

Research Article

Transformative learning among the Batwa: effects of an integrated literacy, numeracy, and civic education intervention in South-West Uganda

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ABSTRACT

Uganda's Batwa Indigenous community has faced severe marginalisation since being forcibly displaced from their ancestral forests in the early 1990s, when Bwindi and Mgahinga National Parks were established. This displacement deepened poverty, discrimination, and inequality, drastically limiting education; pre-intervention child enrollment was around 10%, with adult literacy far below national averages. This study evaluates a community-based intervention combining functional adult literacy, civic education, and transformative teaching methods, grounded in Mezirow's Transformative Learning Theory. Conducted in Kisoro and Rubanda Districts, the programme sought to shift perspectives among Batwa adults and host communities, promote gender-inclusive education, and build community resilience. Using a mixed-methods, pre- and post-intervention design, researchers gathered data through focus groups, interviews, observation, and baseline/endline assessments. Results showed significant gains: adult literacy rose from 34.5% to 70%, and civic knowledge improved sharply, with understanding of civic institutions increasing from 15% to 70%. Dialogue-based sessions addressing patriarchal norms also produced measurable gender equity progress. However, numeracy improvements were modest, indicating a need for more contextually relevant mathematics teaching. The findings support culturally responsive, integrated interventions for addressing overlapping exclusion barriers and recommend embedding similar approaches into national education policy prioritising community ownership, collaboration across stakeholders, and sustained funding to break cycles of intergenerational marginalisation.

KEYWORDS

Batwa Indigenous people, marginalisation, transformative learning, functional adult literacy, gender inclusion

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Introduction

Across the globe, Indigenous communities constitute some of the most persistently marginalised populations, facing systemic exclusion from education, economic opportunity, and civic participation. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) affirms that Indigenous peoples are entitled to education delivered within their own culture and linguistic frameworks; yet this right remains largely unrealised in practice. Globally, Indigenous children are less likely to complete primary education than their non-Indigenous counterparts, with elevated dropout attributed to intersecting determinants including poverty, discrimination, displacement, and cultural invisibility within mainstream schooling systems (UNESCO, 2019). Adult literacy among Indigenous populations also lags far behind national averages in most countries, constraining intergenerational socioeconomic mobility and limiting meaningful civic agency (World Bank, 2020). Transformative and community-based education models have increasingly been recognised as effective responses to these structural deficits, particularly when functional literacy is integrated with civic empowerment and culturally responsive pedagogy (Freire, 1970; Taylor, 2008).

In Sub-Saharan Africa, Indigenous and forest-dependent communities confront compounding layers of marginalisation. Conservation-induced displacement, commonly operationalised as “fortress conservation” (Brockington & Igoe, 2006), has uprooted numerous communities from ancestral territories across Uganda, the Democratic Republic of Congo, Rwanda, and Kenya, severing customary livelihoods and destabilising cultural identities. In the East African context, such displacement has been closely associated with intensified poverty, food insecurity, and educational exclusion (Cernea & Schmidt-Soltan, 2006). Gender inequality compounds these vulnerabilities further: girls and women in displaced Indigenous communities disproportionately bear the burden of reproductive and household labour, early marriage, and restricted educational access (Aikman & Unterhalter, 2005). Regional normative frameworks, including the African Charter on Human and Peoples’ Rights (1981) and the African Union’s Agenda 2063, mandate inclusive and equitable development; yet Indigenous communities frequently remain beyond the effective reach of national education systems and social protection mechanisms.

Within Uganda, the Batwa are formally recognised as one of the country’s Indigenous peoples. They exemplify the acute and multidimensional consequences of conservation-induced displacement. They were forcibly evicted from their ancestral forest territories in the 1990s to facilitate the establishment of Bwindi Impenetrable and Mgahinga Gorilla National Parks. The approximately 3,857 remaining Batwa now reside predominantly as landless settlers across the Kisoro, Rubanda, and Kanungu Districts of Southwestern Uganda (Uganda Bureau of Statistics [UBOS], 2024). They are deprived of land rights, constrained in social integration, and subjected to entrenched discriminatory stereotypes that characterise them as “unhygienic” or “indolent.” As a result, the Batwa occupy the extreme margins of Uganda’s society (Sandbrook et al., 2003). Historically, fewer than 10% of Batwa children have accessed formal schooling, and adult literacy rates remain far below the national average (UBOS & ICF, 2017). Chronic food insecurity

compels children, particularly girls, into household labour, while early marriage further accelerates female educational attrition. These structural realities are compounded by the near-total absence of culturally sensitive educational programming adapted to the Batwa's distinctive socio-historical circumstances.

Despite enduring national and international commitments to inclusive education and Indigenous rights, the Batwa of South-West Uganda continue to experience severe educational exclusion and civic marginalisation. Displacement from ancestral forests has eroded their economic base, disrupted cultural continuity, and diminished social standing. Persistent discrimination obstructs meaningful participation in community and civic life. Existing educational interventions have largely failed to address the intersecting barriers of poverty, gender inequality, cultural stigma, and low adult literacy that reproduce cycles of exclusion across generations (Denzin & Lincoln, 2011). Accordingly, there is a critical evidence gap. It is unclear whether integrated, community-based approaches, combining functional adult literacy, numeracy, civic and transformative learning, can generate measurable and sustained changes in attitudes, gender-inclusive school enrolment, and community resilience among the Batwa.

The main objective of the present study is to evaluate the effects of an integrated adult literacy, numeracy, and civic education programme on the Batwa Indigenous communities in South-West Uganda. To achieve this main objective, the study addresses the following specific objectives:

1. To assess baseline levels of literacy, numeracy, and civic knowledge among Batwa adults in Kisoro and Rubanda Districts before the intervention. (Mezirow's framework holds that transformation begins from an accurate reading of a learner's existing "frame of reference", the meaning structures through which people interpret experience).
2. To examine changes in adult literacy, numeracy, and civic education competencies among Batwa participants following the integrated community-based programme. (Mezirow's theory operates through its emphasis on experiential, dialogic instruction as the mechanism of skill acquisition).
3. To explore shifts in perceptions and attitudes towards education among Batwa adults, host communities, and children following the transformative learning intervention. (Mezirow's core concept, the "disorienting dilemma" that triggers critical reflection and reframing, is the theoretical engine behind the qualitative findings on attitude change).

Literature Review

Historical Roots, Educational Exclusion, and Pathways to Empowerment Among the Batwa

The marginalisation of the Batwa Indigenous people in Southwestern Uganda is historically rooted in land dispossession. This was most acutely precipitated by their forced eviction from ancestral forest territories in 1991. This displacement was implemented to establish the Bwindi Impenetrable and Mgahinga Gorilla National Parks. It fundamentally dismantled the Batwa's traditional hunter-gatherer subsistence systems and severed their relationship with the ecological and cultural

landscapes that had sustained them for generations (Ministry of Water and Environment & Uganda Wildlife Authority, 2025). This pattern is consistent with broader patterns of conservation-induced displacement across Sub-Saharan Africa, characterised by Brockington and Igoe (2006) as "fortress conservation." The eviction was executed without adequate prior consultation, community consent, or commensurate compensation, in direct contravention of emerging international Indigenous rights standards (Mukasa, 2014). The resultant socioeconomic upheaval entrenched the Batwa among Uganda's most structurally disadvantaged populations. Persistent stereotypes framing them as "primitive" or "unhygienic" continue to reproduce discrimination across education, healthcare, and civic domains (Ampumuza et al., 2020).

Existing scholarship regarding Indigenous minorities in Africa frequently highlights systemic patterns of socio-political exclusion, where ethnic identity often serves as a primary driver for both direct and structural discrimination (Kibukamusoke & Alemiga, 2018). Specifically, the Batwa experience reflects a persistent pattern of displacement. It began with colonial-era forest reserves that stripped them of their traditional livelihoods and continued through modern conservation policies that exacerbated their landlessness (Satyal et al., 2020). This displacement, largely occurring without the benefit of free, prior, and informed consent. It effectively destabilised the community's socioeconomic foundation and precipitated a forced, often unsuccessful, transition to an agrarian lifestyle (Brubacher et al., 2024; Mukasa, 2014). Furthermore, state-led initiatives in the post-colonial era have often conflated Indigenous identities into broader categories such as "Historically Marginalised People." International human rights bodies argue that this policy shift masks the specific, long-standing grievances of the Batwa while failing to address the structural barriers to their educational and social inclusion (Ndikubwimana et al., 2024; Rwantabagu, 2009). Such administrative categorisation effectively perpetuates paternalistic power structures, ensuring that conservation-focused agendas continue to supersede the community's right to self-determination and equitable resource access (Kokunda et al., 2023). In particular, the 1991 eviction from Bwindi and Mgahinga serves as a critical historical case study. It illustrates how top-down conservationism failed to provide necessary restitution or social safeguards for displaced forest dwellers (Mukasa, 2016). This dispossession has fostered a cycle of poverty: the subsequent lack of capital and sustainable income streams directly impedes the Batwa's ability to access formal education (Bryson et al., 2021). Meanwhile, legal ambiguity surrounding Indigenous status under domestic law has consistently stalled efforts to implement targeted affirmative action, leaving the Batwa as mere stakeholders rather than empowered decision-makers (Menton et al., 2020; Uganda & Namae, 2025).

These historical dynamics of dispossession translate directly into the educational domain. Education constitutes a critical mechanism for disrupting intergenerational cycles of poverty and marginalisation among Indigenous populations (UNESCO, 2019). Yet the Batwa record some of the most severely depressed educational outcomes in Uganda. Historical school enrolment rates for Batwa children stand at approximately 10%, while adult literacy rates in certain Districts have been recorded as low as 13% (UBOS & ICF, 2017). These outcomes are not attributable to individual

or cultural deficits. Rather, they stem from the compounding structural barriers of economic deprivation, cultural stigmatisation, and institutional exclusion. Batwa children frequently experience peer ostracism within mainstream schooling environments, while the absence of culturally appropriate curricula renders formal education alienating and inaccessible (Kokunda et al., 2023). Child labour driven by chronic food insecurity and the disproportionate burden of early marriage borne by Batwa girls further accelerates educational attrition, particularly at the primary-to-secondary transition (Ampumuza et al., 2020; Tushabe, 2023).

This attrition is not gender-neutral. Gender inequalities within Batwa society mirror patterns documented across Indigenous and displaced communities globally (Aikman & Unterhalter, 2005). Discriminatory patriarchal norms, early and forced marriages, and the disproportionate allocation of domestic and reproductive labour to women and girls systematically constrain their educational participation and life-course trajectories. Globally, gender-responsive educational interventions, including life-skills programming, reproductive health education, and community-based advocacy, have demonstrated efficacy in mitigating these barriers (UNESCO, 2019; Unterhalter, 2012). However, community-based literacy programmes for Indigenous women in Uganda that are explicitly grounded in gender-equity frameworks remain significantly underexplored in the scholarly literature (Mezirow, 1997; Ngozwana, 2021).

Addressing these compounding barriers calls for pedagogical approaches attentive to Indigenous epistemologies and lived experience. International scholarship on Indigenous education consistently affirms the centrality of culturally responsive teaching methodologies in improving access, retention, and learning outcomes among marginalised learners (Gay, 2010; Ladson-Billings, 1995). Mezirow's (1997) Transformative Learning Theory provides a particularly generative theoretical framework in this context. It posits that critical reflection on, and rational discourse about, deeply held assumptions can precipitate fundamental shifts in frames of reference, thereby enabling learners to act with greater autonomy and agency. Applied to adult literacy programming with marginalised Indigenous communities, this framework supports pedagogical approaches that move beyond functional skill acquisition towards critical consciousness and civic empowerment (Freire, 1970; Taylor, 2008). Sekiwu et al. (2024) examined culturally relevant lifelong education and decolonisation initiatives designed for the Batwa. They found that community members demonstrate clear awareness of their socioeconomic challenges and are capable of proposing actionable, self-determined solutions, including entrepreneurship training and vocational skills development. Critically, the study underscores the importance of embedding Indigenous epistemologies, including the revitalisation of the Rutwa language as a cornerstone of Batwa identity, within educational frameworks to achieve authentic community engagement and empowerment. Similarly, Kagumba (2021) documents how Batwa cultural performances in Indigenous tourism contexts serve as sites of identity assertion and stereotype contestation. This suggests that integrating artistic and performative expression into adult literacy curricula could yield more holistic and culturally affirming learning experiences.

Beyond functional literacy and culturally responsive pedagogy, civic education has been increasingly recognised as a structural component of community empowerment among marginalised Indigenous populations (Avoseh, 2001; Semali, 1999). The capacity to understand and engage with civic institutions, including rights frameworks, local governance structures, and legal mechanisms, is foundational to enabling communities to advocate for their entitlements and participate meaningfully in public life. Mukasa (2017) situates this imperative within the Batwa context, demonstrating that their post-eviction socioeconomic precarity necessitates educational programming that simultaneously addresses immediate learning needs and builds capacity for rights-based advocacy. Taken together, this body of scholarship positions community-driven educational models not merely as compensatory mechanisms but as instruments of structural transformation. Such models cultivate resilience, agency, and cultural continuity among communities navigating complex socio-political realities (Musoke, 2022; Rugambwa et al., 2024), agency, and cultural continuity among communities navigating complex socio-political realities (Musoke, 2022; Rugambwa et al., 2024).

Gaps in the Existing Literature

Notwithstanding a growing body of scholarship on Indigenous education in Africa and on Batwa marginalisation, more specifically, significant evidence gaps persist. While studies have examined adult literacy in broader African Indigenous contexts (Ngozwana, 2021; Avoseh, 2001; Semali, 1999) and others have addressed Batwa-specific educational exclusion (Musoke, 2022; Rugambwa et al., 2024; MRG, 2024). Yet, few have empirically examined integrated interventions that simultaneously address functional adult literacy, civic education, and gender-transformative programming within a single community-based model tailored to the Batwa context. The practical embedding of intercultural principles within adult literacy frameworks, including the role of cultural performance, Indigenous language, and community ownership, remains insufficiently theorised and empirically evaluated. This study directly addresses these lacunae, contributing original empirical evidence on the effects of an integrated, culturally responsive programme among the Batwa of South-Western Uganda.

Methodology

Research Design

The study employed a convergent mixed-methods phenomenological pre- and post-intervention design to evaluate the effects of a community-based integrated literacy and civic education programme on Batwa Indigenous communities in South-Western Uganda. The mixed methods framework was adopted on the premise that neither quantitative nor qualitative data alone could adequately capture the complexity of educational transformation among a severely marginalised population (Creswell & Plano Clark, 2018). The phenomenological orientation, draws on the philosophical traditions of Husserl and elaborated by Groenewald (2004) and Kensit (2000). It prioritised the lived experiences of participants as the primary unit of inquiry, enabling the researcher to document not only measurable outcome changes but the subjective meanings participants ascribed to those changes. The pre-and

post-intervention structure facilitated systematic comparison of literacy, numeracy, and civic knowledge indicators across two time points. Meanwhile, the participatory dimensions of the design actively engaged Batwa community members in problem identification and collaborative solution development, thereby enhancing the cultural validity, accountability, and contextual relevance of the research process (Cargo & Mercer, 2008).

Sampling Procedure

Participants were recruited from eight Batwa communities across the Kisoro and Rubanda Districts using a combination of purposive and snowball sampling strategies. Purposive sampling was employed to ensure that participants possessed direct experiential knowledge relevant to the study's objectives (Patton, 2002). Snowball sampling facilitated access to community members through established trust networks, a methodologically appropriate strategy given the Batwa's historically grounded wariness of external researchers and institutions (Tuhivai Smith, 1999). The total sample comprised (N=80) participants, including Batwa adults, with particular emphasis on parents and individuals with low prior literacy; school-aged children (aged 4-12 years); classroom teachers; school administrators; and key stakeholders, including community leaders and NGO representatives. Participant diversity across age, sex, and socioeconomic status was deliberately sought to ensure breadth of perspectives. Recruitment protocols were designed in consultation with Batwa community leaders to align with local cultural norms, thereby upholding principles of community ownership and ethical participation.

Data Collection

Methodological triangulation was achieved through four complementary data collection instruments, enhancing the credibility and confirmability of the findings (Lincoln & Guba, 1985).

Focus Group Discussions (FGDs) were conducted to elicit shared perceptions, collectively experienced barriers, and community-level assessments of the programme's transformative effects. Gender-disaggregated FGDs were facilitated in culturally sensitive, linguistically accessible formats to mitigate inhibition and encourage candid participation among women and girls in particular.

Semi-structured interviews were conducted with individual participants to generate detailed personal accounts of lived experiences, challenges and perceived changes attributed to the intervention. This instrument was particularly valuable for surfacing narratives that might be suppressed within group dynamics (Kvale & Brinkmann, 2009).

Participant Observation was conducted across Early Childhood Education (ECE) centres and adult literacy class sessions, enabling the research team to document participant engagement, programme fidelity, facilitation challenges, and the social dynamics of learning.

Baseline and Endline Assessments employed illustrated assessment tools and structured surveys adapted for low literacy contexts, measuring pre-and post-intervention indicators across three domains: literacy, numeracy, and civic

knowledge. Instrument adaptation followed established protocols for cognitively accessible assessment design in resource-constrained settings (Uwezo, 2016).

Inclusion and Exclusion Criteria

Inclusion criteria were defined as follows: Batwa and host community residents permanently residing in the target Districts; adults aged 18 years and above with demonstrably limited literacy or numeracy skills, or with direct involvement in children's education; school-aged children between 4 and 12 years from Batwa households characterized by low prior enrolment; and stakeholders directly engaged in Batwa empowerment initiatives who provide informed consent or, in the cases of minors, informed assent with parental or guardian consent. Exclusion criteria encompassed non-residents or individuals without direct experiential knowledge of Batwa community realities; those unable or unwilling to provide informed consent; children below four years of age; individuals unable to commit to the programme timeline; and stakeholders without verifiable direct engagement in the study context. These criteria were operationalised to balance the study context. The criteria were operationalised to balance purposive rigour with inclusive community representation.

Data Explication

Qualitative data explication was conducted following the five-phase phenomenological procedure outlined by Hycner (1985), as elaborated by Groenewald (2004) and consistent with Creswell's (2013) framework for qualitative analysis. The phases comprised: (1) bracketing, in which researchers reflexively suspended prior assumptions and theoretical preconceptions to approach the data with openness; (2) delineating meaning units, in which discrete units of significant meaning were identified within transcripts; (3) clustering themes, in which meaning units were grouped into emergent thematic categories; (4) summarizing and validating, in which individual interview summaries were viewed with participants for accuracy; and (5) constructing composite summaries, synthesizing thematic findings into collective experience.

Data Analysis

Quantitative data derived from baseline and endline assessments were analysed using IBM SPSS Statistics (Version 24). Descriptive statistics were computed for all outcome indicators, and pre-to-post changes in literacy, numeracy, and civic knowledge scores were assessed using appropriate inferential tests, specifically paired-samples t-tests or Wilcoxon signed-rank tests depending on the distribution of the data, with statistical significance set at $P < .05$. Effect sizes were calculated to supplement significance testing and provide an interpretively meaningful indication of programme impact (Cohen, 1988).

Qualitative data from FGDs and semi-structured interviews were subjected to thematic analysis following Braun and Clarke's (2006) six-phase framework. This involved recursive processes of familiarisation, open coding, theme generation, review, definition, and write-up. Observational field notes were analysed inductively and integrated as contextual corroboration of emergent findings. Member checking,

the systematic return of interpreted findings to community participants for verification, was employed as a primary strategy for ensuring the trustworthiness and respondent validity of qualitative interpretations (Lincoln & Guba, 1985).

Ethical Considerations

Informed consent was obtained from all adult participants through culturally appropriate processes, with explanations provided in local languages, including Rukiga and Rufumbira, to ensure genuine comprehension rather than procedural compliance. For child participants, informed assent was obtained alongside written parental or guardian consent. Anonymity and confidentiality were maintained throughout data collection, storage, and reporting, with all identifying information replaced by pseudonyms or participant codes. Ongoing collaboration with Batwa community leaders throughout the research process ensured adherence to cultural protocols and supported the ethical principle of community sovereignty over research conducted within Indigenous territories (Tuhiwai Smith, 1999; UNDRIP, 2007).

Results

1. Baseline Results (N=53)

Socio-Contextual Drivers of Batwa School Dropout

The following thematic analysis draws on data generated through community focus group discussions involving teachers, local council leaders, community development officers, and anonymous community members residing in Batwa-settled areas of Kisoro and Rubanda Districts. Consistent with the phenomenological orientation of this study, the analysis foregrounds the lived experiences, situated observations, and interpretive accounts of stakeholders directly embedded in the Batwa educational context. Four core themes emerged through iterative thematic coding (Braun & Clarke, 2006), presented below in order of prominence. Direct participant quotations are included to preserve the evidential grounding and interpretive transparency of the analysis.

Theme 1: Poverty and Material Deprivation

Poverty emerged as the most dominant and pervasive barrier to Batwa educational participation, intersecting with and compounding virtually all other identified themes. Participants consistently described material deprivation not as a background condition but as an acute, immediate force that rendered school attendance structurally impossible for many families. The prioritisation of survival over education was articulated as both rational and unavoidable:

“How do you expect me to send my child to school who has spent three days without eating food?”

Empirical corroboration of this dynamic was observed in attendance patterns: enrolment and attendance improved markedly during periods when school feeding programmes were operational, but deteriorated sharply upon their cessation. This pattern is consistent with findings from analogous interventions in Sub-Saharan African contexts (Alderman & Bundy, 2012). Material exclusion was rendered

additionally visible through inadequate clothing and the absence of school supplies, with children arriving in states of severe deprivation that produced immediate social stigmatisation.

Participants further identified the structural dependency engendered by short-term NGO aid as a compounding problem. Donated items were reportedly sold rather than utilised for their intended purpose, and episodic external assistance was perceived as insufficient to address the systemic dimensions of Batwa poverty. These observations are consistent with scholarly critiques of aid dependency among post-displacement Indigenous communities, wherein humanitarian interventions address symptoms without engaging the structural determinants of exclusion (Cernea & Schmidt-Soltau, 2006).

Theme 2. Low Self-Efficacy, Internalised Inferiority, and Perceived Futility of Education

Intimately connected to material deprivation, a second prominent theme concerned the psychological and motivational consequences of chronic marginalisation. Batwa children's visible poverty was identified as a direct antecedent of diminished self-efficacy and a pervasive sense of not belonging within formal educational environments. Consistent with Bandura's (1997) conceptualisation of self-efficacy, the absence of culturally proximate role models, that is, visible Batwa individuals who had achieved social or economic advancement through education, was cited as a critical motivational deficit. That is, participants pointed to the lack of visible Batwa individuals who had achieved social or economic advancement through education:

“Even if they study, they will never work anywhere; we have no one in the offices who can connect us to employment.”

This perception reflects a structurally rational assessment of socio-immobility rather than a cultural disposition against education. It should be interpreted within the context of the Batwa's near-total exclusion from formal employment and civic institutions. The psychological barrier thereby operates not merely as a subjective belief, but as an internalisation of objective structural conditions, a phenomenon theorised by Bourdieu (1990) as the internalisation of objective probabilities into subjective expectations.

Theme 3. Discrimination, Peer Exclusion, and Institutional Stigmatisation

Batwa children were found to experience systematic social exclusion within school environments, manifesting at both peer and institutional levels. Ethnically targeted bullying, including verbal abuse and tribal taunting, was reported as endemic, with the term “Mutwa” deployed pejoratively:

“Batwa children are called names like ‘Mutwa’ and face harsher punishment for minor mistakes.... They endure verbal abuse and tribal taunting, with shouts of ‘You Mutwa!’ during minor errors, often joined by the entire class, and sometimes reinforced by teachers.”

Critically, institutional practices were identified as inadvertently reinforcing rather than ameliorating exclusion. NGO-administered feeding programmes that required Batwa children to be seated at segregated tables produced a visible and stigmatising differentiation. This intensified inter-group divisions and generated resentment among non-Batwa peers of comparable socioeconomic status. The finding illustrates a well-documented risk in targeted welfare interventions: that poorly designed inclusion mechanisms can paradoxically deepen the social boundaries they seek to dissolve (Merton, 1968; Fraser, 1995). The withdrawal of aid subsequently precipitates dropout. The removal of the primary incentive for attendance, combined with intensified stigma, rendered school participation untenable for many Batwa children.

Theme 4. Family, Cultural, and Intergenerational Factors

Parental behaviours, household dynamics, and intergenerational transmission of educational disengagement were identified as significant contributors to school dropout. Many Batwa parents, themselves without formal education, were described as neither modelling nor actively prioritising schooling for their children. This pattern is consistent with intergenerational reproduction of educational marginalisation (Bourdieu & Passeron, 1990). Pervasive alcohol consumption was cited as a structural disruption to morning attendance routines:

“Parents sleeping in bars with children. At home, there are no walls separating parents’ rooms from children’s rooms....kids leave bars at 10-11 pm, making it impossible to attend morning classes.”

It is analytically important to contextualise these observations within the post-displacement trauma framework. Elevated rates of substance use among forcibly displaced Indigenous communities have been extensively documented as responses to dispossession, loss of cultural identity, and chronic socioeconomic precarity rather than as intrinsic cultural characteristics (Gracey & King, 2009). Gender-specific vulnerabilities were also prominent within this theme. Girls beyond Standard Four (approximately aged 10-11) were identified as disproportionately exposed to sexual exploitation, early marriage and pregnancy-induced dropout:

“After P4 or P5, once girls clean themselves and are looking good, they attract unwanted attention from others who pursue them, eventually reducing their chances of continuing school.”

This dynamic reflects a broader pattern of gendered educational attrition documented across Indigenous and rural communities in Sub-Saharan Africa (Unterhalter, 2012; Tushabe, 2023). The transition from childhood to adolescence constitutes a critical vulnerability window for girls’ continued enrolment.

Table 1.*Baseline Literacy and Numeracy Competency Levels Among Batwa Adults (N=53)*

Competency domain	Indicator	% of Participants
Letter Recognition	Could read at least half of the letters (with difficulty)	40%
Letter Writing	Could rewrite at least half of the letters	10%
Number Recognition	Could recognise at least half of the numbers	50%
Word Reading	Could read at least one word out of ten (Local language)	30%
Word writing	Could attempt to rewrite words	8%
Basic Arithmetic	Could perform basic addition or subtraction	20%
Sentence Reading	Could read at least one out of five sentences (Local language)	20%
Sentence Writing	Could rewrite the sentence	5%
Advanced Arithmetic	Could perform multiplication or division	10%
Reading Comprehension	Could read a short story and answer questions	0%

Note: Percentage reflects the proportion of the total baseline sample (N=53) demonstrating each competency.

These findings revealed profound functional illiteracy across the sample, with no participant able to demonstrate reading comprehension, the foundational competence required for independent civic and economic participation. The near-total absence of writing competencies and the severely limited arithmetic capacity further indicated that the majority of participants were operating below any internationally recognised functional literacy threshold (UNESCO,2006). These baseline data directly informed the design of a participatory functional adult literacy and civic education curriculum, which was subsequently delivered through active, experiential methodologies following a structured Training-of-Trainers (ToT) workshop.

2. Endline Results

Programme Structure: Integrated Literacy, Numeracy, and Civic Competence Curriculum

Before presenting outcome data, it is necessary to describe the intervention curriculum that produced the measured changes. The programme was delivered over four weeks across eight Batwa communities in Kisoro and Rubanda Districts, structured around four thematic modules, each lasting one week. The curriculum integrated three core competence domains, literacy, numeracy, and civic education, within a culturally contextualised, learner-centred pedagogical framework consistent with Mezirow's (1991) Transformative Learning Theory and Freire's (1970) principles of critical pedagogy. Instructional methods included direct instruction, collaborative group work, role-play, debate, case-study analysis, and talk shows with guest speakers, reflecting a deliberate emphasis on experiential and dialogic learning over passive knowledge transmission. Assessment was competence-based and oriented towards real-life application rather than abstract theoretical testing, in recognition of the target population's functional literacy needs.

The four modules progressed thematically from the immediate community environment (Our Community) through economic and civic development (Development in Our Community), national identity and governance (Our Country, Culture, and Identity), to global interconnection (Climate Change and Globalisation). This scaffolded progression reflected a deliberate pedagogical

sequencing from the proximate and familiar to the abstract and structural, consistent with established principles of adult literacy curriculum design for marginalised learners (Rogers, 2003). The full curriculum framework is presented in Table 3.

Endline Literacy and Numeracy Outcomes (N=48)

An attrition of five participants between baseline (N=53) and endline (N=48) assessment was recorded, representing a 9.4% attrition rate. Attrition was documented but did not appear to follow a systematic pattern suggestive of differential dropout bias; however, this limitation should be acknowledged in interpreting the generalisability of endline findings.

Overall, the intervention produced notable and measurable improvements across literacy and numeracy domains. Aggregate adult literacy rates increased from 34.5% at baseline to 70.0% at endline, representing a gain of 35.5 percentage points. These gains are attributed to the deployment of culturally appropriate instructional resources, delivery in local languages, and the engagement of facilitators with lived contextual familiarity with the Batwa community, factors consistently in the literature as critical determinants of adult literacy programme effectiveness among marginalised Indigenous populations (Rogers, 2003; UNESCO, 2006). Disaggregated literacy outcomes are presented in Table 2.

Table 2.

Comparison of Baseline and Endline Literacy Competency Levels (N=53 baseline; N=48 endline)

Literacy Indicator	Baseline (%)	Endline (%)	Percentage Point Change
Read at least half of the letters (with difficulty)	40.0	80.0	+40.0
Rewrite at least one letter	10.0	90.0	+80.0
Read at least one word out of ten (local language)	34.5	70.0	+35.5
Rewrite words	8.0	-	-
Read at least one out of five sentences (local language)	31.1	60.0	+28.9
Rewrite a sentence	17.0	28.0	+11.0
Read a story and answer questions orally	9.75	15.0	+5.25
Write answers to story comprehension questions	0.0	5.0	+5.0

Note: Dashes (-) indicate data not reported at endline for that specific indicator. Percentage point changes are calculated from reported figures and should be interpreted alongside absolute values, given differences in sample size between assessment points.

Table 3.*Course Outline for Integrated Literacy, Numeracy, and Civic Competence Training Programme for the Batwa Community*

Modules	Time frame	Literacy competences	Numeracy competences	Civic competences	Content	Suggested activities/ methods of delivery	Assessment
1 Our community	1 week	<i>Participants will be able to develop an understanding of: -</i> - Phonemic and alphabetic awareness - Differentiate letter names and sound/ phoneme - Form syllables - Blend/ beat letters/ words - Segment words and form words	<i>Participants will be able to develop an understanding of: -</i> - Counting 1-100 - Writing number symbols - Writing number words - Basic addition and subtraction	<i>Participants will be able to develop an understanding of: -</i> - Family leadership - Gender awareness - Community leadership structures	- People in our community - Physical features in our community - Roles of members of our community - Important places in our community - Phonics - The Alphabet - Syllabification - Blending - Segmentation	- Direct instruction - Demonstration - Group work - Independent practice - Role play	- Recognise all the letters of the alphabet - Blend and read 2, 3, and 4-letter words
2 Development in our community	1 week	- Identify letter symbols - Write letter symbols/ signs - Write words and sentences	- Counting to 1000 - Basic addition, subtraction and multiplication	- Citizen rights and responsibilities - Law enforcement (procedures and implications) - Community practices that enhance development - Practices that hinder development	- Economic activities in our community - Gender development and development - Writing the alphabet - Place values - Scenario-based application/ case studies	- Direct instruction - Group work - Show and tell - Demonstration - Talk shows with guest speakers	- Recognise all the letter and word symbols - Add 3 to 5 digit values correctly - Subtract 3 to 5-digit values correctly - Write a 50 -100-word letter asking for a loan from a lending institution, or a job - Action plan for family and community development

Table 3. (Continued)

3	Our country, culture and identity	1 week	- Follow the writing process/ cycle to create written communication - Research and choose what to write - Drafting - Reviewing - Editing - Publishing	- Counting in thousands up to a million - Basic Multiplication and Division	- Cultural awareness - Gender awareness - Inclusion - Law and governance in Uganda	- Parts of a story - Short stories - Letter formats - The Batwa story - Relevant sections of the Constitution of Uganda - The government's responsibility to its people	- Direct instruction - Small group discussion - Brainstorming - Write a short story - Case studies - Debate - Talk shows	- Read a 50-100-word story with great ease and fluency and answer questions about it correctly - Divide 2-digit values correctly - Multiply 3 to 5 digit values correctly
4	Climate change and globalisation	1 week	- Name the number symbols - Explain the meaning of words such as: Add, subtract, divide, and multiply - Name the place value - Write the values of the given numbers	Apply the correct math operation to real-life situations	- Connect local activities to global change - Identify the effects of globalisation on the local community - Share the impact of climate change on the local community	Number problems with all math operations (addition, subtraction, division and multiplication)	- Direct instruction - Role play - Group discussion - Independent practice - Case studies/ scenarios	- Solve 5 number problems with different math operations - Community project(s) for climate change

Endline Literacy and Numeracy Outcomes (N=48)

An attrition of five participants between baseline (N=53) and endline (N=48) assessment was recorded, representing a 9.4% attrition rate. Attrition was documented but did not appear to follow a systematic pattern suggestive of differential dropout bias; however, this limitation should be acknowledged in interpreting the generalisability of endline findings.

Overall, the intervention produced notable and measurable improvements across literacy and numeracy domains. Aggregate adult literacy rates increased from 34.5% at baseline to 70.0% at endline, representing a gain of 35.5 percentage points. These gains are attributed to the deployment of culturally appropriate instructional resources, delivery in local languages, and the engagement of facilitators with lived contextual familiarity with the Batwa community, factors consistently in the literature as critical determinants of adult literacy programme effectiveness among marginalised Indigenous populations (Rogers, 2003; UNESCO, 2006). Disaggregated literacy outcomes are presented in Table 4.

Table 4.

Comparison of Baseline and Endline Literacy Competency Levels (N=53 baseline; N=48 endline)

Literacy Indicator	Baseline (%)	Endline (%)	Percentage Point Change
Read at least half of the letters (with difficulty)	40.0	80.0	+40.0
Rewrite at least one letter	10.0	90.0	+80.0
Read at least one word out of ten (local language)	34.5	70.0	+35.5
Rewrite words	8.0	-	-
Read at least one out of five sentences (local language)	31.1	60.0	+28.9
Rewrite a sentence	17.0	28.0	+11.0
Read a story and answer questions orally	9.75	15.0	+5.25
Write answers to story comprehension questions	0.0	5.0	+5.0

Note: Dashes (-) indicate data not reported at endline for that specific indicator. Percentage point changes are calculated from reported figures and should be interpreted alongside absolute values, given differences in sample size between assessment points.

Gains were most pronounced at foundational competency levels, letter recognition and word reading, consistent with the expected trajectory of adult literacy acquisition, wherein foundational skills develop more rapidly than higher-order competencies such as reading comprehension and independent writing (Strickland et al., 2004). The persistence of limited reading comprehension (15.0% at endline) and sentence writing (28%) indicates that while the intervention successfully initiated the literacy acquisition process, higher-order literacy skills require sustained long-term programming beyond a four-week curriculum (UNESCO, 2006). This finding underscores the importance of conceptualising the present intervention as a foundation rather than a terminal programme.

Endline Numeracy Outcomes

Numeracy outcomes demonstrated consistent positive progress across all measured indicators, with the most substantial gains recorded at foundational levels and more modest improvements in higher-order arithmetic operations. Disaggregated numeracy outcomes are presented in Table 5.

Table 5.
Disaggregated numeracy outcomes

Numeracy Indicator	Baseline (%)	Endline (%)	Percentage point change	Relative gain (%)
Recognise all numbers	73.6	100	+26.4	+35.9
Perform basic addition and subtraction	40.0	60.0	+20.0	+50.0
Attempt basic multiplication	22.6	35	12.4	+54.9
Attempt basic division	15.1	20	+4.9	+32.5

Universal attainment of number recognition at endline (100%) represents a substantively significant foundational outcome, eliminating a baseline deficit that would otherwise have precluded engagement with all higher-order numeracy competencies. Gains in basic addition and subtraction (+20.0 percentage points) and multiplication (+12.4 percentage points) are encouraging, though the persistence of arithmetic difficulty among approximately 40% of endline participants in basic operations signals that foundational numeracy reinforcement remains an ongoing priority.

Division proficiency showed the most modest improvement (+4.9 percentage points). This is consistent with numeracy development literature, which identifies division as a conceptually demanding operation that requires consolidated multiplicative reasoning as a prerequisite (Nunes & Bryant, 1996). These findings collectively suggest that while the intervention produced meaningful gains, the depth of numeracy skill consolidation, particularly for higher-order operations, is constrained by the programme's four-week duration. Future iterations should incorporate contextually embedded numeracy applications, including household budgeting, market transaction calculations, and agricultural record-keeping, to enhance functional transfer and economic self-sufficiency among Batwa families (Wedegge, 2010).

Endline Civic Literacy Outcomes

The civic literacy component of the programme produced the most dramatic and consistent gains across all measured domains, reflecting the transformative potential of rights-based and governance-focused education for communities with historically restricted civic participation. Disaggregated civic literacy outcomes, measuring the percentage of participants able to identify at least two roles for each civic leader or institution, are presented in Table 6.

Table 6.
Comparison of Baseline and Endline Civic Knowledge by Institution or Leader (N=53 baseline; N=48 endline)

Civic Entity	Baseline (%)	Endline (%)	Percentage point change
Police	15.0	65.0	+59.0
LC 111 (Sub-county Council)	10.0	60.0	+50.0
LC 1 (Village Council)	30.0	62.5	+32.5
Health Center	30.0	65.0	+35.0
Family members	55.0	90.0	+35.0
Resident District Commissioner (RCD)	0.0	0.0	0.0

The most substantial gains were recorded for institutions with which the Batwa have historically had the most consequential, and frequently adversarial, interactions: the police (+50.0 percentage points) and LC III local governance structures (+50.0 percentage points). The transformation of these domains from near-universal ignorance to majority comprehension is analytically significant, as knowledge of law enforcement roles and local governance mechanisms is foundational to rights-claiming behaviour and civic accountability (Gaventa, 2006). In the Ugandan context, where LC I and LC III councils and the state, and where police interactions have historically been characterised by mistrust and impunity in marginalised communities (Human Rights Watch, 2017), this improvement carries substantive implications for the Batwa agency and protection.

The strongest pre-existing awareness of family members' civic roles (55.0% at baseline, rising to 90.0% at endline) suggests that the programme effectively built upon familiar relational frameworks of civic responsibility before extending to more formal institutional knowledge, consistent with principles of scaffolded civic education design (Westheimer & Kahne, 2004).

The singular and complete absence of improvement regarding the Resident District Commissioner (RDC), with 0.0% awareness at both baseline and endline, constitutes a notable gap in programme impact, warranting critical attention. The RDC, as a presidential appointee functioning as the central government's representative at district level, occupies a position of considerable formal authority over resource allocation, security, coordination, and policy implementation in Uganda. The persistent invisibility of this role in participants' civic knowledge may reflect the RDC's perceived institutional remoteness from everyday community life, as well as the absence of direct experiential encounter with district-level governance among Batwa communities. Future programme iterations should incorporate targeted content on district-level governance structures, potentially through facilitated interactions with district officials to address this specific knowledge gap (Gaventa, 2006; Westheimer & Kahne, 2004).

Collectively, the civic literacy findings indicate a meaningful and practically significant expansion of participants' capacity to engage with local governance structures, access public services, and assert their civic rights, outcomes directly aligned with the programme's transformative learning objectives and with broader imperatives of Indigenous civic empowerment articulated in UNDRIP (2007).

Discussion and Conclusion

Transformative Learning and Perceptual Change

The findings of this study provide empirical support for the transformative potential of an integrated community-based intervention combining functional adult literacy, civic education, and culturally responsive pedagogy among the Batwa Indigenous people of Southwestern Uganda. Grounded theoretically in Mezirow's (1991) Transformative Learning Theory, the programme facilitated critical reflection through participatory methodologies, including role play, photovoice, and structured community dialogues. These methods enabled Batwa adults and host community members to interrogate and collectively refine entrenched stereotypes

characterising the Batwa as “primitive” or “uneducable” (Ampumuza et al., 2020; Mukasa, 2017). These documented shifts in frames of reference, from internalised deficit to emergent agency, represent a qualitatively significant outcome that extends beyond measurable skill acquisition. They are consistent with Mezirow’s (1991) theoretical proposition that disorienting dilemmas, when processed through critical reflection and rational discourse, can precipitate fundamental transformations in learners’ epistemic orientations.

The finding aligns with Sekiwu et al.’s (2024) call for decolonised, community-centered lifelong education that amplifies Indigenous voices and cultivates self-reliance. It also aligns with Freire’s (1970) foundational argument that authentic literacy education must engage learners as critical subjects rather than passive recipients of knowledge. Embedding elements of the Rutwa language and traditional practices into the curriculum directly addressed the historical gap identified in the literature review: the near total absence of culturally responsive ECE and adult literacy programmes specifically designed for the Batwa context (Anderson, 2015; Sekiwu et al., 2024). This curricular contextualization reflects what Gay (2010) terms “culturally responsive teaching”, a pedagogical orientation that draws on students’ cultural knowledge, prior experiences, and frames of reference to make learning more relevant, effective, and affirming.

It is important to note, however, that the measurement of perceptual and attitudinal change presents inherent methodological challenges. Self-reported shifts in perception, particularly in contexts where social desirability effects may influence participant responses, require corroboration through longitudinal follow-up and independent behavioural observation. Future research should incorporate validated attitudinal measurement instruments to strengthen the evidentiary basis for claims of transformative change (Dirkx, 2006).

Numeracy Outcomes

The numeracy findings occupy a distinctive position within this study's results. They reveal a pattern of intervention effectiveness that diverges meaningfully from the literacy and civic education outcomes. All three domains showed positive change. But numeracy improvements were consistently the most modest. This finding warrants careful theoretical and pedagogical interrogation. It should not be treated as a simple shortfall.

The data reveal a clear gradient effect. Number recognition reached universal attainment, rising from 73% to 100% (+26.4 points). Basic addition and subtraction showed comparatively weak advancement (+12.4 points). Division showed the weakest gains of all (+4.9 points). This pattern is consistent with established numeracy development literature. Arithmetic operations are cumulatively dependent. Division, in particular, requires consolidated multiplicative reasoning as a prerequisite (Nunes & Bryant, 1996). Literacy is different. Discrete competencies like letter recognition and word reading can be acquired somewhat independently. They are also reinforced through everyday exposure to text. Numeracy operations, by contrast, exist in a strict developmental hierarchy. This suggests the four-week

timeframe was structurally mismatched to the cumulative nature of the numeracy domain. This mismatch did not apply in the same way to literacy or civic knowledge.

The differential is also explicable through the instructional methods deployed. The programme's pedagogical architecture relied on role play, debate, talk shows, case study analysis, and dialogic discourse. These methods suit domains where meaning is socially constructed and narrative-based. Civic knowledge is one such domain: understanding institutional roles happens through story and discussion. Early literacy is another: phonemic awareness is reinforced through spoken language activities. Numeracy works differently. It depends on procedural automaticity and abstract symbolic manipulation. These competencies are less amenable to acquisition through discourse-based methods. They rely more on repeated, structured practice (Wedge, 2010). In effect, the intervention's greatest pedagogical strength worked against it here. Its dialogic, experiential design, grounded in Mezirow's transformative learning framework, may have been less well matched to numeracy than to the other two domains.

Civic Literacy and Community Empowerment

The dramatic gains in civic knowledge, most notably the increase in participants able to articulate at least two roles of the police from 15.0% to 65.0%, and of LC III (from 10.0% to 60.0%), provide compelling evidence for the empowerment potential of integrating functional literacy with structured civic education. These gains indicate a meaningful expansion of Batwa participants' capacity to navigate formal governance institutions and assert their civic rights, consistent with Gaventa's (2006) power cube framework, which conceptualises empowerment as contingent upon the intersection of access to civic spaces, visible forms of power, and active citizen engagement.

In the Ugandan context, where LC I and LC III councils constitute the primary institutional interface between citizens and the state, the Batwa's historical marginalisation has systematically excluded them from these spaces. This improvement carries substantive practical implications for rights awareness, accountability advocacy, and access to public services (Gaventa, 2006; Westheimer & Kahne, 2004). These findings directly extend Sekiwu et al.'s (2024) recommendations for rights-based advocacy capacity within Batwa communities and are consistent with Avoseh's (2001) theoretical positioning of adult civic literacy as a foundational instrument of community self-determination in African Indigenous contexts.

The complete absence of improvement in knowledge of the resident District Commissioner (RDC) role, recorded at 0.0% at both baseline and endline, warrants sustained analytical attention rather than dismissal as a peripheral finding. The RDC's formal authority over district-level resource allocation, security coordination, and policy implementation renders this a critical knowledge gap with tangible implications for the Batwa's ability to engage with district governance processes. The absence of change is theoretically interpretable through Gaventa's (2006) distinction between visible, hidden, and invisible power: the RDC may represent a form of hidden institutional power formally significant but rendered invisible within the

experiential world of severely marginalised communities. Future programme iterations should incorporate targeted content on district governance through experiential encounters, such as facilitated community dialogues with RDC representatives, to render this institutional role practically legible.

Limitations

Although the intervention led to several positive outcomes across different measures, it had certain limitations. The brevity of the four weeks constrains the potential for transformative learning and limits enduring socioeconomic advantages. The modest improvements observed in complex numeracy skills indicate that advances in literacy have outstripped those in numeracy education. Future initiatives might consider incorporating numeracy into practical contexts, such as financial skills or everyday budgeting. Expanding the intervention to include more Districts and Indigenous communities could enhance these achievements. However, this requires ongoing financial support and political commitment.

Policy Implications

In light of the success of this intervention, several strategic recommendations are proposed. First, nationwide expansion of support by the Ministry of Education and Sports: specific resources should be allocated to extend these programs to remote areas where Indigenous populations encounter similar difficulties. Second, ensuring long-term sustainability: establishing institutions and forging partnerships, particularly with NGOs and conservation trusts, will guarantee the continuity of literacy, numeracy, civic education, and mindset transformation initiatives.

Broader Implications

The intervention's success provides valuable lessons for global efforts to address Indigenous marginalisation. Community-centred, comprehensive educational strategies, along with gender-inclusive programs, can foster significant change. Collaborations with local entities, government representatives, and international advocacy organisations are essential for promoting the empowerment of Indigenous communities. Furthermore, this intervention shows that transformative learning experiences can be key to promoting social inclusion. Future initiatives in Uganda and worldwide should aim to replicate this model while tailoring it to diverse cultural and socioeconomic contexts. Ultimately, Batwa's experiences highlight broader themes of resilience and adaptability. Programmes that honour Indigenous identities, challenge systemic biases, and empower local communities are crucial for ensuring sustainable development and breaking cycles of exclusion across generations.

Contribution to Existing Research

Based on the literature review, methodology and findings, the paper contributes: First, as an integrated, empirically evaluated intervention for the Batwa. Prior scholarship on the Batwa has tended to treat literacy, civic education, and gender-transformative programming as separate concerns, or has documented Batwa marginalisation descriptively (e.g., Ampumuza et al., 2020; Kokunda et al., 2023) without testing a combined intervention. This study is among the first to design,

deliver, and empirically evaluate a single programme that integrates functional adult literacy, numeracy, and civic education specifically for the Batwa context, directly addressing the gap the authors identify in their literature review.

Second, much of the existing Batwa literature (Sekiwu et al., 2024; Rugambwa et al., 2024; Musoke, 2022) is conceptual, ethnographic, or advocacy-oriented. This paper contributes measurable baseline-to-endline data (e.g., literacy rising from 34.5% to 70%, civic knowledge of institutions like the police and LCIII councils jumping by 50+ percentage points), giving the field concrete effect sizes rather than only qualitative accounts of exclusion.

Third, the study tests Mezirow's Transformative Learning Theory in a new empirical setting. While TLT has been applied broadly in adult education, its application to a severely marginalised displaced Indigenous forest community with near-total pre-existing illiteracy is novel. The paper offers evidence that disorienting-dilemma-based, dialogic pedagogy (role play, debate, talk shows) can produce documented shifts in both skills and self-reported perceptions among a population with minimal prior formal education exposure.

Finally, the paper builds on calls from Sekiwu et al. (2024) and others for decolonised, Indigenous-language-embedded education, but goes further by embedding Rutwa language elements, the "Batwa story," and locally relevant civic content into the actual curriculum (detailed in Table 2) and then measuring its effects, moving the field from recommendation to demonstrated application.

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Authors Roles and Responsibilities

The authors would like to express their gratitude to all the participants who contributed to the exploration, clarification, and crystallisation of the topic. Specifically, the authors contributed as follows: *Kyasanku Charles* conceptualised and designed the study, including the theoretical framing anchored in Mezirow's Transformative Learning Theory; secured research access and community entry in the Kisoro and Rubanda districts; led the development of data collection instruments (interviews and FGD guides, literacy/civic knowledge assessments); coordinated fieldwork and supervised data collection; led the qualitative and quantitative data analysis and interpretation of findings; drafted the original manuscript, including the Abstract, Introduction, Methodology, Results, and Discussion sections; managed revisions and correspondence with the journal; and, as corresponding author, took full responsibility for the integrity of the work. *Kansiime Edward* contributed to the study design and methodological framework, particularly the mixed-methods and thematic analysis approach; participated in data collection (focus group discussions, semi-structured interviews, and participant observation); supported the statistical analysis of pre- and post-intervention literacy and civic knowledge data; critically reviewed and revised the manuscript for intellectual content, particularly the theoretical and analytical sections; and validated the interpretation of findings against raw data. *Buluma Alfred* supported literature review and contextual background development; assisted in community mobilisation and logistical coordination of fieldwork in the study districts; contributed to data collection and

transcription of qualitative data; reviewed the manuscript for accuracy, referencing, and formatting with the journal (TANQ) guidelines; and provided feedback on the final drafts before submission. All authors read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work

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Ethical Consideration

This research adhered to ethical standards, including respect for participants' rights and confidentiality.

AI Use Disclaimer

The authors disclose the use of AI in the preparation of the manuscript. Specifically, ChatGPT 4.5 was used as a tool to assist with proofreading of the manuscript. The author takes full responsibility for the accuracy, integrity, and ethical considerations of any AI-generated content included in the manuscript.

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