



The Corporate Social Responsibility Initiatives as Predictors of Inclusive Education Outcomes in Ngorongoro District, Tanzania

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Abstract

Inclusive education for pupils with special needs remains challenging in resource-constrained public primary schools in developing countries, necessitating need for Corporate Social Responsibility (CSR) initiatives. This study examined CSR initiatives as predictors of inclusive education outcomes in Ngorongoro District, Tanzania. Guided by Stakeholder Theory and the Triple Bottom Line, it examined the types of CSR initiatives implemented and their predictive relationships with inclusive education. A descriptive cross-sectional design using mixed-methods approach was employed. The target population comprised 40,600 individuals, including 549 teachers and 40,051 pupils from public primary schools. A sample of 381 respondents, comprising 240 pupils and 141 teachers. Two public primary schools were purposively selected from each of eight wards, followed by simple sampling of respondents, while key informants were purposively selected. Quantitative data were collected using structured questionnaire and analysed using descriptive statistics and binary logistic regression, while qualitative data from interviews and focus group discussions were analysed using inductive content analysis. Descriptive statistics revealed prioritisation of accessible infrastructure, inclusive learning materials and supplies. Binary logistic regression analysis indicated that accessible infrastructure, learning materials and educational supplies, sanitation, and ICT/assistive facilities significantly predicted improved inclusive education among teachers, while extra-curricular activities were insignificant. Accessible infrastructure, inclusive learning materials, sanitation, and extra-curricular activities significantly predicted improved inclusive education among pupils, while ICT/assistive facilities were not significant. The study concludes that accessible infrastructure, inclusive learning materials and supplies provide the basis for inclusive education and recommends coordination and targeted implementations of CSR initiatives to enhance inclusive education.

Introduction

Corporate Social Responsibility (CSR) plays a significant role in contributing to social development, particularly in contexts where government funding are limited (Jain et al., 2025). It involves voluntary actions by companies to support social well-being, education, and community development beyond profit making (Gillo et al., 2025). Within this framework, education has emerged as a key priority, given its status as a fundamental human right and its vital role in promoting economic development, poverty reduction, and social inclusion (Rajan, 2024).



Accordingly, CSR initiatives in education commonly include infrastructure development, scholarships, learning materials and educational supplies, and funding teacher training, all aimed at improving access and equity in education (Fusheini et al., 2023).

This growing focus of CSR in education aligns with the United Nations Sustainable Development Goal four (SDG 4), which emphasises inclusive and equitable quality education for all (Nguyen et al., 2025). As core part of SDG 4, inclusive education enables all learners to learn together in regular schools while addressing diverse needs of all learners, increasing participation, and reducing exclusion (UNESCO, 2022). It promotes equal access through accessible infrastructure, trained teachers, and adaptive learning environments, supporting all learners in mainstream classrooms by removing barriers and improving their sense of belonging and academic performance (Sirkko et al., 2024).

According to Juma and Mussa (2024), pupils with special needs are those who require additional support due to physical, sensory, intellectual, social, emotional, linguistic or other learning conditions that may limit their access to education. These learners often rely on specialised teaching strategies, assistive technologies, and modified curricula to participate meaningfully in learning process. Despite global commitments, inclusive education particularly in low- and middle-income countries, continue to face barriers such as inaccessible infrastructure, limited assistive devices, limited trained teachers, social stigma, and limited resources (Billops, 2024; Okello, 2024). These challenges are reflected in UNICEF (2022) report from 42 countries, which show that children with disabilities are 49% more likely to have never attended school, 47% more likely to be out of primary school, and 33% more likely to be out of secondary school than children without disabilities.

Evidence from Indonesia and Peru further shows that limited resources and teacher capacity, especially in rural areas, constrain inclusive education initiatives (Djafri & Korlefura, 2024). Similar challenges persist in Africa, where inadequate public funding, poor school infrastructure, and shortages of teachers trained in special needs education hinder effective implementation. In Malawi, limited public funding and educational facilities restrict inclusive education (MacJessie-Mbewe, 2023), while in South Africa, low public awareness and negative social attitudes continue to impede the integration of children with special needs into mainstream schools, contributing to exclusion and poor educational outcomes (Mutongoza, 2024). These persistent resource and institutional gaps have increased attention to the role of the private sector, particularly through CSR, in supporting inclusive education. Studies indicate that CSR initiatives complement public funding by providing infrastructure, learning materials and educational supplies, scholarships, assistive devices, and teacher training, thereby improving educational access (Banskota et al., 2025; Ebekoziem et al., 2023).

However, CSR initiatives often driven by corporate interests, such as brand image building and market expansion, resulting to greater emphasis on visible investments, such as infrastructure, than on less tangible but essential needs (Ketterling, 2025). Consequently, CSR initiatives often fail to address critical issues like teacher training, inclusive pedagogy, and systemic inequalities affecting learners with special needs. Moreover, weak regulations and accountability mechanisms contribute to fragmented and uneven implementation, limiting the sustainability and long-term impact of CSR initiatives (Sunata & Özdemir, 2021; Towne et al., 2024). These limitations raise questions about the extent to which CSR initiatives support inclusive education for learners, given that effective inclusion requires continuous investment in trained teachers, appropriate learning materials and educational supplies, assistive technologies, and supportive learning environments.

The United Republic of Tanzania (URT), through policy frameworks, including the Tanzania Development Vision 2050, Education and Training Policy (2014, revised 2023), and Inclusive Education Strategy (2021/22 – 2025/26) demonstrate strong government commitment to equitable



access to quality and inclusive education for children with special needs (URT, 2025; MoEST, 2021). These frameworks emphasise improved learning environments, infrastructure, learning materials and supplies, and teacher training. Despite the policy commitment to inclusive education, implementation remains constrained by inaccessible infrastructure, inadequate learning materials, limited trained teachers on inclusive education, social stigma, and insufficient funding (Fulmes et al., 2024). These challenges limit access, participation, social inclusion, well-being, and academic support for learners with special needs (Kapinga, 2023). As a result, CSR initiatives have emerged as potential complement to government efforts through infrastructure development, learning materials, assistive devices, sanitation facilities, and teacher capacity-building (Sagabho & Asha, 2022; Kikwiye, 2021). Despite this potential, contribution of CSR initiatives to inclusive education, especially in public primary schools (Suluo et al., 2020), creating a need for empirical investigation.

Existing studies largely focus on infrastructure and community development, with limited evidence on their effects on learning environments, participation, social inclusion, well-being, and academic performance (Amani, 2023; Gillo et al., 2023; Chikowore, 2023). This gap is further reflected in limited scholarly attention to the relationship between CSR initiatives and inclusive education (Al Sakka et al., 2023). Therefore, this study examines CSR initiatives as predictors of inclusive education in Tanzanian public primary schools, focusing on types of CSR initiatives implemented and their association with inclusive education in improving learning environments, participation, social inclusion, well-being, and academic performance. The study seeks to provide empirical evidence on how CSR can enhance inclusive education, to inform policy, guide corporate investments, strengthen school-community partnerships, and promote educational equity, accountability, and social justice.

Literature Review

This section establishes the theoretical and empirical foundation by examining guiding theories, reviewing relevant empirical evidence, identifying research gaps, developing hypotheses from established relationships, and presenting a conceptual framework that illustrates the anticipated relationships among the study's variables.

Guiding Theories

The study is guided by Stakeholder theory introduced by R. E. Freeman in 1984 (Freeman, 2004) and the Triple Bottom Line (TBL) proposed by J. Elkington in 1994 (Elkington, 2013). Stakeholder theory emphasises creating value by addressing stakeholders' needs and interests. In this study, pupils, teachers, parents, communities, and government are key stakeholders. CSR initiatives support their needs through accessible infrastructure, inclusive learning materials and supplies, sanitation, ICT facilities, assistive technologies, and extra-curricular activities. However, it provides limited guidance on sustainability, prioritising competing stakeholder interests, and balancing diverse needs (Awa et al., 2024). TBL complements these limitations assessing CSR outcomes across social, environmental, and economic dimensions. It links CSR initiatives to improved inclusive education through donation of sustainable sanitation facilities, and human capital (Elkington, 2013). Thus, integrating both frameworks connects stakeholders benefits with sustainable, resource efficient CSR outcomes that strengthen inclusive education.

Construction of Accessible Infrastructure

Accessible infrastructure is widely considered as fundamental to inclusive education, particularly for pupils with special needs. (UNESCO, 2022) reports that inadequate accessible infrastructure like ramps, adapted toilets, and well-designed classrooms constrain enrolment and participation. Similarly, Ministry of Education, Science and Technology (MoEST) highlights the importance of accessible facilities in promoting safety, dignity, mobility, and educational access (MoEST, 2021). CSR initiatives complement government efforts by supporting school infrastructure and learning materials and supplies (Fusheini et al., 2023). However, previous studies indicate that



infrastructure provision alone cannot achieve meaningful inclusion. Okello (2024) found that physical access without supportive pedagogy and teaching practices often results in limited educational benefits. Gillo et al. (2025) also reported challenges of inadequate maintenance and sustainability of CSR-supported infrastructure projects in developing countries. These findings suggest that CSR-funded infrastructure requires further empirical examination.

H_{01} : Construction of accessible infrastructure through CSR initiatives does not significantly predict improvement in inclusive education.

Donation of Inclusive Learning Materials and educational supplies

Access to appropriate learning materials and supplies are essential for improving academic participation and performance among learners. Adapted resources such as braille texts, audio materials, and visual aids can enhance comprehension, participation and engagement (Makinde et al., 2024). Similarly, equitable distribution of learning resources contributes to improved academic performance (Okere & Daramola, 2023). However, the availability of learning materials does not often guarantee effective use. Towne et al. (2024) found that resources provided through CSR initiatives are underutilised due to inadequate teacher training and lack of alignment with curriculum needs. Donation based approaches also overlook maintenance, monitoring, and sustainability. Therefore, further empirical investigation is to examine CSR initiatives as predictors of inclusive education.

H_{02} : Donation of inclusive learning materials and supplies through CSR does not significantly predict improvement in inclusive education.

Donation of Sanitation facilities

Accessible and hygiene sanitation facilities are important for promoting school attendance, dignity, and participation among pupils with special needs. Azhar and Azman (2021) found that accessible sanitation facilities improve school attendance, particularly among vulnerable learners. However, the effectiveness of sanitation facilities depend on broader contextual conditions. Mutongoza (2024) reported that inadequate water supply, limited public awareness, and negative social attitudes towards children with special needs constrain their participation in mainstream education.

Similarly, Sunata and Özdemir (2021) that CSR-supported sanitation facilities may face limited accountability and uneven corporate management. These findings indicate that sanitation facilities alone may not be sufficient to improve inclusive education without complementary interventions addressing water supply, awareness, attitudes, accountability, and sustainability. Consequently, the relationship between CSR-supported sanitation facilities and inclusive education requires empirical examination.

H_{03} : Provision of sanitation facilities through CSR does not significantly predict improvement in inclusive education.

Donation of ICT and Assistive Devices

Information and communication technology (ICT) and assistive devices are increasingly recognised as important tools for supporting inclusive education. Banskota et al. (2025) reported that CSR initiatives supporting accessible facilities and assistive resources, including ramps, inclusive toilets, Braille materials, hearing aids, and wheelchairs can help address barriers experienced by learners with special needs. Such technologies can facilitate access to learning, communication, and participation.

However, existing evidence also identifies challenges affecting the effectiveness of assistive technologies. Serfontein-Jordaan and Dlungwane (2022) found that assistive technologies may be ineffective where schools lack adequate infrastructure, technical support, and maintenance



capacity. Unequal access to technology may also reinforce existing educational inequalities. These findings suggest that provision of ICT and assistive devices through CSR does not automatically guarantee improved inclusion. Further empirical evidence is therefore needed to establish their relationship with inclusive education. These mixed findings provide a basis for testing:

H_{04} : Donation of ICT and assistive facilities through CSR does not significantly predict improvement in inclusive education.

Funded Extra-curricular Activities

Extra-curricular activities, including sports, arts, and clubs, can provide opportunities for social inclusion, interaction, and reduction of stigma among pupils with special needs. Reikosky (2024) identifies such activities as important mechanism for promoting social inclusion and interaction. Similarly, Jain et al. (2025) reported that CSR-supported extra-curricular activities may contribute to improved academic performance, well-being and social inclusion among learners with special needs.

However, participation in extra-curricular activities does not always result in meaningful inclusion. Altavilla (2025) notes that learners with special needs may experience marginalisation in such programmes due to inadequate adaptation and negative peer attitudes. In addition, Lily and Sharma (2025) argue that some CSR-funded extra-curricular activities may emphasise visibility and publicity rather than meaningful inclusion. These findings indicate that the contribution of CSR-funded extra-curricular activities to inclusive education remains an empirical question, resulting in testing the null hypothesis:

H_{05} : Funding of extracurricular activities through CSR does not significantly predict improvement in inclusive education.

Conceptual Framework

The conceptual framework presents the relationship between five CSR initiatives including construction of accessible infrastructure, donation of inclusive learning materials and supplies, donation of ICT and assistive facilities, provision of sanitation facilities, and funding extra-curricular activities, and inclusive education outcomes among pupils with special needs. The CSR initiatives constitute the independent variables and are expected to predict overall improvements in inclusive education. These initiatives are expected to improve inclusive education. Inclusive education as a dependent variable is measured as a single overall outcome encompassing improved learning environments, participation, social inclusion, well-being and academic performance. These dimensions provide conceptual context but are not measured as separate constructs. The framework therefore examines whether each CSR initiative significantly predicts perceived inclusive education outcomes, providing the basis for testing five null hypotheses: H_{01} , H_{02} , H_{03} , H_{04} , and H_{05} .

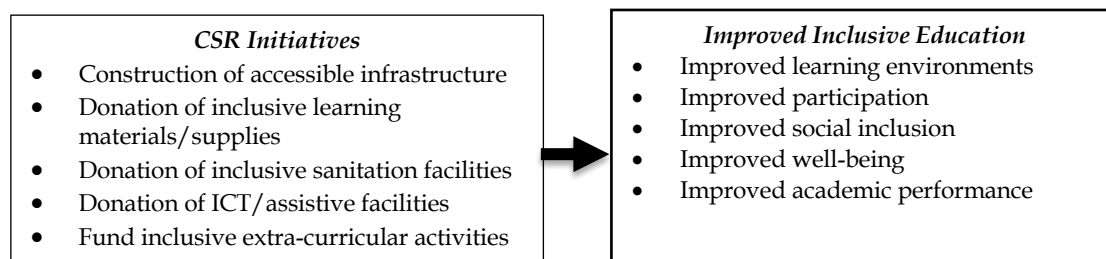


Figure 1: Conceptual Framework

Source: Researchers' construction (2026)



Methodology

Research Design and Study Area

This study employed a descriptive cross-sectional design using mixed-methods to examine CSR initiatives as predictors of inclusive education in public primary schools in Ngorongoro District, Arusha Region in Tanzania. The design enabled the collection of quantitative and qualitative data at a single point in time and facilitated triangulation of findings (Saunders & Darabi, 2024; Melnikovas, 2018). Ngorongoro District was selected because of its predominantly pastoralist population, dispersed settlements, limited infrastructure and learning materials, and resource constraints affecting access to education (Ndibalema, 2022). The study conducted in eight wards involving public primary schools that benefited from CSR initiatives, namely Arash, Enduleni, Nainokanoka, Ngorongoro, Oloipiri, Orgosorok, Ololosokwan, and Soitsambu. These initiatives included infrastructure development, learning materials and supplies, sanitation facilities, ICT and assistive facilities, and support for extra-curricular activities.

Population, Sampling and Sample Size

According to President's Office, Regional Administration and Local Government - PO-RALG (2022), the study population consisted of 40,600 individuals from public primary schools, including 40,051 pupils (98.65%) and 549 teachers (1.35%). Cochran's formula was applied at a 95% confidence level and a 5% margin error, yielded a sample of 381 respondents, comprising 240 pupils and 141 teachers. Consequently, teachers represented 37.0% of the sample despite representing 1.35% of the target population. The unequal representation of pupils and teachers was acknowledged when interpreting the statistical results in relation to their respective proportions in the target population. Sixteen CSR beneficiary schools were purposively selected, with two schools from each of the eight wards. Within the selected schools, teachers and pupils in grades five to seven were selected using simple random sampling to obtain their perceptions of the provision and implementation of inclusive education. In addition, 21 key informants were purposively selected based on their knowledge of CSR and inclusive education. The key informants comprised Ward Education Officers (WEOs), village leaders, CSR representatives, head teachers, and school committee members. Two focus group discussions (FGDs), each comprising eight participants were also conducted. Beneficiary schools were identified through District Education Office. Because pupils and teachers were sampled at different rates and respondents were clustered within schools, the quantitative analysis accounted for both unequal sampling probabilities and the clustered structure of the data.

Data Collection and Instruments Quality

Quantitative data were collected using a structured five-point Likert scale questionnaire administered to pupils and teachers. All 240 pupil questionnaires were returned and found usable, representing a 100% response rate. Of the 141 teacher questionnaires distributed, 138 were returned and found usable, representing 97.9% response rate. Overall, 378 of the 381 distributed questionnaires were returned and found usable, representing a 99.2% response rate. Qualitative data were collected through 21 Key Informant Interviews (KIIs) and two Focus Group Discussions (FGDs), using semi-structured guides and checklists (Akyıldız & Ahmed, 2021). Each FGD involved eight participants, and lasted 35 – 70 minutes. Data collection instruments were reviewed by experts in education, CSR, and research methodology and pilot-tested with 40 respondents from comparable schools outside the study area. Reliability was assessed using Cronbach's Alpha, with coefficients ranging from 0.72 to 0.82 across the study constructs and overall coefficients of 0.80 for teachers and 0.83 for pupils, exceeding the recommended threshold of 0.70 (Bujang et al., 2024; Menon et al., 2021). The reliability results are presented in Table 1.



Table 1: Reliability Analysis

CSR initiatives (Predictors)	Cronbach's Alpha	
	Teachers (n = 138)	Pupils (n = 240)
Construction of accessible infrastructure	0.74	0.74
Donation of inclusive learning materials/ supplies	0.72	0.75
Donation of sanitation facilities	0.79	0.79
Donation of ICT/assistive facilities	0.76	0.82
Funding inclusive extra-curricular activities	0.72	0.72
Overall Instrument	0.80	0.83

Data Analysis

Quantitative data were analysed using descriptive statistics and binary logistic regression. The dependent variable, improved inclusive education (IIE), was operationalised as a dichotomous measure of respondents perceived improvement in inclusive education. Responses to the relevant items were aggregated to calculate a mean score for each respondent. Scores of ≥ 3.0 were coded as 1 (Improved), whereas scores of < 3.0 were coded as 0 (Not improved). The independent variables comprised five CSR dimensions were included as independent variables: construction of accessible infrastructure (CAI), donation of Inclusive learning materials and supplies (DIM), donation of sanitation facilities (DSF), ICT/assistive facilities (DIF), and funding inclusive extra-curricular activities (FIA). Each dimension was measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Binary logistic regression was used to estimate the relationships between these CSR dimensions and the likelihood of perceived improvement in inclusive education, controlling for the other predictors in the model. The model was specified as:

$$\text{logit}[P(\text{IIE} = 1)] = \beta_0 + \beta_1 \text{CAI} + \beta_2 \text{DIM} + \beta_3 \text{DSF} + \beta_4 \text{DIF} + \beta_5 \text{FIA} \dots \dots \dots (2)$$

Where: β_0 = intercept, and $\beta_1 - \beta_5$ = regression coefficients.

The binary logistic regression results indicated that both the teacher and pupil models provided a significantly better fit than respective null models (teachers: $\chi^2_5 = 48.36, p < 0.001$; pupils: $\chi^2_5 = 40.27, p < 0.001$). The teacher model showed moderate explanatory performance (Cox and Snell $R^2 = 0.296$; Nagelkerke $R^2 = 0.397$) and correctly classified 78.3% of case, while pupil model showed more modest explanatory performance (Cox and Snell $R^2 = 0.155$; Nagelkerke $R^2 = 0.225$) with 73.8% classification accuracy. The non-significant Hosmer-Lemeshow tests for both teachers ($\chi^2_8 = 6.47, p = 0.594$) and pupils ($\chi^2_8 = 7.83, p = 0.450$), indicated no evidence of inadequate model fit, supporting the overall adequacy of both models. Multicollinearity was examined using variance inflation factor (VIF) and tolerance statistics, with results in Table 5 and 6 indicating no serious multicollinearity. Qualitative data were analysed using inductive content analysis through coding, categorisation, and identification of recurring themes. The qualitative findings were used to complement and triangulate the quantitative findings.



Table 2: Description of Variables

Variable	Type	Description	Measurement
CSR initiatives	Independent variable	Efforts by companies to support education	5-Point Likert Scale
Construction of accessible infrastructure (CAI)		Development of physical facilities to support teaching/learning	Likert: 1 – SD, 2- D, 3 – N, 4 – A, 5 – SA
Donation of inclusive learning materials and supplies (DIM)		Giving of desks, chairs, books, and other educational supplies to a school	„
Donation of sanitation facilities (DSF)		Providing schools with toilets, clean and safe water, and related hygiene facilities	„
Donation of ICT/assistive facilities (DIF)		Providing schools with technologies and assistive facilities like wheelchairs, Hearing aids, Braille	„
Funding inclusive extra-curricular activities (FIA)		Support for a school programmes and events that take place outside regular classroom lessons	„
Inclusive Education (IIE)	Dependent variable	Respondents' perceived improvement in inclusive education resulting from CSR initiatives	Binary: 1 = Improved; 0 = Not improved

Note: 5 - Point Likert Scale (SD – Strongly Disagrees, D- Disagree, N – Neutral, A – Agree, SA – Strongly Agree)

Table 3: Binary Logistic Regression Model Fit for Improved Inclusive Education

		Teacher (n = 138)	Pupils (n = 240)
Model Fit Statistic			
-2Log Likelihood		139.62	242.84
Cox & Snell R^2		0.296	0.155
Nagelkerke R^2		0.397	0.225
Hosmer-Lemeshow	χ^2	6.47	7.83
	df	8	8
	p-value	0.594	0.450
Model	χ^2	48.36	40.27
	df	5	5
	Model p-value	<0.001	<0.001
Classification accuracy (%)		78.3	73.8

Ethical Considerations

Ethical approval was obtained from Moshi Co-operative University (Ref. No. MoCU/UGS/3/41). Research permission was granted by the Arusha Regional Administrative Secretary (Ref. No. FA.132/195/01/ 'P'/80) and Ngorongoro District Administrative Secretary (Ref. No. AB. 114/354/01/150). Participants were informed about the study purpose, voluntary participation, withdraw rights, confidentiality, and anonymity before data collection. Wards and participants were assigned codes to protect their identities. Parental or guardian consent and pupils' assent were obtained for participating pupils. Data were anonymised, secured stored, and accessed only by the research team.

Results and Discussion

This section presents the study findings on CSR initiatives implemented and examines their relationships and predictive effects on inclusive education, linking the findings with previous studies and relevant theories.



CSR Initiatives Implemented

The results in Table 4 show that the implementation of CSR initiatives varied between teachers and pupils. The descriptive statistics presented in Table 4 indicate that CSR initiatives strongly associated with the observed inclusive education outcomes in public primary schools, with physical infrastructure improvements emerging as the strongest interventions. The construction of accessible infrastructure (mean = 3.15, std = 0.70) and the provision of inclusive learning materials and supplies (mean = 3.10, std 0.70), received the highest ratings, indicating their visibility and immediate response to educational needs, followed by funding inclusive extra-curricular activities (mean = 3.08, std = 0.71). Donation of sanitation facilities (mean = 2.83, std = 0.74) and donation of ICT/assistive facilities (mean = 2.64, std = 0.79) had comparatively lower overall means, suggesting that these initiatives received less attention in implementation.

The difference between teachers' and pupils' responses are also notable. Pupils reported higher levels for construction of accessible infrastructure (mean = 3.25) and funding inclusive extra-curricular activities (mean = 3.24), whereas teachers reported higher level for donation of inclusive learning materials and supplies (mean = 3.18) and donation of sanitation facilities (mean = 3.04). Overall, the findings suggest that CSR initiatives were implemented at varying level, with construction of accessible infrastructure, donation of inclusive learning materials and supplies, and funding inclusive extra-curricular activities more commonly reported than donation of sanitation facilities and donation of ICT/assistive facilities.

Table 4: Descriptive statistics for CSR initiatives implemented

CSR initiatives	Teachers' Mean (std)	Pupils' Mean (std)	Overall Mean (std)
CAI	2.97 (0.71)	3.25 (0.68)	3.15 (0.70)
DIM	3.18 (0.65)	3.03 (0.73)	3.10 (0.70)
DSI	3.04 (0.69)	2.68 (0.76)	2.83 (0.74)
DIF	2.93 (0.72)	2.48 (0.81)	2.64 (0.79)
FIA	2.80 (0.74)	3.24 (0.67)	3.08 (0.71)

Key Informants reported that several facilities had been provided to support inclusive education, however the provision remained inadequate. A CSR officer from one of the firms explained:

'...we provide special textbooks, braille materials, hearing aids to schools that enrol pupils with special needs.... Our aim is to ensure that these pupils have the same opportunities as their peer children...'. (BR1,W6).

This was further supported by FGD participants who reported that:

'...children with special needs now have access to books such as braille books and a learning assistant in classes....' (SCM3, W3).

These findings are consistent with Fusheini et al. (2023), who found that CSR initiatives in schools help to bridge gaps in a wide range of infrastructure, teaching, learning materials and supplies. However, Conte et al. (2022) argue that CSR initiatives as important factors associated with corporate and political interests rather than the specific needs and political interests rather than the specific needs of persons with special needs. The findings suggest that CSR initiatives should prioritise inclusive infrastructural development, learning materials and supplies, address technological and teacher capacity-building gaps.

Relationships of CSR Initiatives with Inclusive Education

As presented in Table 5, four of the five CSR initiatives were significantly associated with improved inclusive education outcomes among teachers. Construction of accessible infrastructure had a higher implementation effect ($\beta = 0.842$, $p = 0.003$), with an odds ratio of 2.32, indicating that its implementation was associated with approximately 2.32 times higher odds of improved inclusive education. Similarly, donation of inclusive learning materials and supplies ($\beta = 0.613$,



$p = 0.019$), sanitation facilities ($\beta = 0.476$, $p = 0.045$), and ICT/assistive facilities ($\beta = 0.731$, $p = 0.007$) were significant positive with odds ratios (Exp (β)) of 1.846, 1.609, and 2.077, respectively. These results indicate that, among teachers, accessible infrastructure, inclusive learning materials and supplies, sanitation, ICT and assistive facilities were each positively associated with the likelihood of reporting improved inclusive education outcomes. In contrast, funding of inclusive extra-curricular activities was not significant ($\beta = 0.395$, $p = 0.110$; Exp (β) = 1.484). Although the coefficient was positive, the evidence was insufficient to conclude that this initiative was associated with improved inclusive education among teachers. Accordingly, H_{05} was not rejected whereas the null hypotheses H_{01} , H_{02} , H_{03} , and H_{04} were rejected at the 5% significance level.

The findings suggest that teachers particularly associated improvements in inclusive education with physical accessibility, availability of appropriate learning resources, adequate sanitation, and access to ICT and assistive facilities. The relatively strong association observed for accessible infrastructure indicates the importance of the physical learning environment in supporting the participation of pupils with special needs. However, these findings represent statistical associations and should not be interpreted as evidence that the CSR initiatives independently caused the observed improvements.

Table 5: Binary Logistic Regression Predicting Improved Inclusive Education Among Teachers

CSR initiatives	β	S. E	Wald	df	p	Exp (β)	95% CI	Tolerance	VIF
Constant	-4.126	1.284	10.32	1	0.001	0.016	0.001-0.200		
CAI	0.842	0.284	8.79	1	0.003	2.321	1.330- 4.050	0.621	1.61
DIM	0.613	0.261	5.52	1	0.019	1.846	1.106 -3.082	0.587	1.70
DSF	0.476	0.238	4.00	1	0.045	1.609	1.010 -2.564	0.664	1.51
DIF	0.731	0.273	7.17	1	0.007	2.077	1.216 -3.548	0.548	1.82
FIA	0.395	0.247	2.56	1	0.110	1.484	0.914 -2.410	0.603	1.66

A somewhat different pattern was observed among pupils, as shown in Table 6. Construction of accessible infrastructure was positively and significantly associated with improved inclusive education outcomes ($\beta = 0.654$, $p = 0.001$), donation of inclusive learning materials and supplies ($\beta = 0.438$, $p = 0.020$), and sanitation facilities ($\beta = 0.521$, $p = 0.008$) were significantly associated with improved inclusive education. The odds ratio Exp (β) (1.923, 1.549, and 1.684 respectively) indicate that implementation of these initiatives was associated with higher odds as predictors of improvements in inclusive education. These results indicate that accessible physical environments, appropriate learning materials and supplies, and adequate sanitation were consistently associated with improved inclusive education outcomes from pupils' perspectives.

Unlike the findings among teachers, funding inclusive extra-curricular activities was significant among pupils ($\beta = 0.719$, $p = 0.001$, Exp (β) = 2.052). This indicates that higher implementation of inclusive extra-curricular activities was associated approximately 2.05 times higher odds of improved inclusive education among pupils. The finding suggests that activities extending beyond the classroom may have particular relevance to pupils' participation and social interaction. However, donation of ICT and assistive facilities was not significant ($\beta = 0.287$, $p = 0.113$, Exp (β) = 1.332). Despite the coefficient was positive, the result did not provide sufficient evidence of an association at 5% significance level. Therefore, H_{04} was not rejected, whereas the null hypotheses H_{01} , H_{02} , H_{03} , and H_{05} were rejected.

The difference between teachers' and pupils' results is noteworthy. ICT and assistive facilities were significantly associated with improved inclusive education among teachers and not among pupils, whereas funding of inclusive extra-curricular activities was significant among pupils but not among teachers. These differences may reflect variations in exposure to, utilisation of, and perceptions of particular CSR initiatives. The qualitative findings provide further contextual evidence for understanding these differences, particularly with regard to teacher training,



utilisation of assistive technologies, maintenance of facilities, and pupils' opportunities for participation.

Table 6: Binary Logistic Regression Predicting Improved Inclusive Education Among Pupils

CSR initiatives	β	S. E	Wald	df	p	Exp (β)	95% CI	Tolerance	VIF
Constant	-3.284	0.927	12.54	1	0.001	0.037	0.225-0.231		
CAI	0.654	0.204	10.37	1	0.001	1.923	1.292-2.863	0.612	1.63
DIM	0.438	0.188	5.43	1	0.020	1.549	1.071-2.240	0.574	1.74
DSF	0.521	0.196	7.06	1	0.008	1.684	1.147-2.473	0.653	1.53
DIF	0.287	0.181	2.51	1	0.113	1.332	0.933-1.901	0.561	1.78
FIA	0.719	0.210	11.71	1	0.001	2.052	1.360-3.096	0.596	1.68

The quantitative findings were complemented by evidence from key informant interviews (KIIs) and focus group discussions (FGDs). Participants consistently described accessible classrooms, improved sanitation, and learning materials and supplies as important conditions for participation and engagement of pupils. One Head teachers explained:

'...company built ramps and widened classrooms, and donation of adapted desks made easier for children with special needs to attend school regularly...without this support, many of them would have stayed at home...' (HT4, W4).

Similarly, a village leader reported during an FGD how the CSR-funded classrooms had improved accessibility for learners with special needs especially those with disabilities:

'...before the CSR-funded classroom, learners in wheelchairs could not enter some classrooms. Now, they can participate fully in lessons, which has improved their participation and confidence... funded extra-curricular activities, improved sanitation, and provision of ICT and assistive facilities were associated to pupils' well-being, confidence, and social interaction...'. (VL3, W3).

These accounts provide contextual support for the statistical findings by illustrating how physical accessibility, learning materials and supplies, sanitation, assistive facilities, and extra-curricular activities were experienced within schools. They also indicate that the contribution of CSR initiatives extends beyond the provision of physical resources to issues of participation, confidence, well-being, and social interaction. However, participants also identified challenges that may constrain the sustainability and effective utilisation of CSR-supported facilities. A Ward Education Officer observed;

'...while the support is helpful, some initiatives are short-term ... once company leaves maintenances of facilities become difficult without government support...'. (WEO1, W1).

Similarly, a village leader noted:

'...we appreciate the corporate donations, but some of the equipment needs regular repair or replacement, and it can be challenging to maintain when funding stops...' (VL6, W6).

These findings suggest that the presence of support through CSR initiatives does not necessarily guarantee their continued use or long-term contribution to inclusive education. Maintenance requirements, unequal access to resource, limited teacher training in assistive technologies, and low ICT awareness may affect the extent to which donated facilities and materials are utilised. The qualitative evidence therefore helps explain why the effects of particular CSR initiatives differed between teachers and pupils. The findings are broadly consistent with previous studies that have highlighted the contribution of accessible infrastructure and inclusive learning materials to improved learning environments and participation (Makinde et al., 2024; Lv et al., 2022). At the same time, the present findings indicate that the provision of resources alone may not be sufficient.



Effective utilisation, maintenance, teacher capacity, and alignment between CSR initiatives and the specific needs of pupils with special needs appear to be important contextual considerations.

Theoretical Interpretation of Findings

The findings are interpreted through the lens of Stakeholder Theory, particularly because the CSR initiatives examined in this study addressed needs of key school stakeholders, including pupils, teachers, schools, and local communities. The observed associations between accessible infrastructure, inclusive learning materials and supplies, sanitation, and inclusive education outcomes, together with the qualitative evidence, provide a basis for understanding how CSR initiatives may respond to stakeholder needs. However, stakeholder identification, interests, and salience were not formally operationalised or measured in this study. Therefore, the findings should not be regarded as an empirical test or direct support of Stakeholder Theory, rather, the theory provides a conceptual lens for interpreting the findings.

Similarly, the findings can be viewed using the Triple Bottom Line (TBL) perspective, particularly in relation to social inclusion, improved learning conditions, human capital development, and school environmental conditions. However, the study did not operationalise or separately measure the economic, social, and environmental dimensions of TBL. Consequently, the findings cannot be interpreted as empirical evidence confirming or affirming the TBL. Instead, TBL serves as a conceptual framework for discussing the broader sustainability implications that may be associated with the CSR initiatives examined in the study. Overall, the study provides evidence of associations selected CSR initiatives and inclusive education outcomes. Stakeholder Theory and the Triple Bottom Line are therefore used as integrative frameworks for contextualising these findings rather than as theories, directly tested or empirically validated by the study.

Conclusion

The study concludes that several CSR initiatives significantly ($p < 0.05$) associated with perceived improvement in inclusive education among the sampled CSR – beneficiary public primary schools in Ngorongoro District. Accessible infrastructure, inclusive learning materials and educational supplies, sanitation facilities, ICT and assistive facilities significantly predicted perceived improvement in inclusive education among teachers, while extra-curricular activities were not significant. Among pupils, accessible infrastructure, inclusive learning materials and educational supplies, sanitation facilities, and extra-curricular activities significantly predicted perceived improvement in inclusive education among teachers, whereas ICT and assistive facilities were not significant. However, the contribution of sanitation, ICT and assistive devices, and extra-curricular activities is affected by implementation, accessibility, utilisation, and sustainability challenges. Differences between teachers' and pupils' perspectives also suggest gaps in awareness and resource utilisation, emphasising the need for learner centred approaches.

Practically, corporations, schools, and educators should prioritise accessible infrastructure, inclusive learning materials and educational supplies, teacher capacity-building, and effective utilisation of CSR resources. Policymakers, particularly the President's Office-Regional Administration and Local Government (PO-RALG) and relevant authorities, should strengthen CSR coordination, monitoring, equitable resource allocation, and teacher training in inclusive pedagogy and assistive technologies. The study contributes empirical evidence on the relationship between CSR initiatives and inclusive education within the Tanzanian public primary school context. Theoretically, the findings support Stakeholder Theory by demonstrating value creation through CSR initiatives for pupils, teachers, parents, schools, communities, government, and corporations, while supporting the Triple Bottom Line perspective through emphasis on social value, responsible resource use, and sustainability. Aligning CSR initiatives with Tanzania Development Vision 2050, stakeholder needs, and inclusive education priorities can promote equitable and sustainable educational outcomes.



This study has several limitations. Its cross-sectional design captures CSR related conditions and perceptions at one point in time, preventing causal conclusions and limiting interpretations to associations or statistical predictions. Conducting the study in one district, Ngorongoro District, limits generalisation to other districts and wider Tanzanian public primary school system. Focusing exclusively on CSR-supported schools may have introduced selection bias and limits applicability to non-beneficiary schools. Additionally, self-reported data may be affected by response and social desirability biases. Finally, Stakeholder Theory and the Triple Bottom Line were used mainly as interpretive and descriptive theoretical frameworks rather than being subjected to direct empirical testing.

Future studies could address these limitations by using longitudinal, quasi-experimental or experimental designs to examine changes over time and strengthen causal inference. Comparative studies involving both supported and non-CSR-supported schools across multiple districts would also improve the generalizability of findings. Future studies could further incorporate objective measures of inclusive education, administrative records, and observations alongside self-reported data. In addition, subsequent studies could develop and empirically test more explicit theoretical models linking CSR initiatives, stakeholder relationships, and inclusive education outcomes.

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