

The Impact of Poverty in the Implementation of Play-Based Pedagogy in Early Childhood Education in Mutare Rural

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Abstract

Purpose	: This qualitative study investigates how poverty impacts the implementation of play-based pedagogy (PBP) in Early Childhood Education (ECE) centres in Mutare Rural, Zimbabwe. While PBP is globally recommended as a developmentally appropriate practice, its feasibility in low-resource, rural contexts remains critically under-researched. This study addresses this gap by examining the specific barriers poverty creates, the adaptive strategies educators employ and how socio-economic deprivation shapes the nature of children's learning.
Methodology	: Data were collected through semi-structured interviews with 5 ECE educators, focus group discussions with 20 caregivers and systematic observations across ten purposively selected ECE centres. Thematic analysis revealed that poverty fundamentally reconfigures PBP from a child-centred, exploratory ideal into a practice of 'survivalist adaptation'.
Results	: Key findings show that severe material scarcity and infrastructural deficits create 'pedagogical deserts,' while chronic child hunger directly impairs the cognitive energy necessary for engagement. In response, ECE educators engage in exhausting, unsupported labour, improvising with local materials and indigenous games in a process of 'innovation by desperation.'
Conclusions	: The study concludes that poverty does not merely weaken PBP but actively produces an alternative, constrained pedagogy. It argues for an integrated policy response that combines material support, context-specific teacher training in low-resource PBP and the formal curricular integration of indigenous play practices to foster sustainable and equitable early learning.

Keywords: play-based pedagogy, early childhood education, poverty, socio-economic barriers, rural environments, educator adaptation.

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1. Introduction

This article examines different ways in which poverty affects the implementation of Play-Based Pedagogy (PBP) within Early Childhood Education (ECE) environments in low resource settings in Sub-Sahara Africa. The study was contextualised to ECE environments in Mutare Rural, Zimbabwe. We contend that in this context, diverse perspectives exist, regarding how poverty influences ECE curriculum implementation, offering different lenses through which PBP is viewed and implemented. ECE represents the most consequential phase in the lifespan of a human being, for establishing the neural architecture, socio-emotional competencies, physical abilities and cognitive foundations that underpin lifelong health, learning and behaviour (Shonkoff & Phillips, 2000). Within this critical window for human development, the pedagogical approach adopted for early learners is not merely a matter of educator preference, but a fundamental determinant of a child's developmental trajectory. Globally, PBP has been enshrined as a gold-standard for developmentally appropriate practice (DAP) for young children (National Association for the Education of Young Children, 2020). Constructivists agree that young children learn best, not through passive reception, but through active, playful, joyful and social exploration of their immediate environment, where physical play serves and the primary and central vehicle for knowledge construction (Vygotsky, 1978; Piaget, 1952). Empirical evidence from ECE studies links high-quality PBP with enhanced executive functions,

language development, creativity, problem-solving skills and pro-social behaviours - outcomes that are directly predict later academic achievement and socio-economic integration (Madondo & Tsikira, 2021, Whitebread & Basilio, 2017).

The international endorsement of PBP is predicated on a set of implicit environmental and resources assumptions: the availability of diverse, stimulating materials, safe and adequate space, low child-to-educator ratios and educators who are not only trained in facilitation, but also possess the professional agency and morale to engage in responsive and child-centred practice (Fleer & Edwards, 2018). In high-income areas, these assumptions often form the baseline for sustainable education. Critically, for significant proportion of the world's children, particularly in low-and middle-income economies or rural-poverty-stricken regions, this baseline remains a distant reality. In this context, the noble ideals of PBP collide with the stark, multi-dimensional constraints of socio-economic deprivation. This misalignment raises urgent questions regarding equity and feasibility, challenging the very nature of pedagogical implementation when the foundational supports for a prescribed 'best practice' are systematically absent.

Poverty is not only understood as a lack of income but as a complex, interlocking web of intersecting deprivations that fundamentally reconfigures the ecology of early learning (Engle et al., 2018; Sen, 1999). The impact of poverty in the implementation of ECE programmes is multidimensional. For instance, improper physical infrastructure and material scarcity result in 'empty classrooms,' without books, puzzles, blocks and art supplies, forcing ECE educators into a constant cycle of survivalist improvisation (Serpell & Mashburn, 2017).

Furthermore, Abuya, et al., (2016) and Grantham-McGregor et al., (2007) believe that biological deprivation, manifesting as chronic hunger and malnutrition directly impairs young children's cognitive readiness, attention spans and physical energy, which are essential requirements for engaged play. On a systematic level, poverty is reflected in under-qualified and overwhelmed staff, overcrowded classrooms that turn free play into a safety hazard and curricula that are often misaligned with local realities and resources (Gove & Wetterberg, 2018). Poverty also shapes sociocultural perceptions in communities battling for subsistence, where play can be misconstrued as unproductive idleness. In such context, parents and educators may prioritise formal, didactic instruction, often perceived as a more direct route to future economic security (Rao & Sun, 2015).

The confluence of these factors suggests that the implementation of PBP in contexts of pervasive poverty is not simply a weaker version of an ideal in ECE settings, but it is rather a qualitatively different practice, a form of constrained pedagogy where the core ECE principles of child-centredness, child-directed and exploratory learning are inevitably mediated, diluted or transformed by the imperative of managing resource scarcity. In practice, the vibrant, messy, resource-rich playroom of pedagogical theory becomes a space of controlled, simplified and often adult-directed activity, heavily reliant on the unsustainable emotional and creative labour of the educator. This practice has profound implications for equity in ECE environments. If PBP is a key driver of school readiness and its implementation is fundamentally compromised for young children in poverty, ECE systems risk perpetuating and exacerbating the very inequalities they seek to redress in education (Rao & Sun, 2015).

Socio-economic deprivation exerts intense and cumulative effects on young children's developmental trajectories in low-income rural settings in developing nations (Mahadew, 2024; Engle et al., 2011). Poverty is a complex issue that operates through a composite, interlocking web of mechanisms that affect the ecosystem of ECE programmes. It functions as a multidimensional stressor that undermines material provision, caregiver well-being and the broader psychosocial climate that supports early learning, thereby increasing the risk of delays in cognitive, social, physical and emotional development that usually persist into primary schooling and beyond (World Bank, 2017; Grantham-McGregor et al., 2017). According to Engle et al., (2018), poverty is a syndemic of disruptor of the developmental cascade, where economic hardship limits access to basic and nutritious food, good shelter, quality healthcare and stimulating materials for basic education, thereby directly impeding neurological development and school readiness among young children.

Evidence from developing countries, especially in Sub-Saharan African rural contexts show that the effects of poverty are difficult to reverse without targeted, high-quality interventions that effectively address both developmental and structural barriers (Martinez et al., 2017; World Bank, 2017). This idea is further expanded by Grantham-McGregor et al., (2017) whose longitudinal work in low-income countries shows that young children experiencing poverty are exposed to chronic under-stimulation and psychosocial stress, leading to measurable deficits in executive function, language acquisition and socio-emotional regulation that usually persist into adulthood.

In everyday classroom practice, the manifestations of poverty are persistent and visible, where some ECE learners come to school in empty stomachs, tired from walking long distances and preoccupied with basic survival issues, which undermines attention, memory and the cognitive energy required in play-based tasks and learning in general (Mahadew, 2024; Ogunyemi & Ragpot, 2015). Shortage of basic learning and play materials including books, writing tools, manipulatives and structured toys create a context of pedagogical austerity in which educators are forced to improvise with limited or no institutional support. Overcrowded classrooms and unfavorable teacher-learner ratios further constrain the possibility of individualised scaffolding that could help mitigate early disadvantage, particularly for children experiencing significant developmental delays due to poverty (Ogunyemi, 2020; World Bank, 2017). Neurocognitive studies confirm that hunger lowers blood glucose levels, reducing the brain's capacity for attention, working memory and the cognitive flexibility required for playful exploration and problem-solving (Abuya et al., 2016).

This convergence of hunger, resource scarcity and structural inadequacy sets a number of ECE learners on a trajectory of cumulative educational risk, where barriers to engagement and achievement emerge long before formal schooling begins. In some Zimbabwean rural communities, these dynamics are intensified by chronic infrastructural deficits, under-resourced schools and fragile social services, with children frequently entering ECE centres already disadvantaged in terms of health, stimulation and school readiness.

Play-based learning, grounded in constructivist and sociocultural theories, emerges in African Rural context, not as a peripheral enrichment activity, but as a critical developmental and compensatory intervention within contexts of entrenched poverty (ECDAN, 2024; Whitebread & Basilio, 2017). Through play, ECE children are able to make sense of their world, explore social roles, test physical limits, and develop emotional literacy and processes that are central to holistic early development. High-quality, freely chosen and adult-supported play has the ability to strengthen executive functions such as working memory, inhibitory control, cognitive flexibility and problem-solving, which are stronger predictors of later academic achievement than early mastery of literacy or numeracy routines (Yoshikawa et al., 2013; Whitebread & Basilio, 2017). In poverty-affected communities (Zimbabwe included), where children often start school with pronounced developmental gaps, these executive functions are vulnerable yet also highly liable to change and responsive to well-designed play experiences (J-PAL, 2025; Building Brains, 2020).

Within low-resource environments in a number of areas in Zimbabwe Rural, play-based pedagogy acquires a distinct compensatory function, where it can provide the cognitive challenge, social negotiation and symbolic representation that may be limited at home due to economic stress, caregiver 'time-poverty' or constrained living conditions (Mahadew, 2024; World Bank, 2017). Strategically designed play, both structured and open-ended, offers low-cost, high-impact opportunities for active learning, peer collaboration and the exploration of real-life scenarios in a safe and imaginative space (BRAC, 2024; Fleeer & Edwards, 2018). Evidence from rural African interventions indicates that play-centred curricula can enhance school readiness, socio-emotional competence and subsequent enrolments and persistence in primary schooling, even where material resources are minimal (IPA, 2024; Martinez et al., 2017). In such settings, play operates as an equalizing platform, that is, a child from a low-income household can engage in complex socio-dramatic or constructive play using locally available and recycled materials, developing narrative, numeracy and cooperation skills comparable to those of more affluent peers.

This compensatory potential, however, depends on how play-based pedagogy is implemented under conditions of poverty. The teacher's role shifts from didactic transmitter of knowledge to skilled facilitator, observer and co-constructor of knowledge, deliberately curating environments, posing open-ended questions and extending children's thinking capacity (Whitebread & Basilio, 2017; Fler & Edwards, 2018). In Zimbabwe Rural context, where access to commercial toys and printed materials is limited, effective play-based practice requires creative use of abundant local resources natural objects, household items and indigenous games to integrate physical, cognitive, social and emotional learning within single activities (ERIC, 2024; Ogunyemi & Ragpot, 2015). For instance, a traditional game can simultaneously develop fine motor skills, counting and symmetry, negotiation of rules and pride in cultural heritage, thereby addressing multiple developmental domains in one low-cost task. For this reason, advocating for play-based pedagogy in Mutare Rural is effectively an advocacy for a cost-effective, scalable and contextually grounded pedagogy that can help bridge poverty-related readiness gaps by building the very suite skills such as creativity, collaboration, persistence and self-regulation that underpin lifelong learning and adaptability (PAL, 2025; Yoshikawa et al., 2013).

The effectiveness of play-based pedagogy in African rural context is shaped by culture, since children's development and learning are embedded in local values, practices and everyday realities rather than occurring in a neutral space (Mahadew, 2024; Siraj-Blatchford et al., 2016). Current African ECD scholarship shows that culturally responsive pedagogy strengthens identity formation, social competence and intrinsic motivation by affirming children's languages, histories and community practices within the classroom (Muchandiona et al., 2025; Ogunyemi, 2020; Prochner, 2014). In rural Zimbabwean communities around Mutare, cultural resources such as Shona oral storytelling, proverbs, traditional songs, riddles, seasonal festivals and children's games like *nhodo* and *chihwerure* constitute a sophisticated indigenous educational system that can be harnessed within play-based learning (Nyota & Mapara, 2008; Ogunyemi & Ragpot, 2015). These practices are not just for entertainment purposes but also serve as vehicles for transmitting ethical values, historical knowledge, ecological understanding, linguistic complexity and mathematical concepts such as sequencing, patterning, counting and operations. When well integrated into classroom practice, culturally grounded play activities can support numeracy, language development, problem-solving and cooperation, while at the same time sustaining communal values and (IKS) indigenous knowledge systems (Ogunyemi, 2020; Siraj-Blatchford et al., 2016).

In poverty-stricken communities, where imported materials and commercial toys are often financially out of reach, traditional games and role-plays linked to farming, market activities or communal work offer low-cost yet high-impact pedagogical opportunities (Fox-Turnbull, 2018; Ogunyemi & Ragpot, 2015; Prochner, 2014). Fler and Edwards (2018) second that culturally adapted play achieves its power by aligning pedagogical activities with children's 'funds of knowledge,' making abstract concepts tangible and personally meaningful. For instance, a play sequence based on the stages of planting and harvesting maize can authentically teach cyclical time, cause-and-effect relationships and collective responsibility, while nurturing pride in local livelihoods and heritage. Studies across the continent suggest that when traditional play is thoughtfully aligned with contemporary curricular goals, it can optimise multiple domains of ECE, particularly in low-resource settings like Zimbabwe Rural (Ogunyemi, 2020; Siraj-Blatchford et al., 2016). In such circumstances, culture thus becomes not a background variable but a central resource for designing meaningful play-based pedagogy that compensates for material scarcity by leveraging the richness of local social and symbolic systems.

The potential of culture to enhance play-based learning is often undermined by the marginalisation or superficial treatment of local practices within formal ECE programmes (Mahadew, 2024; Siraj-Blatchford et al., 2016). Urban-centric derived curricula may relegate indigenous songs, stories and games to occasional '*cultural day*' events instead of weaving them into the daily fabric of teaching and learning, resulting in a disconnect between children's home experiences and school-based activities. In Mutare Rural, designing effective play-based

pedagogy requires substantive collaboration with parents, elders, religious groups and community leaders to ensure that activities are both developmentally appropriate and culturally resonant (Muchandiona et al., 2025; Ogunyemi, 2020; Nyota & Mapara, 2008). When play interventions are co-designed with cultural humility, that actively involve community knowledge-holders, gain legitimacy, fostering community ownership and are more likely to be sustained beyond external project cycles. Culturally grounded play performs an affirmation function by sensitising children that their home languages, traditions, beliefs and family practices are valued within formal schooling. This is central in strengthening the home-school connection and countering narratives of marginalisation (Siraj-Blatchford et al., 2016; Prochner, 2014). The impact of play-based interventions in settings such as Mutare Rural is thus contingent not only on developmental appropriateness but equally on the depth of cultural resonance and the intervention's capacity to act as a bridge between the child's world and the world of the school.

Despite the growing international consensus in favour of play-based pedagogies in ECE, there remains a notable gap of empirical and context-specific studies on how poverty shapes the implementation of this approach to education in rural, low-resource Zimbabwean settings, such as Mutare Rural. According to Mahadew (2024), and Whitebread and Basilio (2017), most of the studies in play-based pedagogy in ECE environments originate from high-income, urban contexts where schools benefit from relatively favourable teacher-child ratios, stable funding and abundant material resources, conditions that differ from rural contexts. For the question at hand, play-based models developed elsewhere often require substantial adaptation to be feasible and effective in local settings characterised by overcrowded classrooms, chronic shortages of basic materials and high levels of child poverty like Mutare Rural. In particular, there is a scarcity of research that systematically explores how indigenous games, songs and narratives can be harnessed as no-cost play resources within formal ECD programmes to mitigate poverty-related developmental risks (Nyota & Mapara, 2008; Siraj-Blatchford et al., 2016). Many existing intervention studies treat 'culture' as a background variable rather than a central design principle, leading to the adoption of generic, sometimes donor-driven play-based curricula that insufficiently reflect local realities.

Mutare Rural District in Zimbabwe presents a poignant study area for exploring how poverty impacts the implementation of PBP in ECE environments. Zimbabwe's ECE sector, while enshrined in policy, grapples with the legacy of economic instability, underfunding and the exodus of skilled personnel to greener pastures. Mutare Rural is disproportionately affected, facing acute challenges of infrastructure decay, limited access to teaching and learning resources and high levels of household poverty that impact child welfare (UNICEF Zimbabwe, 2022). While the Zimbabwean curriculum framework advocates for child-centred - play-based approaches in ECE (Ministry of Primary and Secondary Education, 2015), the gap between policy intent and classroom reality in such settings is vast and consequential. Understanding the specific mechanisms through which poverty impedes PBP in Mutare Rural is therefore not an academic exercise but a necessity towards envisioning more feasible, contextually relevant, sustainable and equitable ECE pedagogies.

Empirical studies done prior to this provide a strong foundation on the benefits of PBP and the broad-brush challenges of poverty in education. However, a notable educational gap remains evident especially on context-specific studies that move beyond cataloguing resource deficits to explore how poverty actively reshapes pedagogical processes, educator agency and child engagement. There is a shortage of situated research that explore the potential of culturally relevant play, the leveraging of indigenous games, stories and locally available materials, as an adaptive, asset-based strategy within these constraints (Fleer, 2015; Nsamenang, 2008). It is against this background that the current study explores the impact of poverty in the implementation of PBP in ECE environments in Mutare Rural, Zimbabwe. To find answers to the problem at hand, the study is structured and guided by the research questions below: What are the specific environmental and material barriers that constrain the implementation of PBP as a result of poverty in ECE environments? How do ECE educators

adapt their pedagogical strategies of play in response to poverty? To what extent does poverty determine the nature and quality of ECE learners' engagement in PBP?

2. Methodology

2.1 Materials and Methods

This study employed an interpretivism paradigm coursing a qualitative, multi-method approach and phenomenological design to gain an in-depth understanding of how poverty shapes the implementation of PBP in Mutare Rural, Zimbabwe. A qualitative approach was deemed most appropriate as it facilitates a deep exploration of complex social phenomena, subjective experiences and contextual realities that cannot be quantified (Denzin & Lincoln, 2018; Merriam & Tisdell, 2016). Phenomenological design was used to understand how individuals make meaning out of lived realities, focusing on the subjective interpretations by ECE educators and caregivers. This design, used across ten purposively selected ECE centres was inline with the study's aim which was to move beyond grouping deficits to explore how poverty actively reshapes pedagogical processes, educator agency and learner engagement in ECE environments (Smith et al., 2022; Bak, 2020).

2.2. Participants

Participants were purposively sampled to capture the key perspectives within the ECE environments in Mutare Rural. The researchers engaged five ECE educators who happen to be lead teachers from the participating centres. These educators were qualified practitioners with a minimum of four years of direct experience in the rural teaching context to ensure they had substantive experience to reflect upon. We held two focus group discussions (FDGs) with 20 caregivers from the participating community, where one male and one female caregiver were selected. This sample aimed for diversity in gender and socio-economic circumstance to gather a range of community viewpoints. Systematic, non-participant classroom observations were also conducted across all the ten centres, encompassing the learning environments of the three to six-year-old children. Purposive sampling of centres aimed at representing variation in infrastructure quality and remoteness, as recommended by the District Education Office, to capture a spectrum of experiences within Mutare Rural.

2.3. Data collection

To explore our research questions fully, we collected data using three complementary instruments over a period of three months (September - November 2024) to ensure methodological triangulation and depth (Creswell & Creswell, 2022; Bak, 2020; Flick, 2018; Clack & Moss, 2017). First, in-depth semi-structured interviews were conducted with five ECE educators on face-to-face encounters. These interviews, lasting 30-50 minutes and conducted in English, utilised a guide exploring lived experiences of implementing PBP, the specific material and environmental barriers they faced, their adaptive pedagogical strategies and their perceptions of how poverty affect the well-being of a child and influences his / her engagement. Semi-structured interviews are valued in qualitative research for their flexibility, allowing for exploration of pre-determined topics while remaining open to participants' unique narratives (Phillippi & Lauderdale, 2018; Brinkmann & Kvale, 2015). Secondly, two FDGs, each with ten (five males and five females), were conducted in Shona at community ward centres which are central and accessible venues. The discussion guide prompted conversations on perceptions of play versus formal learning, observations of their children's school engagement linked to home circumstances and views on integrating local cultural games into ECE curriculum. Chiromo (2009) argues that FDGs are effective for generating data through interacting with the participants, revealing shared cultural norms and diverse perspectives on a collective experience. Finally, systematic classroom observations were conducted comprising two observation sessions of 20-30 minutes per educator, during lessons. The observation protocol which was crafted and followed, focused on documenting the physical environment and resource availability, educator pedagogical strategies and the use of play-based interactions during lessons, the nature and quality of children's engagement, and instances of culturally-

grounded and improvised play activities. Creswell and Poth (2018) believe that observations provide a crucial, direct account of practice that complements and contextualises self-reported data from interviews and FDGs.

2.4. Ethical considerations

This study was conducted under the guiding principles of research which are respect for humanity, beneficence and justice, adhering to ethical protocols for studies involving human participants. Prior to data collection, ethical clearance was obtained from the Midlands State University Research Ethics Committee (MSU-REC-08-2024) and official approvals were secured from the Ministry of Primary and Secondary Education of Zimbabwe and Education District Office responsible for Mutare Rural Primary Schools. Written informed consent was obtained from all educators and caregivers who were engaged, after a thorough explanation of the study's purpose, procedures, risks, benefits and their rights. Consent forms and information sheets were provided in both English and Shona to ensure full comprehension by all the participants. For classroom observations, institutional consent was obtained from the School Head and the participating educator, while a general notice was sent to all parents of the ECE learners informing them of the nature of the non-intrusive observations. The principles of anonymity and confidentiality were also maintained where all participants and centres were assigned pseudonyms and all digital recordings and transcriptions were stored securely on strong password-protected devices. We designed the entire research process in a way that minimised disruption and avoid harm. Given the study's focus on the sensitive issues of poverty and deprivation, questions were crafted with care and participants were continually reminded of their right to withdraw at any stage whenever they feel that they are no longer comfortable to continue in the study, without consequence. The researcher looked for information about available local support services and engaged them to provide referrals in the event that the research discussions inadvertently caused distress (Orb et al., 2001).

2.5. Data analysis

Thematic analysis was employed to analyse the qualitative dataset, following the systematic phases as outlined by Braun and Clarke (2006). This process involved both inductive (data-driven) and deductive (theory-informed) approaches to ensure that the findings were grounded in the data while engaging with existing body of knowledge. All interview and FDG transcriptions, alongside detailed observational field notes, were transcribed and imported into NVivo 12 software for management. The analysis began with repeated reading for familiarisation. Initial coding was then done, deductively informed by key constructs from the literature review, such as '*resource scarcity*,' '*educator adaptation*' and '*socio-cultural perception of play*,' while remaining openly inductive to capture emergent concepts like '*improvisation with natural objects*' or '*play as a classroom management*.' These codes were then collated and iteratively reviewed to identify broader, meaningful patterns and candidate themes. Themes were refined through a recursive process of checking against the coded extracts and the entire dataset to ensure they accurately and comprehensively represented the data. The final thematic framework directly addressed the study's research questions.

The principle of triangulation was also applied during data analysis by comparing the contrasting findings from the three distinct data sources (interviews, FDGs and observations). This process allowed for the corroboration of evidence, provided a more comprehensive and multi-faceted understanding of each theme and enhanced the validity and trustworthiness of the conclusions drawn (Flick, 2018, Carter et al., 2014; Chiromo, 2009). The reporting of the analysis was supported by anonymised quotations and observational excerpts to provide an evidence-rich account of the impact of poverty on PBP in ECE environments.

3. Results

This study reveals the complex ways in which socio-economic deprivation reconfigures the very foundation and practice of PBP in low-resource contexts of ECE environments in Mutare Rural. Through thematic analysis of triangulated data, comprising in-depth educator

interviews, FDGs and classroom observations, a stark portrait emerges of a pedagogical ideal perpetually mediated by the imperatives of scarcity. The implementation of PBP is not just weakened but qualitatively transformed into a practice of survivalist adaptation, where the core principles of child-centredness, exploration and joyful learning are systematically constrained. The findings are organised into themes that detail the specific environmental and material barriers, elucidate educator adaptations and expose how poverty determines the nature of child engagement.

3.1. Material scarcity and the morphology of constrained play spaces

The most pervasive and immediate impact of poverty on PBP is the severe depletion of material and environmental resources, which fundamentally alters the morphology, the form and structure of the learning environment. Observations across all ten ECE centres consistently documented classrooms characterised by a tangible emptiness, devoid of the diverse, stimulating materials that underpin high-quality PBP. The absence of commercial manipulatives, construction blocks, puzzles, art supplies and books was not an exception but the norm, creating what educators repeatedly termed a *'pedagogical desert.'* This scarcity directly dictates the scope and quality of play possible in ECE environments.

Educator 1 from School Maroon confidentiality said,

'The theory speaks of creating a rich play environment for ECE learners. Ours, is an environment of lack. You cannot facilitate exploratory block play when you have six blocks for sixty learners in a class. Play becomes a rationed activity and a turn-taking exercise in frustration rather than creative and enjoyable exercise, due to resource scarcity.'

This material deprivation extends critically to infrastructure, imposing severe limitations on safe play spaces. In many ECE environments, such as Crimson Primary and Violet Primary, the designated outdoor area was either non-existent, treacherously uneven or occupied by broken and hazardous equipment. This physical constraint forces a spatial compression of play. Overcrowded classrooms, with child-to-educator ratios frequently exceeding 40:1, transform the supervision of active, free-flowing play into a logistical and safety impossibility. Educator 2 from Indigo Primary described the necessary shift by saying,

'Active play becomes a threat to order and safety, so we curtail it. Play must be quiet, seated and contained. We move from building to building, running and pretending to colouring within pre-drawn lines and reciting rhymes in unison.'

The vibrant, messy, resource-rich playroom of pedagogical theory is thus systematically reconfigured into a space of controlled, simplified and adult-directed activity. This infrastructural deficit not only limits physical development but also erodes the very conditions for the risk-taking, large-motor exploration and peer negotiation that are central to socio-emotional growth through play.

The implications of this scarcity are further compounded by a chronic shortage of basic sustenance. The intersection of material and biological deprivation was a cross-cutting finding. ECE educators across all centres reported that a significant proportion of ECE learners arrive at school having had no breakfast, a reality confirmed in FDGs with caregivers. This chronic hunger has a direct neurocognitive impact, observable in the classroom. ECE learners were frequently lethargic, exhibited diminished attention spans and lacked the physical vigour necessary for engaged play. Caregiver Baobab, a parent at School Amber, explained,

'How can a child whose stomach is singing songs of hunger be expected to sing, play and dance? Their minds are fixed on one thing only, which is the need for food.'

ECE Educator 3 from Teal Primary highlighted that,

'You see it in their eyes- glassy distance. The energy for exploratory and complex building is the first thing to go. They may hold an object, but the imaginative spark, "the what if"'

is absent. The fuel for play is food and we are sending them to run and play on empty stomach.'

The biological deprivation directly impairs executive functions like working memory, inhibitory control and cognitive flexibility, which are precisely the skills PBP aims to strengthen, thereby creating a complex paradox.

3.2. Educator demoralisation and the labour of survivalist adaptation

Poverty's impact permeates the human core of the desire to play. A professional demoralisation emerged, stemming from a syndemic of systemic failures. ECE educators expressed a deep sense of being overwhelmed and under-equipped. They reported a glaring absence of specialised training on implementing PBP in low-resource contexts, leaving them with theoretical knowledge ill-suited to their material reality. This was exacerbated by feelings of professional isolation and a perceived lack of institutional support. Low morale closely linked to poor remuneration and devaluation of the status-quo of teachers, further eroded their professional agency. Educator 1 from Maroon Primary indicated that,

'We are handed a curriculum that assumes resources we do not have and then evaluated by the standards we cannot meet. We are set up for failure before we even start teaching. The passion to create playful experiences is slowly crushed under the weight of impossible expectations and empty shelves.'

In response to this multi-layered crisis, ECE educators engage in a continuous, exhausting labour of survivalist adaptation. The data reveals that PBP in this context is not a diluted version of the global ideal but a distinct, contingent pedagogy born of necessity. This adaptive practice relies heavily on the unsustainable emotional and create labour for individual educators. The most common adaptive strategy observed was the extensive duration and use of locally-sourced, non-commercial materials. ECE educators demonstrated remarkable ingenuity in transforming natural objects (stones, seeds, clay and leaves) and discarded household items (bottle caps, cardboard and plastic containers) into pedagogical tools. At Emerald Primary, Educator 4 facilitated a complex sorting and patterning activity using a collection of differently coloured and sized seeds.

Furthermore, a significant adaptive strategy involved the deliberate, though often informal, integration of indigenous play practices. Educator 5 at Sapphire Primary regularly wove traditional games like *nhodo* 'a counting game' and *chihwerure* into the daily schedule, using them to teach numeracy, turn-taking and sequencing. Storytelling sessions rich with proverbs and songs became vehicles for language development and cultural transmission. However, for these practices were frequently described not as a proactive pedagogical choice but as a necessary improvisation.

From Sapphire Primary, Educator 5, explained that,

'Games that we inherited as our cultural heritage from our forefathers are free of charge to use. On our part, this is not creativity by design, but it is forced innovation by desperation. The mental toll of constantly inventing from nothing is immense.'

This constant improvisation, while a testament to resilience, is precarious and hinges entirely on individual educator motivation and cultural knowledge, with no systemic support for its development and sustainability.

3.3. Reconceptualised play: From child-centred exploration to managed scarcity

The confluence of material scarcity, educator constraint and child deprivation fundamentally reconceptualises the purpose and experience of play within ECE environments in Mutare Rural. The data indicate marked shifts from PBP as a child-centred, exploratory process to a practice primarily focused on managing scarcity and maintaining basic order. Caregiver perceptions, as shown by FDGs, further shape this reconceptualisation. In communities grappling with subsistence, play is often viewed through a utilitarian lens. Some caregivers like Mrs Jacaranda and Mr Mopane expressed scepticism, prioritising visible, formal academic instruction as a more direct investment in future economic security. Mr Mopane said,

'I want to see my child writing letters, numbers and speaking in English, not playing with mud. Soap is expensive to wash for a child to go to school to play. Do we pay fees for someone to go school and play, that is not fair. Play is for home, if there is time. School is for work work that will lift children out of this life of poverty.'

This external socio-cultural pressure influences pedagogical practice, pushing educators to align play activities with narrowly defined, academically legible outcomes to demonstrate tangible 'learning' to parents and administrators.

As a result, learner engagement in play is often heavily mediated by adult directives aimed at achieving specific, pre-determined objectives. Observations frequently documented play sessions that were highly structured, short in duration and focused on rote learning disguised as play, such as chanting number songs while pointing to drawn objects. The spontaneous, child-directed and extended play episodes that characterise effective PBP were rare. The child's agency as the director of their own learning is systematically curtailed by the imperative of managing large numbers with inadequate resources. Educator 2 from Indigo Primary summarised this transformation saying,

'Our children's play is not free, but a managed activity. It has a strict start and end time, clear and at times rigid rules to prevent chaos and a goal I must be able to name and report on. The 'play' in our play-based learning is the smallest part of it.'

What emerges from this constrained ecology is a qualitatively different practice, one that this study terms 'pedagogical bricolage.' Educators in Mutare Rural are compelled to construct learning experiences from whatever materials at hand, repurposing fragments and remnants to create functional, if makeshift, pedagogical moments. They use stones for counting, bottle caps for sorting, leaves for art activities, and traditional games for fostering collaboration and numeracy. This is not a diluted version of the play-based ideal, but a distinct practice born of necessity, a make-do pedagogy assembled from available resources.

Within this practice of pedagogical bricolage, the study identified critical nodes of resilience and potential agency, primarily located in culturally-grounded practices. In moments where indigenous games and narratives were employed not as a last resort but with intentionality, a different quality of engagement was observed. ECE learners participating in a collaborative role-play based on a traditional folktale at Azure Primary, exhibited high levels of verbal engagement, cooperative problem-solving and joyful expression. At Emerald Primary, Educator 4 facilitated a complex sorting and patterning activity using a collection of differently coloured and sized seeds, observing that learners remained engaged for extended periods, negotiating rules and helping one another. These episodes demonstrate that culturally-grounded practices, when deployed with pedagogical intentionality rather than mere desperation, can generate authentic, child-centred play despite the scarcity of modern play materials.

However, these episodes remained fragile and exceptional across all ten centres. They were contingent on the specific cultural competency and expended effort of an individual educator, unsupported by curricular frameworks, resource allocation or professional development. At most centres, the use of indigenous games was described by educators not as a proactive pedagogical choice but as a necessary improvisation. Educator 1 from Maroon Primary explained,

'Games that we inherited as our cultural heritage from our forefathers are free of charge to use. On our part, this is not creativity by design, but it is forced innovation by desperation. The mental toll of constantly inventing from nothing is immense.'

Educator 5 from Sapphire Primary seconded,

'We follow our grandparents' games not only because they are free but also because children's faces light up when they recognise something from home being appreciated at school. But there is no training on this, no guidance on how to connect these games to the curriculum we are supposed to cover. We do it alone and we hope it is enough.'

The bricolage, while ingenious, remains precarious, sustained by individual educator motivation and cultural knowledge rather than institutional scaffolding. At Indigo Primary, where the educator possessed deep knowledge of local storytelling traditions, learners engaged in rich narrative play that extended over multiple days. At nearby Crimson Primary, where the educator lacked such knowledge and expressed feeling '*too exhausted to invent*,' play remained confined to highly structured, teacher-directed routines with minimal learner agency. This variability across centres underscores the fragility of practices that depend entirely on individual capacity.

The study thus found that poverty does not only create barriers to implementing PBP but actively produces an alternative pedagogical reality. In Mutare Rural, PBP is reconstituted as a practice of pedagogical bricolage, '*a make-do approach*' where educators painfully assemble practice from the materials of cultural heritage and sheer perseverance, all while striving to meet the basic developmental needs of learners navigating the harsh realities of socio-economic deprivation. This reconceptualisation of play from child-centred exploration to managed activity assembled from available fragments, represents the core finding of this study regarding how poverty fundamentally transforms the nature and purpose of PBP in ECE environments.

4. Discussion

From the study findings, it emerged that poverty does not only constrain PBP but fundamentally reconfigures its very ontology, transforming it from a child-centred, resource-rich ideal into a distinct practice of survivalist adaptation. This discussion interprets these findings through existing literature on poverty, pedagogy and culturally responsive education, while explicitly revisiting the constructivist and sociocultural theories that framed this study, those of Piaget (1952) and Vygotsky (1978), to examine how the findings complicate, confirm, or extend these foundational positions.

4.1. Material scarcity and the transformation of the pedagogical environment

The study's foremost finding is that severe material and infrastructural scarcity fundamentally alter the morphology of the learning environment. The observed pedagogical desert aligns with Sen's (1999) conceptualisation of poverty as capability deprivation, where resource absence curtails the freedom to achieve valued functionings. This scarcity creates what Serpell and Mashburn (2017) term '*pedagogical austerity*,' forcing a shift from expansive play to controlled, sedentary activities (Gove & Wetterberg, 2018; World Bank, 2017). The spatial compression of play due to overcrowding and unsafe infrastructure undermines conditions for risk-taking and peer negotiation essential for socio-emotional growth (Blaise, 2005; Davies & Banks, 1992).

This finding complicates Piaget's (1952) constructivist theory, which posits that children actively construct knowledge through manipulating their environment. Piaget emphasised hands-on engagement with objects for cognitive development. In Mutare Rural, however, the environment itself is depleted. When Educator 1 describes play becoming a turn-taking exercise in frustration, we witness the systematic undermining of conditions Piaget identified play as necessary for learning through action. The theory's implicit assumption of material adequacy is exposed as a luxury, which, poor children cannot access.

The intersection of material deprivation with chronic child hunger presents a devastating synergy. Reported lethargy and diminished attention spans align with evidence that hunger impairs executive functions like working memory and cognitive flexibility (Abuya et al., 2016; Grantham-McGregor et al., 2007). This biological deprivation creates a profound paradox: the very cognitive skills PBP aims to strengthen are undermined by conditions that necessitate this compensatory pedagogy (Engle et al., 2018; Ogunyemi & Ragpot, 2015).

This finding extends Vygotsky's (1978) sociocultural theory, which emphasised learning through social interaction within a zone of proximal development (ZPD). The findings reveal that hunger fundamentally impairs children's capacity to engage in the collaborative, socially mediated play Vygotsky theorised. When Educator 3 observes the imaginative spark is absent, we see that the biological self cannot access social learning. This suggests Vygotsky's theory

under the material-biological conditions that must be satisfied before social learning can occur. In poverty contexts, survival needs precede and condition the mind's capacity for social engagement, adding a crucial materialist dimension to sociocultural theory.

4.2. Pedagogical bricolage: The practice of constrained pedagogy

The concept of pedagogical bricolage emerges as the study's key theoretical contribution, capturing how poverty reconstitutes PBP. Central is the recognition that pedagogical bricolage is not merely creative adaptation but a survivalist practice born of desperation, sustained by unsustainable individual labour and rendered fragile by absent systemic support.

4.3. Contextualising pedagogical bricolage

The term bricolage derives from Lévi-Strauss' (1966) distinction between the engineer, who designs specialised tools within abundance, and the bricoleur, who works with fragments salvaged from the environment, inventively repurposing available materials. This framing maps precisely onto Mutare Rural educators. Unlike well-resourced counterparts, they are pedagogical bricoleurs, constructing learning from stones, seeds, bottle caps, and traditional games like *nhodo* and *chihwerure*. Crucially, this bricolage is not proactive pedagogical choice but survivalist adaptation imposed by systemic deprivation.

This finding significantly complicates both Piagetian and Vygotskian frameworks. Piaget's constructivism assumes children learn through specially designed materials. Yet children at Emerald Primary engaged deeply with seed-sorting, suggesting what matters is not commercial origin but affordances for manipulation. This extends Piagetian theory by demonstrating the object for cognitive construction can be culturally and locally sourced, challenging its implicit, consumerist assumptions.

Similarly, Vygotsky's emphasis on cultural tools gains new dimensions. Indigenous games like *nhodo* embed mathematical concepts and social rules within culturally meaningful activities, precisely the cultural tools Vygotsky theorised. However, their deployment through innovation by desperation, unsupported and unrecognised, complicates the picture. Vygotsky's theory assumes systematic transmission within stable cultural practices. In Mutare Rural, this transmission is fragile, contingent on individual educator knowledge, revealing the theory undertheorises institutional conditions necessary for systematic pedagogical deployment.

4.4. Survivalist adaptation and educator demoralisation

Feelings of being set up for failure echo findings on systemic deprivation where educators grapple with curricula misaligned with local realities (Gove & Wetterberg, 2018; Rao & Sun, 2015). This creates the implementation paradox: where the most demanding contexts receive least institutional support while held to same standards as well-resourced settings. Lack of context-specific training creates a theory-practice divide, leaving educators with ideals ill-suited to material reality (Fleer & Edwards, 2018; Whitebread & Basilio, 2017).

This finding speaks directly to Vygotsky's ZPD. The findings suggest educators themselves operate within a professional ZPD, they know theoretical ideals but cannot achieve them without systemic scaffolding. When Educator 2 describes impossible expectations and empty shelves, we witness a system demanding performance beyond what it enables. This extends Vygotskian theory by applying its core insight to educators, revealing professional development, like child development, requires adequate scaffolding. Its absence means educators cannot, in turn, provide effective scaffolding for learners.

In response, educators engage in survivalist adaptation, using natural objects and indigenous games, aligning with asset-based approaches leveraging local resources and IKS (Siraj-Blatchford et al., 2016; Fleer, 2015; Nsamenang, 2008). However, a critical insight is that this bricolage is borne of innovation by desperation rather than systemic design. Importantly, the bricoleur in Lévi-Strauss' formulation operates within a cultural system that values their practice. The educator-bricoleur in Mutare Rural operates within a system that ignores and fails to support their effort.

4.5. The unsustainable labour of pedagogical bricolage

This constant improvisation places unsustainable emotional and creative labour on educators, unrecognised by institutional structures. Resilience is individual and fragile, hinging on personal motivation rather than systemic scaffolding. This mirrors global findings: Haddad and Marques (2022) documented how teachers' creative adaptations in Brazil remain unrecognised, leading to burnout. Santos (2021) defines this as epistemicide, the slow destruction of knowledge systems through institutional neglect. Sumsion (2005) documented how unsustainable workloads lead to professional erosion. The variability documented, where rich culturally-grounded play occurred at some sites while others remained confined to rote routines, reflects the lottery of teacher quality in systems failing to provide adequate support (Haddad & Marques, 2022).

4.6. Pedagogical bricolage as tactic, not strategy

de Certeau's (1984) distinction between strategies and tactics provides analytical purchase. Strategies are top-down institutional operations; tactics are creative actions of individuals operating within spaces which are not theirs. Educators employ tactics of making do within a system providing neither material resources nor professional support that the official curriculum strategy assumes. Their use of indigenous games and natural objects represents tactical manoeuvres within a constraining environment, acts of resilience sustained by individual effort rather than systemic support. The precarity inherent in tactics is evident in the fragility of culturally-grounded play episodes documented at Azure and Emerald Schools.

4.7. The paradox of asset-based approaches in scarcity of resources

The alignment of pedagogical bricolage with asset-based approaches presents a paradox. On one hand, educators' use of natural objects and indigenous games demonstrates pedagogical potential of local resources. Seed-sorting at Emerald Primary and collaborative role-play at Azure Primary provide evidence that culturally-grounded practices can generate high-quality learning despite material scarcity, supporting arguments that indigenous play practices embed mathematical concepts and social values within culturally meaningful activities (Nyota & Mapara, 2008; Ogunyemi & Ragpot, 2015).

This finding confirms and extends both Piagetian and Vygotskian insights. Piaget's emphasis on active manipulation is fulfilled through seed-sorting; Vygotsky's emphasis on cultural mediation is fulfilled through traditional games. Indigenous practices constitute rich cultural tools for cognitive development. The findings thus extend both theories by demonstrating that culturally-grounded practices, when intentionally deployed, can fulfil developmental functions Piaget and Vygotsky attributed to play, even in materially deprived settings.

On the other hand, the study reveals dangers of asset-based approaches when deployed as rationale for inadequate provision. Celebrating educator creativity can become justification for continued underfunding. Using indigenous games is not a confident pedagogical strategy but desperate improvisation, forced innovation by desperation. This represents the asset-based paradox: resources demonstrating community strength can mask systemic failures of provision. When IKS become the last resort of the unsupported educator rather than valued resource of a well-resourced system, their potential is undermined.

4.8. Reconceptualising play: From exploration to managed utility

These factors lead to fundamental reconceptualisation of play in Mutare Rural. PBP shifts from child-centred, exploratory process to practice oriented towards managing scarcity and demonstrating tangible outcomes. This shift to highly structured, adult-directed play aligns with observations that in poverty-affected communities, pedagogical practices gravitate towards formal instruction perceived as direct routes to economic security (Rao & Sun, 2015; Prochner, 2014). Caregiver perceptions viewing play as unproductive idleness further dilute the exploratory essence of PBP.

This finding fundamentally complicates Piagetian and Vygotskian theories of play. For Piaget, play is assimilation, intrinsically motivated and child-directed. For Vygotsky, play

creates the ZPD through imagination and rule-following. Both assume play's essential character as freely chosen activity. In Mutare Rural, however, play is reconstituted as managed activity, highly structured, focused on rote learning. Educator 4's testimony that the play in our play-based learning is the smallest part of it, reveals that the very essence of play is systematically eliminated under scarcity. This exposes the cultural and material specificity of these foundational theories, challenging their universalist assumptions.

Therefore, learner engagement becomes heavily mediated, with agency curtailed by imperatives of control in overcrowded spaces. This transformation reflects how pedagogical spaces become arenas where discourses of scarcity shape practice (Connell & Pearse, 2015; Blaise, 2005).

The study however identifies resilience in intentional use of culturally-grounded play. Episodes involving traditional games facilitated higher-order engagement, supporting arguments that indigenous play practices foster holistic development (Ogunyemi, 2020; Siraj-Blatchford et al., 2016; Nyota & Mapara, 2008). These moments demonstrate that Piagetian active learning and Vygotskian social mediation remain possible even in poverty, but their realisation depends on intentional, culturally-grounded practice rather than commercial materials. They confirm the enduring relevance of both theoretical frameworks while revealing their application requires adaptation to local cultural resources. However, these moments remain exceptional, dependent on individual educators rather than embedded in systemic frameworks, a testament to what is possible, but an indictment of what is consistently denied to most learners in Mutare Rural.

5. Conclusion

This study demonstrates that poverty does not merely constrain PBP in Mutare Rural but fundamentally reconstitutes it into a distinct practice of pedagogical bricolage, where educators assemble learning from fragments under conditions of material scarcity, biological deprivation affecting children's cognitive engagement and systemic neglect that forces unsustainable innovation by desperation. These findings extend both Piagetian and Vygotskian frameworks by revealing that constructivist and sociocultural theories, while valuable, presuppose material and institutional conditions that poverty systematically violates. The study identifies that culturally-grounded practices such as indigenous games and storytelling hold significant compensatory potential when deployed with intentionality, yet this potential remains unrealised for most learners because it depends on individual educator capacity rather than systemic provision. The asset-based paradox cautions against uncritical celebration of local resources that may mask ongoing institutional failures. While the study's contributions are significant, its limitations must be acknowledged: the research was conducted across ten purposively selected centres in a single rural district with five educators interviewed, limiting transferability to other contexts; the three-month data collection period captured only one agricultural season, missing seasonal fluctuations in poverty and hunger; children's own perspectives were not elicited; and the researchers' outsider positionality may have influenced responses. These limitations situate the findings within appropriate boundaries, inviting further research while the study argues for an integrated policy response combining material and nutritional support, context-specific professional development in low-resource culturally-sustaining PBP and formal curricular integration of indigenous play practices to transform desperate improvisations into core pedagogical strategies.

This study, while providing rich qualitative insights, is subject to several limitations that warrant acknowledgment. First, the research was conducted across ten purposively selected ECE centres in a single rural district of Zimbabwe. The findings are therefore context-specific and cannot be directly generalised to other settings, whether urban, peri-urban, or rural districts with different socio-economic profiles. Transferability of findings rests with readers who must assess the similarity between the study context and their own. Second, the study engaged five ECE educators for in-depth interviews, a sample that, while sufficient for phenomenological depth, limits the range of educator experiences captured. A larger sample

might have revealed additional adaptive strategies or barriers not documented here. Third, the three-month data collection period, spanning September to November 2024, provides a snapshot of practice during one agricultural season. Given that poverty and hunger fluctuate seasonally in rural Zimbabwe, with particular severity during lean months, a longer longitudinal design might have captured variations in PBP implementation across the full calendar year. Fourth, the study focused on educators and caregivers as primary informants; children's own perspectives on their play experiences were not directly elicited. Future research incorporating child-centred methods could enrich understanding of how poverty shapes play from learners' vantage points. Finally, the researchers' positionality as an outsider to the Mutare Rural community, despite efforts to build trust and rapport, may have influenced participants' responses, particularly regarding sensitive issues of poverty and deprivation. These limitations do not diminish the study's contributions but rather situate its claims within appropriate boundaries, inviting further research to test, refine and extend its findings across diverse contexts.

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