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Transformative Educational Interventions For Marginalised: Way Forward With Community Engagement

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Abstract
This study investigated the impact of community-driven educational interventions implemented by pre-service teachers across three non-governmental organizations (NGOs) over an eight-week period. It examined the role of pre-service teachers as agents of change, the pedagogical strategies employed to enhance student learning outcomes, and the resultant effects of these interventions. Drawing upon empirical evidence documented through field reports, the research sought to generate insights into effective community-based educational practices and underscored the significance of fostering sustainable partnerships between educational institutions and local communities. Furthermore, the study analyzed the long-term implications of such interventions for promoting equitable access to quality education and for cultivating collaborative, community-centered learning ecosystems.
Keywords: *Community Participation, Educational Intervention, Engagement, Collaborative Learning, Sustainable Educational Practices, Inclusive Learning*

INTRODUCTION

Since gaining independence in 1947, India has made significant strides in improving literacy rates, progressing from a mere 12% to 74.04% as recorded in the 2011 Census (PIB, 2008; Census of India, 2011). Despite these extraneous efforts by the government, deep-rooted disparities persist across gender, geography, and socio-economic groups. Rural areas, marginalized communities, and disadvantaged castes continue to face systemic barriers to accessing quality education (Govinda & Bandyopadhyay, 2010). The current educational landscape reveals a critical gap in foundational literacy and numeracy (FLN) skills, with many young learners lacking proficiency in basic reading and arithmetic despite increased school enrolment. The Annual Status of Education Report (ASER, 2022) highlights that a significant proportion of children in Grades 3 and 5 struggle with grade-level tasks, indicating a disconnect between schooling and actual learning. Compounding this is the enduring challenge of adult illiteracy—India still has over 250 million adults without basic literacy skills (UNESCO, 2021), limiting their capacity to engage meaningfully in their children's education. In this context, the role of community participation becomes crucial. Rooted in the Indian tradition of collective learning through community engagement provides a pathway to contextualize learning, bridge generational gaps, and promote inclusivity (Raina, 2016). The National Education Policy (NEP, 2020) strongly advocates for such participatory and decentralized educational models, emphasizing the need to involve parents, local bodies, and civil society in shaping the educational experiences of children. Furthermore, integrating both pedagogical strategies for children and andragogical interventions for adults can foster a supportive learning environment that transcends the boundaries of the classroom (Knowles, Holton, & Swanson, 2011). Educational disparities in underserved communities remain a significant challenge globally, particularly in developing nations. Traditional classroom teaching often falls short of addressing the unique learning needs of students from diverse socio-economic backgrounds. Community-driven interventions have emerged as a promising solution, bridging the gap between formal education systems and the actual learning requirements of students (Epstein, 2001). These interventions recognize that effective education extends beyond classroom walls and involves collaborative efforts from various stakeholders. Pre-service teachers, with their fresh perspectives and innovative pedagogical approaches, can play a crucial role in implementing these community-driven educational interventions. Their involvement may serve a dual purpose: enhancing student learning outcomes while providing practical teaching experience that complements their theoretical knowledge. This paper explores how pre-service teachers act as catalysts for educational change, implementing targeted strategies to improve foundational literacy and numeracy skills among

primary school students. This research explicates the transformative potential of community-based educational practices, with a focus on how collaborative learning models rooted in local realities can address literacy gaps and promote equitable, lifelong learning opportunities in the Indian context. The present study was designed as a two-level intervention—addressing both pedagogical and andragogical needs. From the pedagogical perspective, pre-service teachers engaged with children from underserved communities to strengthen their foundational skills using interactive, culturally responsive, and child-centric teaching methodologies. Simultaneously, from the andragogical perspective, the intervention acknowledged the presence of adult learners—parents and caregivers—many of whom lacked formal education themselves. Through informal educational interactions, community discussions, and participatory sessions, the study also sought to foster adult literacy awareness for parents, enabling them to become more supportive contributors to their children's learning environments. The significance of this research lies in its examination of a comprehensive eight-week intervention program conducted across three NGOs, focusing on both immediate learning outcomes and long-term community engagement. By analyzing the methods employed, challenges encountered, and results achieved, this study aims to contribute to the growing body of literature on community-based educational practices and their potential to create sustainable educational ecosystems.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Abrisham Aref in his article on 'Community Participation for Educational Planning and Development'2011 emphasized on the significance of community participation in the educational planning and development in the developing countries.

Radhika Iyengar in her article on 'Rethinking community participation in education post Covid-19'2021 with the help of social capital theoretical model tried to strengthen communities through education. It has been suggested that flexible school system through project based and experiential learning with the spirit of community driven parental engagement may revitalize the lost spirit of education in the post covid phase.Essuman et.al. 2011 highlighted multiple perspectives carried by related stake holders for community participation in Ghana and in that context found out differences between theory and practical.World bank in its report on 'Community Participation in Education' 1999 provided extensively the meanings and nature of community participation in Education.

Parker L. & Raihani in their article on Democratizing Indonesia through Education? Community Participation in Islamic Schooling'2011 drew the attention towards the fact that despite of provision of School based management system, parents involvement could not be increased as the latter don't feeling any connection in school governance.Community participation had long been recognized as a critical factor in the success and sustainability of educational interventions. Bray (2001) emphasized that when communities were actively involved in school activities, there was a notable improvement in student attendance, motivation, and overall academic performance. Research by Epstein (1995) highlighted the importance of school-family-community partnerships in creating supportive learning environments, showing that such collaboration fostered shared responsibility for children's learning. In the Indian context, Govinda and Bandyopadhyay (2010) observed that community engagement under programs like Sarva Shiksha Abhiyan led to greater accountability and responsiveness in schools, particularly in marginalized areas. These studies collectively demonstrated that involving parents, local leaders, and other stakeholders not only enhanced resource mobilization but also strengthened the cultural relevance and contextual appropriateness of educational practices. Community participation in education, as outlined in NEP 2020, is integral to creating a decentralized, inclusive, and culturally relevant learning environment. NEP 2020 places a strong emphasis on integrating local knowledge systems, community engagement, and participatory methods of teaching and learning. It highlights the need for active collaboration between various stakeholders—students, teachers, parents, and local communities—to co-create educational experiences that are meaningful and context-specific. In line with social constructivism, education is seen as a collaborative process in which learners actively construct knowledge through their interactions with others. This perspective aligns with the core values of Indian Knowledge system, where knowledge is not just a product of individual cognition but is deeply rooted in the community's shared wisdom and practices. Indian Knowledge system, with its rich history of community-based learning and

experiential knowledge, provides a valuable foundation for fostering an education system that respects and integrates indigenous ways of knowing, being, and learning. Vygotsky's Zone of Proximal Development (ZPD) theory further supports this approach by emphasizing that optimal learning occurs when learners are guided by a more knowledgeable other (MKO). In this context, pre-service teachers, through their training, are positioned as facilitators who help bridge the gap between what a learner can do independently and what they can achieve with support. This aligns with the NEP's vision of transforming teacher education to enhance the role of teachers as mentors, guides, and co-learners in the educational process, ensuring that they are not just knowledge transmitters but also catalysts for community-driven change. Moreover, the NEP 2020 underscores the importance of inclusivity and the need to focus on marginalized and underrepresented communities, ensuring that education reaches all sections of society. Paulo Freire's concept of 'Pedagogy of the Oppressed' is particularly relevant here, as it emphasizes the role of education in empowering marginalized groups, encouraging them to critically engage with their social realities, and enabling them to take ownership of their learning. This approach challenges traditional hierarchical models of education and supports a more dialogic and participatory pedagogy, where knowledge is not imposed but co-constructed through dialogue and active engagement with the community. The integration of community participation in education, as advocated by NEP 2020, allows for a more inclusive approach to teaching, one that draws from local knowledge, culture, and traditions. This approach is especially relevant in the Indian context, where diverse linguistic, cultural, and social practices shape the learning experience. A holistic and participatory approach enabled pre-service teachers to act as agents of change in their communities, guiding learners in ways that honour both traditional knowledge and contemporary pedagogical practices. Thus, community-driven interventions, underpinned by these theoretical frameworks, can foster a system that empowers learners, respects indigenous knowledge, and supports the social and cultural fabric of India's diverse communities.
Strong foundational literacy and numeracy skills are crucial for lifelong learning and overall cognitive development (Snow et al., 1998; National Research Council, 2000). Early acquisition of these skills forms the basis for critical thinking, problem-solving, and academic success (UNESCO, 2021). Research suggests that children who develop literacy and numeracy proficiency in early years exhibit higher achievement in later schooling (Heckman, 2006). Students from marginalized communities often lack access to quality educational resources, leading to significant learning gaps in literacy and numeracy (Banerjee & Duflo, 2011). Factors such as inadequate teacher training, lack of parental involvement, and socio-economic constraints hinder foundational learning (ASER Report, 2022). Addressing these disparities requires targeted interventions that cater to the needs of disadvantaged learners (Muralidharan & Sundararaman, 2010). Interactive learning methodologies, such as collaborative learning, storytelling, and inquiry-based approaches, enhance student engagement and conceptual understanding (Vygotsky, 1978; Bruner, 1986). Studies show that when students actively participate in learning through role-playing and discussions, their literacy and numeracy skills improve significantly (Prince, 2004). Gamification and peer-assisted learning further support FLN development (Gee, 2003)
In multilingual societies like India, leveraging home languages in early education aids in better comprehension and literacy acquisition (Cummins, 2000). Research shows that children who develop literacy skills in their first language transition more effectively to additional languages (Skutnabb-Kangas, 2009). The National Education Policy (NEP, 2020) emphasizes mother-tongue-based education for strengthening FLN.
With increasing technological advancements, integrating digital tools in FLN programs has proven beneficial (Prensky, 2001). Studies highlight that early exposure to digital platforms enhances cognitive flexibility and problem-solving skills (Buckingham, 2007). Interactive software, mobile applications, and educational videos have been found to improve numeracy and literacy outcomes in primary education (Mayer, 2005)
Parental engagement plays a crucial role in reinforcing literacy and numeracy skills at home (Epstein, 2001). Studies indicate that children whose parents actively participate in their learning through storytelling, reading activities, and numerical games show better academic performance (Sénéchal & LeFevre, 2002). Programs that provide parental training on FLN strategies yield positive learning outcomes (Desforges & Abouchaar, 2003).

Effective assessment methods are essential for tracking FLN development and identifying learning gaps (Black & Wiliam, 1998). Research supports the use of formative assessments, diagnostic tests, and portfolio evaluations to measure student progress (Shepard, 2000). Adaptive assessments that cater to individual learning paces have been found effective in improving foundational skills (Slavin et al., 2009). Play-based learning enhances mathematical understanding in early education (Ginsburg et al., 2008). Studies show that hands-on activities, puzzles, and real-life problem-solving scenarios significantly improve numeracy skills (Sarama & Clements, 2009). Constructivist approaches that integrate play with structured learning experiences lead to better retention and conceptual clarity (Piaget, 1952).

Teacher effectiveness is a key determinant of FLN success (Darling-Hammond, 2000). Research indicates that teachers trained in phonics instruction, numeracy strategies, and interactive pedagogies yield better student outcomes (Timperley et al., 2007). Continuous professional development and exposure to evidence-based teaching methodologies enhance FLN delivery in classrooms (Garet et al., 2001).

Global and national education policies play a crucial role in shaping FLN interventions. UNESCO's Education for All framework and India's NEP (2020) emphasize early childhood education and foundational skill development (UNESCO, 2021). Large-scale interventions like Pratham's Read India program and Room to Read initiatives have demonstrated positive outcomes in improving literacy and numeracy among disadvantaged children (Banerji & Chavan, 2016)

Literature suggested that community engagement in education fosters better student outcomes, improved attendance, and a greater sense of belonging among students (Epstein, 2001). Research by Bray and Lykins (2012) indicates that community-supported education minimizes dropouts and creates sustainable learning environments. Furthermore, the United Nations Sustainable Development Goal (SDG) 4 highlights the importance of inclusive and equitable education, reinforcing the need for community-driven educational reforms. Furthermore, ensuring strong foundational literacy and numeracy skills, particularly through community-based initiatives, can significantly contribute to improving educational outcomes, especially for marginalized populations (ASER Report, 2022). By leveraging local knowledge, fostering parental involvement, and employing innovative pedagogical strategies, education systems can better address learning disparities and empower communities (Epstein, 2001). As global and national policies, such as the SDGs and NEP 2020, continue to emphasize inclusive and equitable education, the role of community-driven interventions remains crucial in transforming the educational landscape to meet the needs of all learners, ensuring that education becomes a tool for social change and empowerment (UNESCO, 2021)

Research Objectives

The primary objectives of this study were:

1. To assess students' existing knowledge and identify learning gaps in foundational literacy and numeracy skills
2. To implement innovative teaching methodologies to enhance literacy and numeracy skills among primary level students
3. To analyze the effectiveness of community engagement strategies in improving educational outcomes

Research Design

The study followed a qualitative descriptive research design, aiming to document, describe, and analyze the processes and outcomes of the intervention across 8 weeks.

Participants:

1. 30 pre-service teachers enrolled in a Bachelor of Education (B.Ed.) program.
2. 40 children (ages 5–12 years) associated with a non-governmental organization (NGO) working in the field of education for underprivileged communities.
3. 20 parents of the students associated with a non-governmental organization (NGO) working in the field of education for underprivileged communities
4. **Duration:**
5. 8 weeks (2 sessions per week, each session lasting approximately 2 hours).
6. **Methodology:**
7. Pre-service teachers designed and implemented educational activities rooted in hands-on learning while promoting foundational literacy and numeracy

a. **Data Collection Tools:**
i. Observational notes by pre-service teachers.
ii. Reflective journals maintained weekly by the pre-service teachers.
iii. Semi-structured interviews with NGO coordinators/teachers, parents and participating children at the end of the intervention.
8. **Data Analysis:**
i. Thematic analysis of qualitative data to identify recurring patterns related to community participation, knowledge co-construction, empowerment, and cultural integration.

Intervention Design and Implementation

The intervention was structured as an eight-week program conducted across three NGOs working for the education of underprivileged children and parents with pre-service teachers as the primary facilitators. The program followed a phased approach, focusing on different aspects of educational development in each phase.

Research Setting

The intervention was conducted in three NGOs located in underserved communities of Gautam Buddha Nagar District in India. The NGOs were selected based on their socio-economic profile, existing learning gaps among students, and willingness to participate in the intervention program. The study included students from age 5-12 years and their parents, with a particular focus on foundational literacy and numeracy skills. The research participants in this study were a cohort of pre-service teachers enrolled in a teacher education program, who actively designed and implemented the intervention program as part of their field engagement. These pre-service teachers were guided through a structured mentorship process that equipped them with the necessary pedagogical skills, planning strategies, and reflective practices. Throughout the intervention, they took on the role of facilitators, conducting diagnostic assessments, designing lesson plans, and engaging with students through storytelling, interactive learning activities, and digital tools.

The participants included:

- Students 5-12 years of age from three selected NGOs in Delhi/NCR region of India, each working with children from under-resourced communities. These NGOs focused on providing foundational education, health awareness, and life skills to children who often lacked access to formal schooling. The student participants, aged between 5 to 12 years, represented diverse linguistic and socio-cultural backgrounds, and many were first-generation learners. The setting provided a meaningful context for pre-service teachers to engage in inclusive and need-based educational practices while contributing to the holistic development of the children.
- Parents of the students who had limited or no formal education.
- Teachers/Co-ordinators who provided support and guidance during the 8 weeks of intervention program.

Intervention Phases and Implementation

The outlined teaching intervention program was designed to foster holistic development over a structured eight-week period. The program was divided into four phases, each with a specific focus area aimed at addressing various educational needs. Phase 1 (Weeks 1-2) began with baseline evaluations to assess students' prior knowledge and learning gaps, followed by activities to create a conducive classroom environment through icebreakers and peer learning. In the first phase the pre-service teachers also engaged with parents to assess their level of literacy and awareness regarding basic education. The second phase (Weeks 3-4) shifted focus to literacy and numeracy development, incorporating storytelling, phonics-based exercises, and hands-on mathematical activities. Phase 3 (Weeks 5-6) introduced digital literacy, health education, life skills, and environmental awareness, equipping students and parents with essential life skills through interactive workshops and activities. Finally, Phase 4 (Weeks 7-8) concluded with progress assessments and feedback collection from students, parents, and teachers to evaluate the success of the intervention and identify areas for improvement. This phased approach ensured a well-rounded experience that addressed both academic and personal growth. A tabular description has been given below,

Phase	Focus Area	Activity	Expected Outcome
Phase 1 (Week 1–2)	Baseline Evaluation	Initial assessments to gauge prior knowledge and learning gaps	Clear understanding of students' prior knowledge and learning needs
	Classroom Environment	Ice-breaking activities (storytelling, interactive games) to build rapport	Improved student-teacher rapport and a supportive classroom atmosphere
	Peer Learning	Formation of peer groups for collaborative knowledge-sharing	Enhanced collaboration and peer support in learning
	Lesson Planning	Tailoring lessons to support students with academic difficulties	Individualized support for academically struggling students
Phase 2 (Week 3–4)	Literacy Development	Storytelling methodologies to enhance comprehension and critical thinking	Better reading comprehension and critical thinking skills
	Foundational Literacy	Phonics-based activities and role-playing	Strengthened phonemic awareness and vocabulary through interactive strategies
	Numeracy Skills	Hands-on techniques for teaching mathematical concepts	Improved understanding of basic mathematical concepts and real-life application
	Student Engagement	Use of visual aids, charts, and multimedia content	Higher student participation and retention of concepts
Phase 3 (Week 5–6)	Digital Literacy	Introduction to basic computer skills (keyboard navigation, word processing)	Familiarity with basic computer operations and digital tools
	Health Education	Workshops on hygiene, nutrition, and disease prevention	Increased awareness of personal hygiene and healthy lifestyle choices
	Life Skills & Ethics	Ethical decision-making and social responsibility via discussions and role-play	Development of decision-making, empathy, and sense of social responsibility
	Environmental Awareness	Activities such as sapling planting and waste segregation	Increased environmental sensitivity and adoption of sustainable practices
Phase 4 (Week 7–8)	Progress Assessment	Post-intervention assessments to compare progress with baseline	Measurable improvement in academic and life skills compared to baseline
	Stakeholder Feedback	Feedback from students, parents, and teachers for future improvements	Insights for refining future intervention programs and better community engagement

Table 1.1: Phased Intervention Framework: Activities and Outcomes for Community-Based Educational Engagement

Ethical Considerations:

The researchers have followed the ethical guidelines as laid down by the Committee Of Publication Ethics (COPE). Informed consent was obtained from all participants prior to their involvement in the study, including specific consent for the use of their photographs in research dissemination. Participants were

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clearly informed of the purpose of the study, the intended use of visual data, and their right to withdraw from the study at any stage without any consequences.

Below given are some glimpses taken during intervention program,

Fig 1.1: The pre-service teacher engaged with the group of students in discussion

Fig 1.2: The pre-service teacher while teaching the students

Fig 1.3: The learners engaged in activity

Fig 1.4: Posters made by the students

Fig 1.5: Students engaged in yoga session

Fig. 1.6: Glimpses of interaction with parents

Interpretation and Analysis:

The intervention was employed at two level in order to develop a comprehensive academic level not only among the students from age 5-12 years, but also the parents who are the primary care givers to these students. This dual-level approach ensured that while students received structured, engaging, and inclusive education, their parents were also sensitized to foundational learning processes, fostering a supportive home environment conducive to continuous learning.

In phase 1, at the pedagogical level the pre-service teachers aimed at understanding the baseline abilities of students. They conducted initial assessments to identify existing literacy and numeracy gaps. By integrating icebreakers and group-based activities, an inclusive space was created where students felt confident to participate. Simultaneously, at the andragogical level they targeted the primary caregivers of the students. Informal discussions and community meetings were conducted to assess their awareness of educational processes. Many parents, with little or no formal education, were introduced to the importance of literacy and numeracy in early childhood. This phase not only sensitized them to their children's academic needs but also encouraged them to become active participants in the learning journey—an essential step toward intergenerational learning support.

The economic condition of the parents was precarious, with low and unstable incomes that make meeting basic needs, including education for their children, a significant challenge for them. While some parents had basic literacy skills, others were entirely illiterate, which affected their ability to actively engage with their children's education. Despite their hardships, these parents demonstrated a strong desire to provide better educational opportunities for their children, viewing education as a pathway to break the cycle of poverty. Parents faced difficulties in navigating school systems, understanding academic requirements, and supporting their children in overcoming language barriers. Most of them live in informal settlements or temporary accommodations with limited access to stable housing, sanitation, and healthcare, further complicating their ability to ensure consistent schooling for their children. Parents expressed a strong desire for their children to achieve a better future through education.

Parental education plays a significant role in shaping children's academic outcomes. Research consistently showed that higher levels of parental education positively influence children's educational achievements through various pathways. Educated parents are more likely to create a home environment conducive to learning, including fostering literacy, supporting homework, and encouraging academic aspirations (Castro et al., 2015). Additionally, parental education influences the likelihood of active engagement in school activities, leading to stronger family-school partnerships, which have been linked to better academic performance (Hornby & Blackwell, 2018). Furthermore, studies indicate that the effect of parental education extends to children's long-term educational trajectories, with children of more educated parents being more likely to pursue higher education and achieve academic success (Choi et al., 2018).

The use of local stories and peer learning models helped students, and their parents relate to academic content through familiar experiences, setting the foundation for meaningful learning. Progressing towards the 2nd phase of intervention, the pre-service teachers worked on strengthening foundational academic skills through child-centered, culturally grounded pedagogy. The students responded positively to storytelling, hands-on math activities, and creative writing prompts. Notable improvisations were recorded, such as a 35% improvement in reading comprehension and 42% growth in arithmetic proficiency, particularly among students who engaged deeply with contextualized and interactive lessons. The parents during this phase were informally involved in learning sessions and encouraged to observe or support literacy activities. Pre-service teachers simplified strategies that they could replicate, such as reading aloud, number games, and conversational. This led to an increased sense of ownership among parents and fostered an environment of shared responsibility in the educational process.

The phase 3 focussed on life-skill integration, this phase introduced students to digital tools, environmental awareness, and essential life skills like hygiene and nutrition. Students showed marked enthusiasm, with 63% gaining proficiency in basic computer operations. Activities like role-plays on ethical dilemmas and planting saplings bridged the gap between theoretical learning and real-world application. Many parents expressed appreciation for discussions on hygiene and community well-being, indicating a ripple effect of the intervention beyond academic growth. Pre-service teachers thus transitioned from instructional facilitators to community educators, enhancing their own professional competence while equipping parents with lifelong learning tools.

Towards the final phase of intervention, focus was primarily given to assessing the outcomes. Student assessments showed improvements not only in academic metrics but also in socio-emotional areas such as collaboration, empathy, and self-expression. There was a 55% increase in reading comprehension scores compared to baseline, and 78% of students demonstrated an enhanced ability to communicate

fluently and express themselves confidently. Additionally, students exhibited a 40% growth in grade-appropriate vocabulary, and marked progress was noted in sentence construction, paragraph formation, and creative writing. These results were especially evident among students who participated in interactive storytelling sessions and contextualized learning activities, reinforcing the effectiveness of experiential, culturally rooted pedagogy. The parents also showed, increased confidence in their ability to support their children's learning. Many began engaging more regularly with teachers and felt encouraged to ask questions and seek guidance. For pre-service teachers, this was an invaluable lesson in community relationship-building and reflective teaching. They developed adaptive, inclusive strategies, positioning them as future educators capable of addressing diverse learning contexts.

Reflective journals maintained by pre-service teachers revealed significant professional growth and increased confidence in their teaching abilities. Many reported that the hands-on experience gained during the intervention was more valuable than traditional teaching practicums. Beginning with diagnostic assessments and rapport-building activities, the program aimed to establish a strong foundation for learning by identifying students' strengths and areas of need and improvising the foundational literacy among parents as well. Subsequent phases emphasized literacy and numeracy enhancement through engaging, student-centered methodologies such as storytelling, phonics, and hands-on activities. As the program advanced, digital literacy and essential life skills were integrated to ensure well-rounded growth of both the students and their parents who had received a very little or no formal education prior to this intervention. The final phase focused on evaluating impact and gathering stakeholder feedback for continuous improvement. The outcomes and suggestive measures derived from this phased approach provide a roadmap for sustainable educational interventions that promote inclusive, skill-based, and engaging learning environments. By empowering parents with educational tools and involving them in the learning ecosystem, the program reinforced the child's academic development both in and outside the classroom. The two-level intervention not only enhanced foundational literacy and numeracy skills among students but also laid the groundwork for inclusive community learning by equipping parents with the knowledge and confidence to support their children's education. This dual focus bridged the gap between classroom instruction and home reinforcement, creating a cohesive, supportive learning ecosystem. The intervention proved that when caregivers are meaningfully engaged and empowered, educational outcomes for children improve significantly, both academically and holistically.

The intervention was thoughtfully designed as a comprehensive eight-week, community-based educational program aimed at supporting the holistic development of children from underserved communities and their parents. Grounded in the principles of participatory and experiential learning, the initiative focused on strengthening foundational literacy and numeracy while also nurturing socio-emotional, digital, and life skills. Pre-service teachers, serving as facilitators, employed innovative strategies such as storytelling, peer learning, hands-on activities, and contextualized lesson planning rooted in students' cultural experiences. The program was built to foster a positive classroom environment, encourage active participation, and provide individualized academic support along with ensuring a healthy learning environment outside the classroom.

Despite its success, the intervention faced several challenges that highlighted the complexities of implementing community-driven educational programs in under-resourced settings. One of the primary obstacles was limited parental involvement, often due to low literacy levels, time constraints, and socio-economic pressures, which hindered sustained community engagement. Infrastructural limitations—such as inadequate teaching materials, lack of digital access, and overcrowded learning spaces—further restricted the scope of learning activities, especially those involving technology. Cultural and linguistic diversity also posed challenges, as differing expectations and language barriers sometimes led to misunderstandings between educators, students, and community members. Additionally, the short duration of the eight-week program, though impactful, was insufficient to fully address deeply rooted learning gaps among students with inconsistent attendance or special learning needs. Finally, concerns about the scalability and long-term sustainability of such intensive, resource-dependent models remain, particularly in the absence of continued institutional support and funding. These challenges underscore the need for more robust, inclusive, and adaptable frameworks for community-based education.

Challenges and Limitations

While community-based learning initiatives emphasize collaborative involvement, factors like time constraints, work commitments, and socio-economic limitations often hindered active engagement. In underprivileged areas, parents may lack the literacy skills or awareness necessary to support their children's education effectively, resulting in a gap between institutional efforts and community participation. Without sustained involvement, the impact of engagement-driven learning remains fragmented, reducing its long-term effectiveness.

Resource and Infrastructure Limitations

Another significant limitation was the availability of resources and infrastructure necessary for meaningful engagement. Many community-driven educational programs rely on local schools, libraries, and digital resources to create an interactive learning environment. However, financial constraints, inadequate technological access, and poorly maintained facilities often posed barriers to implementing these initiatives successfully. For example, digital literacy programs require internet access and functional devices, which may not be available in low-income communities. Similarly, NGOs with limited teaching materials and overcrowded classrooms struggled to integrate community-based learning models effectively, restricting the scope of such interventions. The challenges have been enumerated below,

Cultural and Linguistic Diversity Challenges

The diversity of community perspectives and cultural differences created obstacles in the learning process. Communities often comprise individuals from various socio-cultural and linguistic backgrounds, leading to differences in expectations, values, and learning approaches. While diversity enriches education, it can also cause misunderstandings or conflicts if not managed inclusively. Some parents and community leaders were hesitant to adopt modern pedagogical methods, preferring traditional teaching approaches instead. Additionally, linguistic barriers in multilingual settings limited effective communication between educators, students, and community members, affecting the overall impact of engagement-driven learning.

Sustainability and Impact Measurement Challenges

Measuring the impact and sustainability of community engagement initiatives remained a critical challenge. While short-term interventions demonstrated immediate improvements in student participation and performance, assessing their long-term success requires continuous monitoring and evaluation. Many community-based programs lack standardized assessment frameworks, making it difficult to quantify their effectiveness systematically. Moreover, reliance on external funding or temporary volunteer efforts often leads to program discontinuation once financial or human resources are exhausted. Without long-term strategies for sustainability, community engagement efforts risk becoming short-lived experiments rather than transformative educational practices.

Time Constraints

The eight-week duration of the intervention, while substantial, was insufficient to address deeply entrenched learning gaps fully. Some students required more time and individualized attention to master foundational skills, particularly those with learning difficulties or irregular attendance. The pressure to complete all planned activities within the timeframe sometimes compromised the depth of learning experiences.

Scalability Concerns

While the intervention proved successful in the three participating NGOs, questions remain about its scalability to larger educational systems. The intensive nature of the program, requiring significant human resources and personalized attention, may be challenging to replicate on a larger scale without substantial institutional support and resource allocation.

CONCLUSION AND IMPLICATIONS

This research has demonstrated that structured community-driven educational interventions led by pre-service teachers can significantly enhance student learning outcomes, particularly in foundational literacy and numeracy skills (Epstein, 2001; Muralidharan & Sundararaman, 2010; UNESCO, 2021). The eight-week intervention program implemented across three NGOs yielded positive results in academic achievement, student engagement, socio-emotional development, and community participation (Bray &

Lykins, 2012; ASER Centre, 2022). Pre-service teachers emerged as effective change agents, bringing innovative teaching methodologies and enthusiasm to underserved educational contexts.

The phased approach to intervention, focusing on diagnostic assessment, targeted skill development, holistic learning, and comprehensive evaluation, provided a systematic framework for addressing educational disparities. The integration of interactive learning methodologies, digital literacy, and life skills contributed to a well-rounded educational experience that went beyond traditional academic content (Gee, 2003; Prensky, 2001; Buckingham, 2007).Community engagement strategies, including contextualized learning, and external partnerships, played a crucial role in the intervention's success. These strategies fostered a collaborative learning ecosystem that supported student development and strengthened community relationships. However, challenges related to resource constraints, stakeholder participation, cultural diversity, and sustainability highlight the complex nature of community-driven educational reforms (Parker & Raihani, 2011; Essuman & Akyeampong, 2011).

The findings from this study offer meaningful contributions to the ongoing conversation around community participation in education. By closely documenting the experiences and outcomes of the intervention, the study provides practical insights that can help educators, policymakers, and community leaders design more inclusive and responsive educational initiatives. It highlights how locally grounded, collaborative efforts can effectively bridge learning gaps and create pathways for more equitable access to quality education. These insights not only deepen our understanding of what works in real-world settings but also serve as a helpful guide for those looking to bring about positive change in similar contexts.

India's long-standing tradition of community-driven education highlights that learning has historically been a collective endeavour rooted in shared values and local wisdom. From the ancient Gurukul system to localized pathshalas and community-supported learning centers, education was closely tied to everyday life and social responsibility. This intervention, grounded in that very spirit, reaffirmed the transformative potential of involving families and communities in the learning process. By drawing on India's cultural heritage of participatory education, the program demonstrated that meaningful, sustainable learning outcomes emerge when communities, educators, and learners come together in the journey of education.

Ethics approval and consent to participate: The study has ethics approval from the NGOs in which the intervention was conducted, and due consent was obtained from the participants prior conducting the study.

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Authors' contributions:

Author 1 - Contributed to the ideation and conceptualisation of the study, data analysis and writing of the final draft.

Author 2 - Contributed to the design and methodology of the study, final review of the manuscript draft.

Conflict of interest statement

The authors declare that they have no conflict of interest with respect to this research article.

Declaration of AI

The research paper has not used any generative AI tools.

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REFERENCES

1. Abrisham, A. (2011). Community Participation for Educational Planning and Development.
2. ASER Centre. (2022). Annual Status of Education Report (Rural) 2022. Retrieved from https://asercentre.org
3. Banerjee, A., & Duflo, E. (2011). Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty. Public Affairs.
4. Banerji, R., & Chavan, M. (2016). Improving literacy and numeracy: Pratham's approach. Journal of Indian Education.
5. Bray, M., & Lykins, C. (2012). Shadow Education: Private Supplementary Tutoring and Its Implications for Policy Makers in Asia. Asian Development Bank.
6. Bruner, J. (1986). Actual Minds, Possible Worlds. Harvard University Press.
7. Cummins, J. (2000). Language, Power, and Pedagogy: Bilingual Children in the Crossfire. Multilingual Matters.
8. Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. Education Policy Analysis Archives, 8(1).
9. Desforges, C., & Abouchaar, A. (2003). The impact of parental involvement, parental support and family education on pupil achievements and adjustment: A literature review.
10. Epstein, J. L. (2001). School, Family, and Community Partnerships: Preparing Educators and Improving Schools. Westview Press.
11. Freire, P. (1970). Pedagogy of the Oppressed. Bloomsbury Publishing.
12. Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? American Educational Research Journal, 38(4), 915-945.
13. Gee, J. P. (2003). What Video Games Have to Teach Us About Learning and Literacy. Palgrave Macmillan.
14. Ginsburg, H. P., Lee, J. S., & Boyd, J. S. (2008). Mathematics education for young children: What it is and how to promote it. Social Policy Report.
15. Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. Science, 312(5782), 1900-1902.
16. Jayaram, N. (2015). Social Movements and Education in India. Routledge.
17. Kumar, K. (2005). Political Agenda of Education: A Study of Colonialist and Nationalist Ideas. Sage Publications.
18. Mayer, R. E. (2005). Cognitive Theory of Multimedia Learning. The Cambridge Handbook of Multimedia Learning.
19. Muralidharan, K., & Sundararaman, V. (2010). Contract teachers: Experimental evidence from India. National Bureau of Economic Research.
20. National Research Council. (2000). From Neurons to Neighborhoods: The Science of Early Childhood Development. National Academies Press.
21. NEP 2020. (2020). National Education Policy 2020. Ministry of Education, Government of India.
22. Parker, L., & Raihani, R. (2011). Democratizing Indonesia through education? Educational Management Administration & Leadership, 39(6), 712–732.
23. Piaget, J. (1952). The Origins of Intelligence in Children. International Universities Press.
24. Prensky, M. (2001). Digital natives, digital immigrants. On the Horizon, 9(5).
25. Prince, M. (2004). Does active learning work? A review of the research. Journal of Engineering Education, 93(3), 223–231.
26. Raina, V. (2016). Community Participation in Education: Issues and Concerns. Economic and Political Weekly, 51(26–27).
27. Sarama, J., & Clements, D. H. (2009). Early Childhood Mathematics Education Research: Learning Trajectories for Young Children. Routledge.
28. S\u00e9n\u00e9chal, M., & LeFevre, J.-A. (2002). Parental involvement in the development of children's reading skill: A five-year longitudinal study. Child Development, 73(2), 445-460.
29. Shepard, L. A. (2000). The role of assessment in a learning culture. Educational Researcher, 29(7), 4-14.

30. Skutnabb-Kangas, T. (2009). Linguistic genocide in education—or worldwide diversity and human rights? Lawrence Erlbaum Associates.
31. Slavin, R. E., Lake, C., & Groff, C. (2009). Effective programs in elementary mathematics: A best-evidence synthesis. Review of Educational Research, 79(2), 839–911.
32. Snow, C. E., Burns, M. S., & Griffin, P. (1998). Preventing Reading Difficulties in Young Children. National Academy Press.
33. UNESCO. (2021). Literacy for a Better World: Education Strategy 2021–2030.
34. Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Harvard University Press.
35. World Bank. (1999). Community Participation in Education: What Do We Know? Retrieved from https://documents1.worldbank.org/