subsample of participants representing all three stakeholder groups. The interviews explored how leadership practices, teacher learning cultures, and community engagement interact to sustain educational quality and student motivation in low-resource contexts.

Qualitative data were transcribed and analyzed thematically following Braun and Clarke's (2006) six-phase framework. Initial codes were generated to identify recurring patterns related to collaboration, trust, shared vision, and agency. Themes such as *relational coherence*, *visionary leadership*, and *community-anchored accountability* emerged as critical enablers of sustainable learning. The qualitative findings validated the quantitative results, reinforcing the importance of interdependent relationships and coherent school cultures in achieving lasting educational impact.

4. Results and Findings

Quantitative and qualitative results gathered through surveys, interviews, and focus group discussions are presented in this chapter. The results are presented systematically under the three major topics of the study: leadership practices, teacher professional development, and community engagement, and the overall contribution to sustainable learning outcomes in low-resourced primary schools.

4.1 Summary of Participants

85 participants took part in this research: 60 teachers, 10 head teachers, and 15 representatives from the community. Of the teachers, 58% were female and 42% male. The average teaching experience was 9.2 years with 70% working in government schools and 30% in NGO-assisted schools. There were classes in most schools with over 45 students, indicating high instructional stress. Internet access for pedagogic use was present only in 20% of schools, and over half had no functional projector or multimedia room.

Quantitative measures indicated Leadership Practices Index (LPI) means 3.72 on a 5-point scale as modest engagement with transformational leadership actions. Vision articulation and teacher support indicators were greatest ($M = 3.94$, $SD = 0.64$), but decision-making delegation was lowest ($M = 3.28$, $SD = 0.77$). Teachers characterized their principals most frequently as "inspiring but constrained by bureaucratic pressures."

Regression analysis uncovered that teacher motivation ($\beta = .46$, $p < .001$) and sustainable learning outcomes ($\beta = .33$, $p = .003$) are influenced substantially by leadership behavior. Those schools whose head teachers engaged in collaborative planning, frequent feedback meetings, and shared goal-setting observed high mean levels of active engagement among the teaching staff. These were supported by qualitative evidence. The better schools emphasized

the importance of a "collective vision" and "shared problem-solving," whereas the poor schools emphasized administrative compliance in the first place. A Kurigram teacher reported:

Our headmaster promotes changing classes according to student needs instead of sticking strictly to the book. It has a very positive impact on poor students. Conversely, there were complaints from some teachers about top-down approach management. One Gazipur teacher said,

"We are hardly ever asked to offer suggestions in activity planning." Most of the decisions are issued from upazila headquarters rather than our school.

These results suggest that leadership autonomy plays a critical contribution to teacher motivation and innovation on the school level.

Table 1. Sample Demographics

Variable	Category	Frequency	Percentage (%)
School Type	Government	6	60
	NGO-Managed	3	30
	Community-Based	1	10
Gender of Teachers	Male	25	45
	Female	30	55
Teaching Experience	< 5 years	15	27
	5–10 years	20	36
	>10 years	20	36
Professional Development Training (Past 2 Years)	Yes	40	73
	No	15	27

4.2 Educator Professional Development

A Review of a Teacher Development Index (TDI) showed a 3.48 mean score on average, corresponding to moderate levels of access to professional development possibilities. In-service had been visited less than two times during the past year by merely 32% of teachers. Most (65%) found the training they attended "theoretical and repetitive," having no relevance to the classroom.

A Pearson correlation indicated a positive and significant correlation between teacher development and sustainable learning ($r = .61, p < .001$), verifying that more effectively trained teachers observed greater student motivation and learning retention. Teachers participating in peer observation or collaborative planning ranked significantly higher on motivation and sustainability indices.

Qualitative data supplemented this information. Teachers repeatedly stressed the requirement for contextually relevant, practice-oriented training. As one teacher described:

"We receive training generally in terms of policy updates or record-keeping. We require hands-on training in teaching mixed-ability classes with minimal resources."

One of the long-standing problems was a lack of continuous mentoring. Those teachers who were consistently mentored or visited by resource persons felt more assured about implementing innovative practices. One Sunamganj school principal said:

"If teachers are made to feel secure and valued, they begin innovating on their own. New gadgets are not always necessary-trusting and feedback alone can do."

Statistical comparison between groups showed that NGO-supported schools recorded significantly greater TDI scores ($M = 3.92$) than government schools ($M = 3.34$; $t = 2.87$, $p = .006$), attributable to greater institutional support and teacher networks.

Table 2. Descriptive Statistics of Key Variables

Variable	Mean	SD	Minimum	Maximum
Leadership Effectiveness Score	3.82	0.64	2.4	4.8
Teacher Professional Development Index	3.75	0.58	2.6	4.7
Community Engagement Index	3.69	0.63	2.3	4.8
Sustainable Learning Outcome (Student Achievement Proxy)	3.88	0.67	2.5	4.9

4.3 Community Involvement

Community participation also developed as an integral but uneven aspect in the schools. The Community Engagement Index (CEI) averaged 3.15, indicating weak to moderate participation overall. While 85% of the schools possessed an effective School Management Committee (SMC), only a marginal 40% indicated regular meetings and active decision-making. The correlation study revealed a strong positive association between school-community relationships and long-term learning results ($r = .43$, $p = .002$), that is, higher school-community relationships have beneficial effects on learning environments. Effective School Management Committees in schools were associated with lower absenteeism and more parental support for home schooling.

Qualitative interviewing showed stark differences. Parents gave monetarily and also in terms of volunteering themselves for class maintenance and post-class activities in the higher-performing schools. A headmaster from Gazipur described:

"We have maternal groups that check attendance and hygiene." It helps ensure pupil stability and fosters parental engagement."

Schools with weaker community bases were characterized by low engagement above and beyond required meetings. A parent from Kurigram confessed:

"We are being asked to sign papers, but not to discuss things concerning the education or the progress of our children."

This contradiction highlights that participation has to be more than mere representation-true participation requires trust, mutual accountability, and earnest conversation.

4.4 Integrated Predictive Analysis

A multiple regression model with predictors of teacher development, leadership, and community engagement predicted 62% of the variance in sustainable learning ($R^2 = .62$, $F(3,81) = 44.1$, $p < .001$).

Relative weights of predictors were:

Teacher Development ($\beta = 0.47$, $p < 0.001$)

Leadership Practices ($\beta = 0.31$, $p = 0.004$)

Community Engagement ($\beta = 0.24$, $p = 0.011$)

This is evidence that teacher development has most immediate impact on sustainable learning, followed by leadership and community involvement. Triangulation qualitative found that leadership impacts outcomes indirectly through enhancing effective teacher development and a participative community culture.

4.5 Comparative Educational Profiles

Schools were also categorized into high-performing ($n = 4$), moderate-performing ($n = 3$), and low-performing ($n = 3$) clusters according to composite ratings of sustainability in an effort to capture institutional variation.

Academic Cohort Average Leadership Index Average TPD Index Average Community Engagement Average Sustainability

Exceptional Performance 4.08 3.95 3.72 4.12 Moderate 3.61 3.41 3.19 3.55 Low-Performing 3.22, 2.89, 2.68, 2.91

High-performing schools demonstrated synergistic inter-linkages across the three dimensions. They possessed active headteachers, structured mentoring arrangements, and two-way communication between parents and school. Low-performing schools, however, demonstrated weak communication channels, occasional training, and little parental involvement.

4.6 Qualitative Thematic Synthesis

Three superordinate themes were derived from qualitative analysis:

- Leadership as a Catalyst for Teacher Autonomy: Effective head teachers created trusting cultures that promoted innovation and shared responsibility. Their teachers were empowered with a "sense of ownership" of school improvement targets.
- Collaborative Professional Development: Teachers who participated in peer observation and shared lesson planning documented greater resilience and responsiveness. Professional development was framed "a collaborative effort rather than a mandated requirement."
- Community Collaboration as Social Capital: Community mobilization instills shared interest in the school's success and taps resources from the community and underscores the importance of education, particularly of girls.

These principles emphasize that synergistic learning results from relational synergy rather than from individual interventions. Leadership builds teaching capacity, which builds community trust-fueling a self-environmental enhancement cycle.

4.7 Synopsis of Findings

The findings as a whole indicate that environmentally sustainable change of Bangladesh's low-resource primary schools is dependent on three interacting variables:

- Visionary, empowered leadership.
- Sustained, context-relevant development of teachers; and
- Genuine, inclusive community engagement.

Quantitative study defined statistical significance, whereas qualitative findings exhibited the interactive dynamics of these variables to foster strong learning environments within resource limitations.

5. Discussion

The findings of this research offer insightful critiques of the interrelated impacts of leadership, teachers' professional growth, and community engagement on the longevity of students' learning in under-resourced primary schools of Bangladesh. The findings are that the three dimensions do not operate in isolation but represent a triumvirate of support that propels school improvement, especially under conditions of systemic inadequacy, material scarcity, and policy centralization. This essay discusses the implications of these findings within the framework of current literature and theory and compares them with the Bangladesh educational context.

5.1 Leadership as the Change Catalyst

Quantitative analyses showed that leadership behavior was a significant predictor of both teacher motivation and student learning outcomes over the longer term ($\beta = .33$, $p = .003$), consistent with international research on the powerful role of school leadership as a lever for change in low SES settings. This fits the transformational leadership theory of Leithwood and Jantzi (2008), which highlights the need for building shared vision, individual growth, and reorganization as a way of building collective efficacy and creativeness. In the Bangladesh context, head teachers who engaged in participative decision-making, mentoring, and goal-sharing performed more effectively to build staff commitment where there was no provision of resources.

Qualitative evidence sheds light on the relationship aspect of leadership. Principals who fostered collegiality, trust, and moral purpose were most likely to build teacher agency and innovation, according to the ideals of distributed leadership (Spillane, 2006). Schools under hierarchical or compliance-driven management could not retain pedagogy enhancement. This study demonstrates an enduring paradox of Bangladesh education policy: that policy documents universalize decentralization, but de facto decision-making power continues to be restricted at the school level. Head teachers thus necessarily have to balance their administrative pressures and their educational ambitions.

Statistics have shown that granting school leaders more freedom of operation and leadership training, particularly in people management, can transformally develop the morale of teachers and the quality of teaching. Leadership in situations of scarcity is more of an adaptive ability to deal with constraints and galvanize collective purpose than an authority position.

5.2 Teacher Professional Development: The Pillar of Pedagogical Sustainability

The most powerful in predicting long-term learning was teacher professional development (TPD) ($\beta = .47, p < .001$). This echoes international agreement that teacher development is central to education quality, especially where teaching is resourced-thin and physical infrastructure is of poor quality (Darling-Hammond et al., 2017). This study revealed that the teachers who engaged in mentoring, peer planning, or reflective lesson planning illustrated more engagement, flexibility, and confidence in meeting the needs of diverse learners.

And yet the evidence also bears witness to system-wide limitations in Bangladesh's existing TPD system. Respondents across the entire range commented that training sessions were excessively theoretical, top-down, and out of touch with the pragmatics of multigrade teaching, linguistic diversity, and resource limitations. This is consistent with Rahman et al. (2019), who maintain that traditional training methods in South Asia have a tendency to reproduce dependency instead of enabling teachers to function as autonomous professionals. The difference between episodic training and continuous professional learning is key here. Schools that employed collaborative strategies—such as peer observation and problem-solving in common—demonstrated greater long-term classroom behavior change. This is the characteristic of professional learning communities (Stoll et al., 2006), where collective inquiry and peer accountability replace workshop models designed to ensure compliance.

The NGO-supported learning sites' better performance on the TPD measure ($M = 3.92$ vs. $M = 3.34$) demonstrates how focused support and network of mentors can break through institutional constraints. Opportunities for experiential learning are most often arranged by non-government organizations, which also mentor in-situ, bridging the gap between training and implementation in actual practice. Scaling up low-cost, localized models of such mentorship in public learning sites may be one feasible route to institutional transformation.

Hence, TPD discourse must move away from how many training sessions are offered to their quality, coherence, and contextual appropriateness. Teacher development, when integrated into the school's social life and coupled with leadership and community systems, is a powerful lever for sustainability.

5.3 Community Engagement: The Indispensable Ingredient in Sustainable Learning

Whereas leadership and TPD attracted more substantial statistical evidence, community involvement was an important but under-researched strand of sustainable education. The Community Engagement Index averages 3.15, and the infrequent active SMC meeting shows schools to be generally out of touch with the communities they serve. Despite this, where there was high engagement, it was possible to illustrate improvements in pupil attendance, motivation, and parental involvement with home learning.

This binary is duplicated in wider rural Bangladesh sociocultural issues, wherein parental illiteracy, economic insecurity, and social norms circumscribe active engagement in school decision-making. Qualitative observations from high-achieving schools, however, demonstrate that, even within poor communities, social capital may be mobilized through collective and trust-based processes. When parents were meaningfully involved—rather than being nominal signatories—they became education champions and guardians of the school community. This supports Epstein's (2018) framework of school–family–community partnerships, where student success increases when parents are involved in learning and decision-making through schools. This is also reflected in studies in African and Southeast Asian contexts (Bray, 2018; Muringani & Thwala, 2020), which demonstrate that community participation for school ownership increases local innovation and accountability.

In Bangladesh, the task entails more than simple community participation in the guise of reframing it as collective governance and coproduction of school outputs. This will require capacity development for SMC members, open lines of communication, and the mindset of treating parents as coparticipants instead of recipients of policy diktat.

5.4 Interdependence and Systemic Cohesion

This study demonstrates a significant correlation between leadership, TPD, and parental engagement. The regression analysis illustrated that these components collectively explained 62% of the variance in long-term learning improvements. Qualitative examination revealed that each sector strengthens the others: visionary leadership begets teacher development; high-quality teachers reinforce parent trust; and active communities promote accountability, which enables leadership. This emphasis on relationships parallels the systems thinking approach to school reform (Fullan, 2020), in which coherence and alignment are favored over fragmented interventions. The results imply reforms concentrating on infrastructure or curriculum alone, without regard for social and institutional relationships, will not beget sustained improvement.

Furthermore, the study pays attention to contextual adaptation. Low-resourced contexts rely on building indigenous innovation capacities within a situation of limitation, rather than adopting the models of high-income countries. The high-quality schools described in this study confirm that vision in leadership, collaboration among teachers, and community involvement can all collectively nullify resource insufficiency-what Hargreaves (2021) refers to as "capitalizing on human and social resources when material resources are limited."

5.5 Policy and Practice Implications

Policy and practice implications of the findings are numerous. At the policy level, there is a need for greater decentralization of decision-making authorities to schools to provide head teachers with space to manage resources, organize teacher development, and involve communities. Formal structures for mentoring school-level leaders and for peer learning among head teachers need to be included in the government's Primary Education Development Programme (PEDP) as well. For the school organization, incorporating TPD into usual school routines instead of as an external resource add-on would ensure ownership and long-term sustainability. Incorporating coaching and observation into the normal work routine flow with supporting digital or community-based mentoring would fill motivation and capacity gaps most effectively.

At a local level, the creation of open communication spaces, such as community learning forums or mothers' circles, can bridge trust gaps. Formal recognition and support for grass-roots action by organisations can increase local accountability and gender-sensitive participation. The implications are that future research needs to be founded on longitudinal designs in order to measure the development of change in leadership and local engagement and its effect on learning results in the long term. A comparison between districts or government schools and NGO schools may unveil replicable models for scaling up sustainable education.

5.6 Theoretical Considerations

The study adds to educational change theoretical understanding in resource-constrained settings by illustrating that sustainability is as much a social process as it is a material product. Ecological systems theory (Bronfenbrenner, 1979) is validated in education, illustrating the interaction among micro (classroom), meso (school), and exo (school-community and policy) systems cumulatively influencing student outcomes. Moreover, it corroborates the emerging theory of contextual leadership (Bush, 2020), in which effective leadership is asserted through responsiveness to the local constraints rather than by universal managerial dicta. By means of this synthesis of theoretical frameworks, the research situates the Bangladeshi context within the global literature on educational resilience and produces data demonstrating that transformation in marginal contexts can be locally initiated but systemically impactful.

5.7 Summary

This presentation emphasizes that sustainable primary education in resource-scarce Bangladeshi settings depends on the collective effort of leadership, teacher development, and community engagement rather than isolated solutions. Leadership provides the facilitative vision; teacher development makes the vision functional; and community engagement continues it through mutual accountability. On these three pillars of leadership, teacher development,

and community engagement, schools can be revitalized into vibrant learning communities with the potential to provide quality teaching amidst current resource constraints.

6. Conclusion and Recommendations

6.1 Conclusion

This study aimed to investigate the interplay of leadership, teacher development, and community involvement in developing sustainable learning in under-resourced primary schools in Bangladesh. Based on mixed-method data from teachers, school leaders, and community members, the study demonstrates that effective educational transformation is not merely a function of material resources but also of the quality of relationships, shared vision, and institutional coherence of the learning environment.

Three principal conclusions are drawn. Leadership is the catalyst that induces change under constraint. Schools led by head teachers who had shown transformational and participatory leadership behavior-articulating a vision, building teacher autonomy, and encouraging collaborative problem-solving-had demonstrated increased teacher commitment and pupil motivation. Leadership in these schools extended beyond management oversight to encompass moral purpose and adaptive capacity. The findings highlight that effective leadership in resource-poor contexts of Bangladesh emanates from relational influence and flexibility in context rather than bureaucratic power. Second, continuous teacher professional development (TPD) constitutes the educational foundation of school improvement.

Teachers involved in long-term, practice-focused learning showed greater confidence and creativity in responding to varied classroom issues. The study highlights that sporadic seminars or policy-mandated training sessions are inadequate for pedagogical change of substance. Interactive, embedded models of learning-such as peer observation, mentoring, and reflective lesson planning-are effective when they are supported by school leaders who believe in teacher agency. These structures allow teachers to adapt instruction according to actual classroom conditions, leading to long-term improvement in the quality of instruction. Third, community involvement surfaced as both a challenge and an opportunity. While most School Management Committees (SMCs) are inactive or even token, the research uncovered instances where inclusive participation dramatically improved school accountability and students' learning.

Parents and local stakeholders who engaged in dialogue and collective decision-making became champions of education, investing resources along with moral and social capital. This underscores the fact that sustainable learning is a socially co-constructed process, with communities being partners in learning rather than passive onlookers. The interplay among these three domains-community engagements, TPD, and leadership-constitutes the basis of a relational model of educational sustainability. Statistical analysis indicated that collectively they account for over 60% of the variability in sustainable learning outcomes, suggesting their synergistic effect. Leadership facilitates teacher development; teacher capacity builds community trust; and community support builds institutional resilience. Sustainability appears as a systemic result within this relational circle, rather than as a project-based goal. The study ultimately concludes that changing primary education in resource-poor Bangladeshi contexts necessitates a move from input-based change to relationship-based change. Material inputs are necessary; yet, without diffused leadership, empowered teachers, and active communities, such inputs seldom result in significant learning outcomes. The way to lasting education is through the creation of local ownership, contextual fit, and collective responsibility in each school.

6.2 Recommendations

From these findings, a list of actionable recommendations is made to policymakers, education leaders, teacher education institutions, and local stakeholders.

6.2.1. Empower Decentralized and Transformational Leadership

- Enhance head teachers' decision-making authority in school management, teacher development, and community outreach partnerships.
- Initiate framed leadership development programs in transformational and instructional leadership competencies, including vision development, staff inspiration, communication, and inclusive planning.
- Enable peer leadership networks between schools, through which head teachers exchange practice, create responses together, and gain confidence in managing systemic constraints.

- Include leadership evaluation as part of school performance assessment, with a focus on collaborative and ethical aspects instead of administrative compliance.

6.2.2. *Render Continuous, Contextual Teacher Development a Common Practice*

- Shift from centralized, short-term training courses to sustained, school-based professional learning communities (PLCs) that emphasize reflection, peer review, and classroom experimentation.
- Develop mentoring systems in which veteran teachers guide novice teachers through structured observation and collaborative lesson planning.
- Utilize digital microlearning platforms or low-cost mobile-based content to extend the reach to far-flung educators, thereby facilitating equitable access to professional development.
- Establish connections among teacher education institutions and nearby schools such that pre-service and in-service training form a coherent developmental continuum.
- Encourage reward systems that valorize innovative pedagogical practices and collective education successes.

6.2.3. *Reinforce and Reconstruct Community Involvement*

- Reactivate School Management Committees (SMCs) to provide equitable representation to parents, teachers, and community leaders, including women and marginalized communities.
- Empower SMC members by training them in school governance, budgeting, and participatory planning to enable them to be more effective.
- Establish community learning forums-regular interactive sessions for parents, teachers, and students to report progress and collaborate on issues.
- Leverage local cultural and social capital-e.g., engaging religious leaders, local business people, or youth volunteers-to enhance the value attached to education.
- Create community monitoring mechanisms with straightforward, transparent reporting instruments to strengthen responsibility and collaboration.

6.2.4. *Support Systemic Integration and Policy Coherence*

- Integrate leadership development, teacher learning, and community engagement into the Primary Education Development Programme (PEDP) and other relevant national frameworks as integrated reform pillars.
- Encourage coordination among government, non-governmental organizations, and development partners to prevent fragmented action and ensure harmonization in objectives and evaluation.
- Promote research-informed decision-making through school-level action research and dissemination of local innovations via regional education forums.
- Create a national database of best practices that record effective models of school transformation in under-resourced settings.

6.2.5. *Focus on Equity, Resilience, and Sustainability*

- Extend special support to schools in the poorest regions-char districts, coastal belt, and urban slums-through flexible funding and community-based capacity development.
- Prioritize gender equity and diversity in leadership and teacher development programs, thereby empowering women teachers and community members.
- Promote education for sustainability that introduces local environmental, social, and cultural elements into the curriculum, making education relevant to community welfare.
- Develop monitoring practices that assess learning quality, teacher and community involvement, alongside enrollment and completion rates, as measures of sustainable progress.

6.3 *Final Remarks*

The growth of primary education in Bangladesh's resource-poor contexts cannot be realized through the development of infrastructure alone. The system's strongest asset is its human bonds-leaders who inspire, teachers who innovate, and communities that nurture. When these bonds are fostered, even the most resource-poor schools can become havens of hope and innovation. The quest for sustainable learning transcends technical and budgetary difficulties; it

is a moral obligation to collective enablement. The conclusions in this study are a roadmap for policymakers and practitioners to envision elementary education not as a bureaucratic exercise, but as a collective national endeavor based on leadership, learning, and social cohesion.

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