AFRICAN JOURNAL OF THEORY AND PRACTICE OF EDUCATIONAL RESEARCH (AJTPER)
Print ISSN: 2630-6565
e-Copy ISSN: 2992-3638
VOL. 14 JUNE, 2026

INFLUENCE OF ENVIRONMENTAL EDUCATION ON PRO-ENVIRONMENTAL BEHAVIOUR AMONG SECONDARY SCHOOL LEARNERS IN MEME DIVISION, SOUTHWEST REGION, CAMEROON

https://doi.org/10.83151/jc7e-7k87

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Abstract
This study examines the influence of environmental education on pro-environmental behaviour among secondary school learners in Meme Division, Cameroon. A mixed-method design was employed, combining a quantitative survey of 450 Form 4 and 5 students with qualitative insights from purposively selected participants. Key variables measured included environmental knowledge, attitudes, exposure to environmental education, facilitators of environmental education, and pro-environmental behaviour. Results indicate that environmental education exposure and facilitators are the strongest predictors of pro-environmental behaviour ($r = .54$ and $r = .52$, $p < .01$). These findings underscore the importance of integrating both formal and informal environmental education tailored to local socio-cultural contexts to foster sustainable behaviours among youth in Meme Division. The study recommends strengthened curricular integration, teacher training, and enhanced community engagement to support learners in becoming effective environmental stewards.

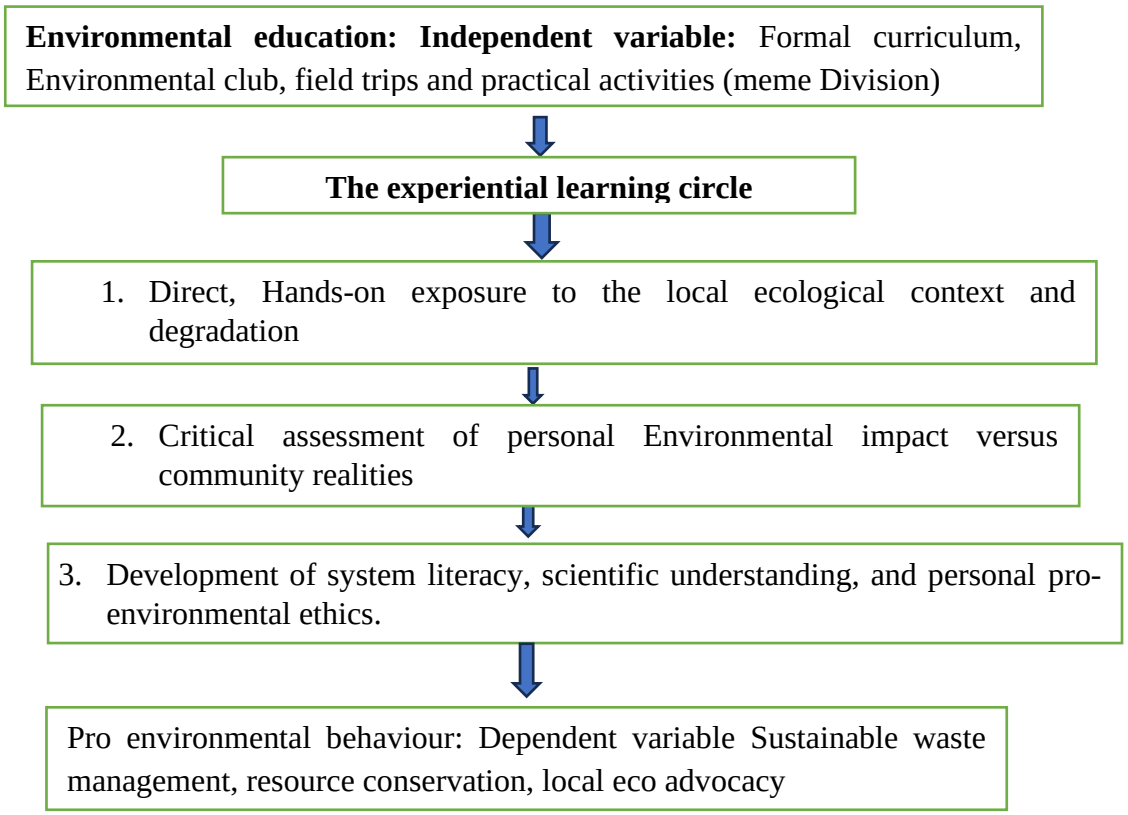
Keywords: Environmental education, pro-environmental behaviour, secondary schools, formal and informal education, environmental literacy

Introduction
Environmental education plays a crucial role in promoting environmental awareness, shaping pro-environmental attitudes, and encouraging sustainable behaviour among learners (Zsóka et al., 2013). With global environmental challenges such as climate change and biodiversity loss escalating, equipping youth with environmental knowledge

and skills has become imperative for sustainable development (Chawla & Cushing, 2007). In Cameroon, environmental education has been incorporated into select subjects within the national curriculum (Oladele, 2011). However, little empirical research has explored how this education influences pro-environmental attitudes and behaviours among secondary school students, especially in specific regions like Meme Division.

Meme Division is ecologically diverse, containing tropical rainforests, wetlands, and coastal ecosystems facing threats including deforestation, pollution, and resource exploitation (Ndenecho, 2005). Understanding the factors influencing youth pro-environmental behaviour in this division is essential for addressing environmental challenges locally. Prior research in Cameroon has largely focused on primary school pupils or adults, leaving a gap concerning secondary students (Oladele, 2011). This study addresses that gap by investigating the relationship between environmental education and pro-environmental behaviours among secondary school learners in Meme Division.

Several theories underpin environmental behaviour research. The Theory of Planned Behaviour (TPB) suggests that behavioural intention strongly predicts actual behaviour (Fujii, 2006) and has been confirmed for recycling and waste reduction actions (Chin et al., 2018). Complementing this, Experiential Learning Theory (ELT) proposes that direct, hands-on learning cycles foster deeper environmental engagement (Kolb, 1984). Figure 1 illustrates how ELT stages can explain the development of pro-environmental behaviour.



4. Practical application of solution through students led school and household ecological initiatives

Figure 1: Conceptual Framework

Figure 1. Conceptual framework illustrating the relationship between environmental education and pro-environmental behaviour based on Experiential Learning Theory.

Empirical research supports the importance of environmental knowledge, attitudes, and contextual facilitators in shaping sustainable behaviour (Zsóka et al., 2013; Boyes & Stanis Street, 2012). Teacher preparedness and community involvement also significantly affect environmental education outcomes (Akyeampong, 2017; Oladele, 2011). This study integrates these perspectives to explore their relevance in the Meme Division context.

Problem Statement: Despite the integration of environmental education in Cameroon's curriculum, limited evidence exists on how such education translates into pro-environmental behaviours among secondary school students in Meme Division. This lack of localized understanding hampers effective program development tailored to regional needs.

Hypotheses:

H1: There is a positive correlation between environmental knowledge and pro-environmental behaviour.

H2: There is a positive correlation between environmental attitudes and pro-environmental behaviour.

H3: Environmental education exposure significantly predicts pro-environmental behaviour.

H4: Facilitators of environmental education (e.g., resources, teacher support) significantly predict pro-environmental behaviour.

Methodology

A mixed-methods approach was adopted, combining quantitative survey data and qualitative insights for a comprehensive understanding.

Population and Sampling

The population comprised Form 4 and 5 learners in public, lay private, and denominational secondary schools in Meme Division. A stratified random sampling technique was used to select 450 students proportionate to school types and gender. For qualitative insights, purposive sampling selected students based on diverse environmental knowledge and actions.

Instruments

- **Environmental Education Scale:** 20-item scale measuring knowledge, attitudes, and awareness, adapted from Zsóka et al. (2013). Cronbach's alpha = 0.82.
- **Pro-Environmental Behaviour Scale:** Items measuring frequency of behaviours such as recycling and energy conservation (12 items; Cronbach's alpha = 0.79).
- **Facilitators Scale:** Items on availability of educational resources, teacher support, and community involvement.

Response format: 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree).

Data Collection

Questionnaires were administered with permission from school authorities and informed consent from principals and learners. Data collection was paper-based during school hours under supervision.

Data Analysis

Descriptive statistics, Pearson correlations, and multiple regression analyses were conducted using SPSS Version 25 to assess relationships and predictive power among variables.

Results and Discussion

Table 1: Mean and SD of environmental knowledge and pro-environmental behaviour

Variable	Mean	SD	N	Scale Range
Environmental Knowledge	18.49	6.64	450	0–30
Environmental Attitude	21.78	6.82	450	0–30
Environmental Behaviour	22.73	6.63	450	0–30
Environmental Education Exposure	18.18	6.18	450	0–30
Facilitators of Education	20.69	7.40	450	0–30
Pro-Environmental Behaviour	21.36	6.42	450	0–30

The results in Table 1 show that learners recorded relatively high mean scores across all variables on a scale range of 0–30. Environmental behaviour had the highest mean score (M = 22.73, SD = 6.63), indicating that many learners already engage in environmentally responsible practices. Environmental attitude also recorded a high mean (M = 21.78, SD = 6.82), suggesting that students generally possess positive attitudes toward environmental conservation.

Similarly, pro-environmental behaviour had a mean score of 21.36 (SD = 6.42), implying that learners demonstrate moderate to high levels of environmentally friendly actions such as proper waste disposal, tree planting, or conservation practices. Facilitators of environmental education recorded a mean of 20.69 (SD = 7.40), indicating that schools and communities may provide reasonable support for environmental learning activities.

Environmental knowledge (M = 18.49, SD = 6.64) and environmental education exposure (M = 18.18, SD = 6.18) had comparatively lower mean scores, although they still fall above the midpoint of the scale. This suggests that while students have some exposure to

environmental education and possess moderate environmental knowledge, there is room for improvement in strengthening environmental education programmes in schools.

Table 2 Correlations coefficients

Variable	EK	EA	EB	EEE	FE	PEB
Environmental Knowledge (EK)	1	.26	.24	.29	.41	.54
Environmental Attitude (EA)	.26	1	.31	.27	.39	.43
Environmental Behaviour (EB)	.24	.31	1	.22	.45	.48
Environmental Ed Exposure (EEE)	.29	.27	.22	1	.31	.56
Facilitators (FE)	.41	.39	.45	.31	1	.52
Pro-Environmental Behaviour (PEB)	.54	.43	.48	.56	.52	1

Note: All correlations are significant at $p < .01$, two-tailed. EK=Environmental Knowledge, EA=Environmental Attitude, EB=Environmental Behaviour, EEE=Environmental Education Exposure, FE=Facilitators, PEB=Pro-Environmental Behaviour

Table 2 presents the correlation coefficients among the study variables.

The findings reveal positive relationships between all variables and pro-environmental behaviour (PEB). Environmental education exposure (EEE) had the strongest relationship with pro-environmental behaviour ($r = .56$), indicating that increased exposure to environmental education is associated with higher levels of environmentally responsible behaviour among learners.

Environmental knowledge (EK) also showed a strong positive correlation with pro-environmental behaviour ($r = .54$). This suggests that learners who possess greater environmental knowledge are more likely to engage in behaviours that protect the environment.

Facilitators of education (FE) were positively correlated with pro-environmental behaviour ($r = .52$), implying that supportive school environments, teaching resources, and institutional encouragement contribute significantly to learners' environmental practices.

Environmental behaviour (EB) correlated positively with pro-environmental behaviour ($r = .48$), while environmental attitude (EA) also showed a moderate positive relationship with pro-environmental behaviour ($r = .43$). These findings suggest that learners with positive environmental attitudes and behaviours are more inclined to practice environmentally sustainable actions.

Additionally, the intercorrelations among the independent variables were all positive, indicating that environmental knowledge, attitudes, exposure, and facilitators are interconnected in promoting environmentally responsible behaviour among students.

Discussion

This study found significant positive relationships between environmental education variables and pro-environmental behaviour among secondary school learners in Meme Division. Exposure to environmental education and facilitators such as teacher support and resource availability were the strongest predictors, consistent with prior research (Zsóka et al., 2013; Akyeampong, 2017). This highlights that access and quality of environmental education programs are central to fostering sustainable behaviours.

The modest contributions of knowledge and attitude align with the Theory of Planned Behaviour, where intention and contextual factors mediate the attitude-behaviour link (Chin et al., 2018). The findings also support Experiential Learning Theory's emphasis on interactive, hands-on learning for behavioural change.

Contextually, challenges such as limited resources and teacher training constraints in Meme Division likely affect environmental education effectiveness (Oladele, 2011). Strengthening institutional support and integrating community engagement could amplify behavioural outcomes.

Limitations include reliance on self-report measures and cross-sectional design, which restrict causal inference. Future longitudinal studies and qualitative exploration would enrich understanding.

Conclusion and Recommendations

Environmental education significantly correlates with and predicts pro-environmental behaviour among secondary school learners in Meme Division. Notably, education exposure and facilitators emerged as key drivers of sustainable actions. These results highlight the critical need for enhancing both curricular content and institutional support within environmental education programs tailored to local realities. The following are recommended.

1. Curricular Integration: Strengthen and standardize environmental education content across all secondary schools in Meme Division.
2. Teacher Training: Provide continuous professional development focusing on active, experiential learning methods.
3. Resource Provision: Equip schools with relevant materials and facilities to enhance environmental education delivery.
4. Community Engagement: Promote school-community partnerships to reinforce environmental stewardship beyond classrooms.
5. School Eco-Clubs: Support extracurricular clubs that encourage student-led environmental initiatives.

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