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Assessment of Geography Grade 10 learners' environmental attitudes and values in selected secondary schools in Lesotho through the lens of the New Ecological Paradigm

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ABSTRACT

It is generally acknowledged that education, through school subjects such as Geography, plays a pivotal role in fostering positive environmental attitudes and values necessary for addressing global imperatives of environmental sustainability. However, while the Geography curriculum in Lesotho, and elsewhere, has been oriented towards education for sustainable development (ESD), there is a paucity of research on learners' environmental attitudes and values. This study assessed Grade 10 learners' environmental attitudes and values at four secondary schools in Leribe district, Lesotho. Fifteen statements, derived from the revised New Environmental Paradigm scale, were given, to which the learners were able to agree or disagree, using a five-point Likert scale. Results indicate that the learners generally possess pro-environmental biospheric and altruistic attitudes and values, with little indication of egoistic values. The results can shed light on the possible contribution of ESD-related curriculum reforms in fostering more pro-environmental attitudes and values as antecedents of environmental sustainability.

Keywords: Environmental attitudes, Environmental values, New Ecological Paradigm, Geography, Lesotho

INTRODUCTION

The need for instilling pro-environmental attitudes and values in school learners has become more crucial given the deteriorating state of the global environment. It is internationally recognised that the integrated nature of school Geography makes it the most appropriate subject to inculcate positive environmental attitudes and values amongst learners (Fu, 2022; Javan, 2022; Miller et al., 2022; Peter & Sprenger, 2022; Thomas, 2022). The subject encourages a sense of responsibility and stewardship towards the environment (Miao et al., 2022), which are both core environmental values (Fu, 2022; Dixit & Dixit, 2024). According to Bergondo et al. (2022), the primary objective of teaching Geography is to assist in understanding the interactions between people and the environment, and the consequences of these interactions. Geography can encourage learners to be environmentally conscious and ready to partake in conservation efforts as well as addressing environmental challenges (Rakuasa & Latue, 2023). By studying Geography, learners develop an understanding of the interconnectedness of Earth's systems and recognise how changes in one place can have global impacts (Dixit & Dixit, 2024).

In accordance with the international perspective on the role of Geography and the global imperative for achieving the Sustainable Development Goals, the school curriculum for Geography in Lesotho has been oriented towards education for sustainable development (ESD). The Lesotho General Certificate of Secondary Education (LGCSE) Geography syllabus aims to cultivate values such as environmental consciousness and stewardship, with suggested teaching methods including mini-research and case studies. Specifically, the aim of the syllabus is to 'develop positive attitudes and values that will enable them to become responsible citizens' (MOET, 2020, p7). Learners are required 'to show an awareness of the part played by different attitudes and values of individuals and groups, in the processes of evaluation and decision-making; show awareness of how different attitudes and beliefs impact on the environment' (MOET, 2020, p8).

However, there has been limited research on school learners' environmental attitudes and values, which can shed light on the impact of the curriculum on promoting ESD. This study assessed the environmental values and attitudes among a sample of secondary school learners in Lesotho, based on a standardised anonymous survey. The results of this study can contribution to understanding how ESD in the Geography curriculum translates into environmental attitudes and values amongst school learners.

Attitudes and values

Attitudes and values are considered important components of geographical literacy, along with geographic knowledge, perspectives and skills (MOET, 2020). Attitudes reflect an individual's evaluation of an object based on cognitive, affective and behavioural information. Environmental attitudes reflect feelings and moral conviction about the need to protect the environment. Therefore, environmental attitudes can shape behaviour,

influence policy, and contribute to sustainability (Le Hebel et al., 2014). Attitudes can either be positive or negative, and learners who hold a positive attitude may show more willingness to act on environmental issues. People's environmental attitudes are multidimensional, reflecting a balance between the needs of nature, limits of growth and human exploitation of nature (Dunlap et al., 2000). Examples of environmental attitudes include activism, such as participation in environmental movements, and non-participatory non-activism (Dunlap, 2008).

Environmental values are defined as principles and beliefs about the natural environment and its protection (De Groot & Steg, 2008). These values reflect personal conviction about the need to conserve the environment, and the adoption of sustainable lifestyles. Environmental values guide people's daily activities on the environment, reflecting judgements of what is considered good or bad (Schwartz, 1992; Schaefer, 2017). Schwartz & Bilsky (1987) argue that values lead to environmental attitudes and behaviours in specific contexts. People's environmental values may be a reflection of preservation and utilisation. The former reflects the strength of biocentric values to protect the environment; the latter represents an anthropocentric view of the environment as a resource to satisfy human needs. Learners' attitudes towards the environment may be influenced by both these values. Environmental attitudes therefore embody the values individuals and societies hold (Miller et al., 2022).

Theoretical framework

This study draws on a refined version of value-belief-norm theory (VBN) developed by Stern (2000), which explains how people's values, beliefs, and norms interact to influence their environmental behaviour and actions (De Groot & Steg, 2008) (Figure 1). In this model, the New Environmental Paradigm (NEP) 'reflects people's beliefs regarding humanity's ability to upset the balance of nature, the existence of limits to growth for human societies, and humanity's right to rule over the rest of nature' (Chen, 2012, p9). Awareness of Consequences within the VBN (Figure 1) refers to an individual's awareness of the negative consequences for others or for other things in the environment, when not acting pro-socially. Ascription of Responsibility to Self refers to someone's feeling of responsibility for the negative consequences of not acting pro-socially. Personal Norms refer to an individual's moral obligation to do or not do certain actions.

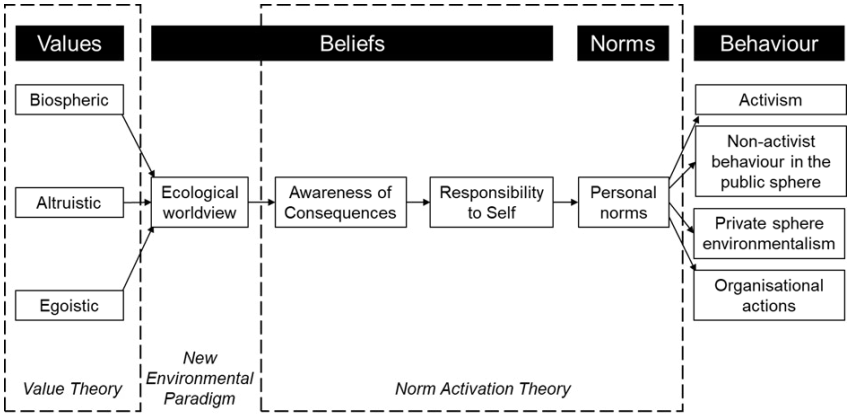

Figure 1. Elements of VBN theory (redrawn from Stern et al., 1999).

In this study, a revised NEP scale is used to capture and analyse learners' responses to various statements about environmental attitudes. This scale is widely used to measure people's environmental values and attitudes (e.g., Steg & De Groot, 2012; Ogunbode, 2013; Tamar et al., 2021; Chao, 2023; Kang et al., 2025). As shown in Figure 1, the NEP component of VBN comprises biospheric, altruistic and egoistic values, all of which are linked to ecological worldviews (environmental attitudes). *Biospheric* values balance peoples' interests with those of nature (Dunlap et al., 2000). These values are considered to be pro-environmental, since people with this position tend to view their own and others' actions in light of their advantages and drawbacks for nature (Martin & Czellar, 2017). Therefore, such values are founded on the biocentric view that environmental protection is important (Tan et al., 2022). *Altruistic* values focus on the wellbeing of others, potentially at one's own expense, and are linked to a desire to help others and the environment (Steg & De Groot, 2012; Sarpong et al., 2021). *Egoistic* values are self-centred and focus primarily on personal gain and wellbeing (Steg & De Groot, 2012). People holding this value favour their own interests and personal comfort over environmental concerns (Stern, 2000). Pro-environmental beliefs and behaviours, however, do not always relate to egoistic values (De Groot and Steg, 2008). Overall, this classification can assist in assessing the different types of environmental values and attitudes held by Geography learners, and the potential for this to lead to pro-environmental behaviours.

Environmental attitudes amongst learners

As previously stated, the NEP scale has been widely used as a tool for measuring learners' environmental attitudes and values (Steg & De Groot, 2012; Liu et al., 2018; Tamar et al., 2021; Chao, 2023; Kang et al., 2025) including in Africa (Ogunbode, 2013; Evert at al., 2022). Most studies confirm that environmental values can then predict people's attitudes

(Schultz & Zelezny, 1999). Kang et al. (2025) showed that biospheric values shape learners' willingness to take climate action in Finland, whereas egoistic values are predictors of negative climate action amongst learners in South Korea. Stern et al. (1999) found that biospheric values significantly predicted environmentally responsible behaviours. Similarly, a study in a Mongolian college showed that students who value the biosphere have more concerns about the environment than those who adher to egoistic values, as they show a lower moral obligation to protect the environment (Liu et al., 2018).

However, while some research has been conducted on environmental attitudes and values in African countries, only a few studies have utilised the NEP scale. Ogunbode (2013) measured ecological attitudes/worldviews in the African context and found that Nigerian students had a lower endorsement of pro-ecological ideologies. Nzengya & Rutere (2020) compared primary and high school learners' environmental attitudes in Kenya, using the NEP scale. Their study revealed a significant relationship between the level of schooling and environmental attitudes, with high school learners obtaining a higher mean score. Other studies focused on university students (Robina-Ramírez and Medina-Merodio, 2019; Evert et al., 2022).

MATERIALS AND METHODS

The study collected quantitative data through an anonymous survey undertaken with a sample of 104 Grade 10 learners, using a convenient sample of four public secondary schools in the Leribe district, Lesotho (Table 1). Two of the schools were rural and two urban. The total learner enrolment in the schools ranged from 350 to 970.

Table 1. Profile of the selected schools.

School	Location	Type	Learner enrolment	Student enrolment as per Grade 10 Geography class
A	Rural area	Church-owned	350	50
B	Rural area	Church-owned	480	70
C	Urban area	Government	300	65
D	Urban area	Church-owned	970	120

In each school, a random sample of 26 learners was selected, representing 22–52% of the Grade 10 Geography classes. An equal gender balance of learners was maintained with ages ranging from 14 to 18 years. The participants were asked to complete a questionnaire survey consisting of 15 NEP statements (Table 2). Following previous studies (e.g., Manoli et al., 2007), some statements were modified to enhance comprehension. The learners were asked to indicate their strength of agreement or disagreement with each statement using standard Likert scale classifications (strongly agree, agree, unsure, disagree, strongly disagree).

The NEP scale was chosen because it has a high internal consistency and test re-test reliability, and also a high content and convergent validity (Schultz, 2001; Dunlap, 2008; Hawcroft & Milfont, 2010). In accordance with Dunlap (2008), the scale correlates with other measures of environmental attitudes, making it a reliable and valid tool for measuring learners' environmental awareness according to the three types of environmental values (biospheric, altruistic and egoistic) (Table 2). The biospheric scale covers the statements that acknowledge the intrinsic right of nature to exist; the altruistic scale prioritises the welfare and interest of others within the ecosystem; and the egoistic scale prioritises the interests of human beings over the environment. The instrument was pilot tested on 20 learners from one school in the same cluster as the research schools prior to data collection.

Table 2. NEP rating scale (adapted from Dunlap et al., 2000) and the environmental value category (Figure 1) to which these statements refer.

Statement	Environmental value
1. We are approaching the limit of the number of people the Earth can support	Biospheric
2. Humans have the right to modify the natural environment to suit their needs	Egoistic
3. When humans interfere with nature it often results in devastating (shocking) effects	Biospheric
4. Humans are smart enough to make sure we do not destroy the Earth and make it difficult to live in	Egoistic
5. Humans are seriously abusing the environment	Biospheric
6. The Earth has plenty of natural resources if we just learn how to develop them	Altruistic
7. Plants and animals have as much right as humans to exist	Altruistic
8. Nature can handle the effects of modern industry	Egoistic
9. Regardless of how smart people are, they are still affected by natures' rules	Altruistic
10. The so-called "ecological crisis" (a serious threat to the natural environment) facing humankind has been greatly exaggerated	Egoistic
11. The Earth is like a spaceship with very limited room and resources	Biospheric
12. Humans were meant to rule over the rest of nature	Egoistic
13. The balance of nature is very delicate and easily upset. Nature is very sensitive and can be easily disturbed	Biospheric
14. Humans will eventually learn enough about how nature works to be able to control it	Egoistic
15. If things continue on their present course, we will soon experience a major ecological catastrophe (disaster)	Biospheric

Results were tested for reliability using SPSS v.26, from which a Cronbach alpha value of 0.71 – which is an acceptable level of reliability – was obtained. The survey data were analysed statistically to calculate the frequency and percentage of responses for each of the 15 statements in the NEP. The median value was chosen to analyse the data over other descriptive statistics measures such as the mean and standard deviation because of problems in calculating these measures from ordinal data (Agresti, 2010). Likert scale response values of 1.0–2.9 were classified as 'negative' and 3.0–5.0 as 'positive' (Steg & De Groot, 2012).

At the time of undertaking the study, the National University of Lesotho did not have an ethics committee but permission was obtained from the Ministry of Education and Training. Permission was obtained from schools before distributing the questionnaire to learners, who were given the choice to decide if they would participate in the study. The learners were assured of confidentiality of their personal information, which was maintained throughout the study.

RESULTS

The results of this study are presented in themes, deductively derived from NEP, which is one element of the value-belief-norm theory. The results are presented and discussed in terms of biospheric, altruistic and egoistic values, as the major component parts of the VBN (Figure 1).

Attitudes on biospheric values

Table 3 presents the aggregated Likert scale results from the learners for biospheric values. The majority of statements on biospheric values receive positive remarks. The majority of the respondents disagreed – to varying degrees – with statements on the delicate balance of nature. These with the lowest agreement and higher disagreement are also those statements with the highest Unsure answers, indicative of respondents not having firm enough knowledge of the topic.

Table 3. Strengths of agreement or disagreement with biospheric attitudes and values (% of all respondents). SA – Strongly Agree; A – Agree; U – Unsure; D – Disagree; SD – Strongly Disagree. Modal values are in bold.

Statement from the NEP scale	SA	A	U	D	SD	Total in agreement	Total in disagreement	Overall remarks
We are approaching the limits of people the earth can support	42.9	38.1	11.4	7.6	0	81.0	7.6	Positive
The earth is like a spaceship with only limited room and resources	15.2	27.6	22.9	22.9	11.4	42.8	34.3	Positive
When humans interfere with nature, it often produces disastrous consequences	37.1	24.8	20.0	12.4	5.7	61.9	18.1	Positive
Humans are seriously abusing the environment	40.0	29.5	14.3	11.4	5.7	61.9	18.1	Positive
The balance of nature is delicate and easily upset	9.5	21.0	20.0	34.3	15.2	30.5	49.5	Negative
If things continue in their present course, we will soon experience a major ecological catastrophe	40.0	25.7	22.9	5.7	5.7	65.7	11.4	Positive

Attitudes on altruistic values

The overall results in this category are summarised in Figure 2, which disaggregates the data into specific NEP statements representing altruistic attitudes and values.

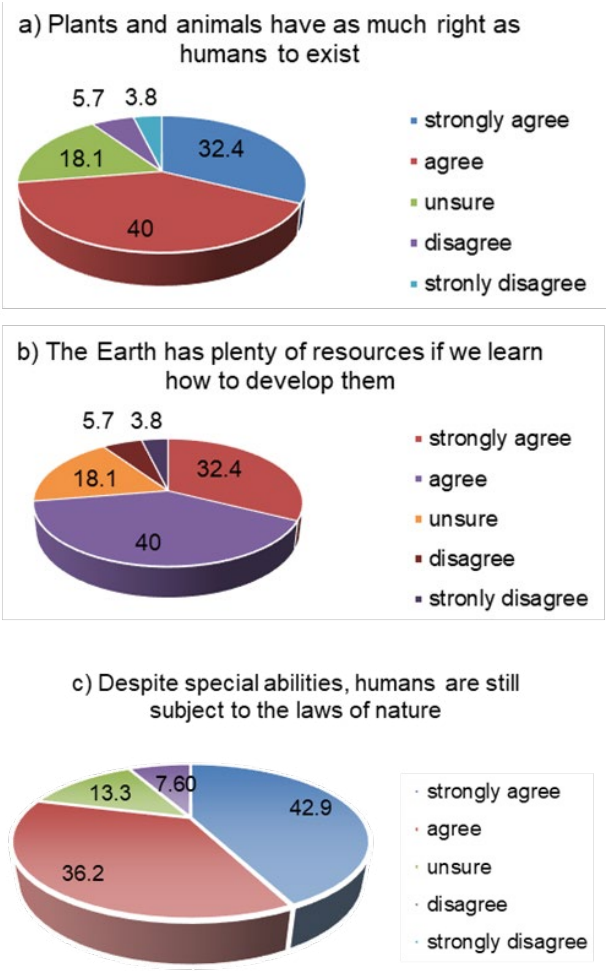

Figure 2. Attitudes relating to altruistic values.

Results show that the learners generally possess pro-environmental attitudes and values, and appreciate that humans are not superior to nature but should live in harmony with the environment.

Attitudes on egoistic values

Figure 3 describes the result for egoistic attitudes and values. The majority of learners are opposed to human domination over the environment, disagreeing with most of the statements on this topic. A considerable proportion of learners were unsure of all the statements, with the third and fifth statements showing the highest proportion of 28.6%.

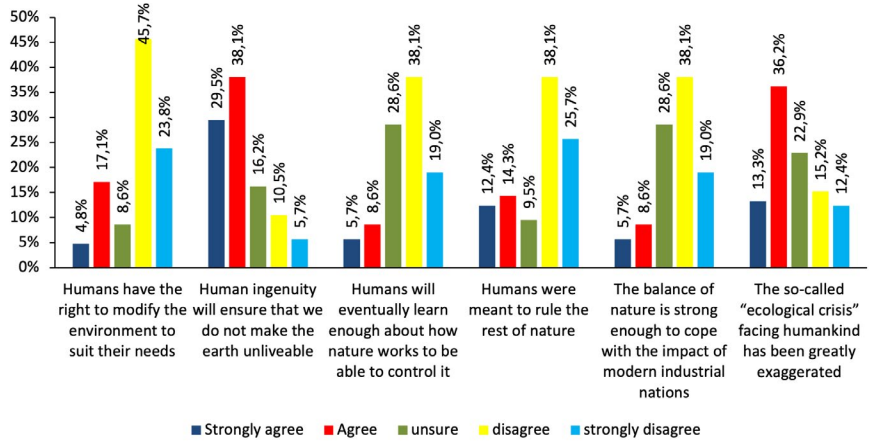

Figure 3. Attitudes towards egoistic values.

DISCUSSION

This study set out to assess environmental attitudes and values of Grade 10 learners in selected secondary schools in Leribe district, Lesotho. The results, from the NEP measurement scale, indicate that learners have a strong positive attitude towards environmental issues. This is particularly the case for pro-environmental statements such as 'the need for humans to live in harmony with nature' and 'the recognition of the limits to growth that the environment can sustain'. The learners' responses suggest they are aware of environmental challenges and support sustainable practices. For instance, a significantly high percentage of learners agreed with the statement 'The balance of nature is very delicate and easily upset', reflecting their understanding of the fragility of ecosystems. From this, it would seem that the learners' value orientation is situated in the dimension of environmental preservation (Bogner & Wiseman, 1999), reflecting biospheric values. However, a study in Nigeria describes a much lower endorsement of pro-ecological values (Ogunbode, 2013). The results also show that the majority of learners adhere to the NEP and have less support for the dominant social paradigm. Their attitude towards biospheric and altruistic statements is generally positive and demonstrates positive attitudes towards statements on ecological limits and the balance of nature.

The positive attitudes towards environmental protection observed in this study may be influenced by several factors, including increased exposure to environmental education within the Geography curriculum, the influence of media, and growing global awareness of environmental issues (Gustavo & Rakuasa, 2023). This suggests that educational programmes in Geography are effective in raising awareness and shaping positive environmental values amongst learners.

The learners' responses were positive towards the biospheric and altruistic values, but negative to egoistic values. This implies that learners recognise the need to protect the environment from human-induced harm; indicating strong opposition to human domination over the environment. These findings resonate with studies that articulate that when individuals test positive towards biospheric and altruistic values, it usually suggests that they recognise the dangers of environmental degradation and are willing to take action, which marks a positive attitude towards the environment (Steg & De Groot, 2012; Tan et al., 2022).

CONCLUSIONS

The results of this study suggest that Grade 10 Geography learners in Lesotho generally have positive biospheric and altruistic attitudes and values towards the environment. They are generally concerned about environmental sustainability, even though the results show considerable disagreement on the fragility of ecosystems. The study shows that there is little support for anthropocentric values, as the majority of learners responded negatively to statements on egoistic values and attitudes. This can inform on the possible effectiveness of ESD-related initiatives in fostering pro-environmental attitudes and values through the Geography curriculum in Lesotho.

Limitations with this study include data collection from a relatively small convenience sample of four schools, and that the factors influencing environmental attitudes and values were not examined in detail. Hence, further research could examine how learners' environmental attitudes and values are mediated by demographic characteristics and the school environment. There is also a need to explore the relationship between learners' environmental attitudes and their environmental behaviours.

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