

Bringing environmental education into practice in South African secondary schools: Examination of the norm activation model

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Abstract

The purpose of the study was to explore perceptions, identify challenges, and determine the potential impact of introducing Environmental Education (EE) as a subject in secondary schools. Schwartz's (1997) Norm Activation Model guided the study. The qualitative method of research was deemed relevant for the study. Semi-structured interviews were used to gather data from the participants. Document analysis was also used to supplement primary data. Twenty participants were purposely selected through the non-probability sampling, to participate in the study. Data was analysed and interpreted using the six steps of Braun and Clarke's (2006) thematic analysis. The findings of the study posit that there is a need to bring a new subject related to environmental education. The persistent irresponsible human behaviour and its consequences on the environment necessitates EE by bringing a new subject. Furthermore, despite some participants suggesting that some subjects need to be scratched out, the findings reveal that scarce careers related to the protection of the environment need to be revisited. It is therefore recommended that the Department of Basic Education should revisit its curriculum to assess whether the integration of environmental education on the existing subjects is having a significant impact in reducing the global challenges and their consequences. This could be achieved through the adoption of practical implementation steps such as educator training needs, resource development and curriculum design reforms. Drawing from the existing gap in literature on how a standalone subject could be brought into the South African school curriculum, this implies the need for further research.

Keywords: *environmental education, Norm Activation Model, subject, secondary school*

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1. Introduction

In the context of South African schools, secondary education involves learners who enrol from the 8th to 12th grade (South African Schools Act 84 of 1996). These groups of learners (between 13 to 18 years) are believed to make informed decisions about the natural environment that they interconnect with. Learners who participate in environmental education (EE) access useful information and experiences necessary to lead their societies thus making informed choices about how to take care of their natural resources (Uralovich et al., 2021). Unfortunately, given the persistent lack of environmental awareness and responsible action in the state of the planet, peoples' behaviours have, for decades, appeared as a main culprit damaging the natural environment (Berman, 2021). There is a continued disproportionate burdens in the form of rising sea levels, drought, and extreme weather events (Carlie et al., 2023).

Following the observed persistent deterioration of the natural environment, Liu et al. (2023) propose that environmental education is an answer to this important and urgent issue. Groups of people that can possibly act on the elevated climate-driven risks and harms are the young people (Carlie et al., 2023). Even though Begum et al. (2021) accentuate that there is a considerable evidence now that suggests that environmental education can influence learners' ecologically friendly behaviour in Pakistan, there seems to be a grey area to instil EE adequately to the young people, particularly the learners in secondary schools of Africa and in South Africa. Damoah and Gebremedhin (2021) support that despite the effort to integrate EE across the South African curriculum, people's irresponsible behaviour that continue to exacerbate environmental challenges still continue. With the existing policies to integrate EE into the South African school curriculum, Berman (2021) argue that for the most part, teachers are still educating the young as if there is no planetary emergency. This uncovers that there is no standalone subject that is specific for EE. Therefore, the latter establishes a gap that exists in literature. We argue that the young people (learners) are perceived as the effective group to receive new knowledge and use it to lessen environmental harm through practical means.

Therefore, it appears imperative to navigate the need to bring a standalone subject on environmental education in secondary schools. Instead of solely integrating EE (existing policies and programs) into the curriculum, and which unfortunately seem not to make a meaningful positive environmental impact, a standalone subject could intensify and broaden practical interventions. Uralovich et al. (2023) agree that it is not enough for learners to only

access EE in class but they need to effectively participate outside the classroom as well. Learners who actively participate in EE acquire information, abilities and experiences necessary to make choices about how to protect the Earth's natural resources. Lessons could also be learnt from Shimabukuro et al. (2022), edifying that to effectively promote sustainable natural resource management, an environmental tool to be used by both learners and educators could strengthen EE. In their study, Shimabukuro et al. (2022) reveal that a board game as an environmental and communication tool had a great positive impact in promoting sustainable water resource management on coral reef of Tarama islands.

The preceding narrative enlightens that a standalone subject on EE is believed to draw the attention of both the educators and learners to a closer look on the pitfalls of environmental harm. Thus, the aim of the study was to explore perceptions, identify challenges, and determine the potential impact of introducing EE as a subject in secondary schools. Through the study's findings, policy makers in the Department of Basic Education could take strategic interventions to consider introducing a standalone subject in the curriculum. This is believed not to merely integrate EE into the curriculum but to significantly lessen environmental harm through practical means.

2. Literature Review

2.1. The Historical Background and Understanding of Environmental Education

One of the answers offered to global environmental challenges is environmental education (Husamah et al, 2022). To respond to the environmental catastrophes of the centuries, interventions were made through various conferences from international organisations and United Nation units. Since the inception of EE by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) through the *Tbilisi Declaration* (1977) and *Stockholm Declaration* (1978), the global environmental challenges seem persisting even to date. Other organisations that promoted EE include World Commission on Environment and Development (WCED, 1987), United Nations Conference on Environment and Development (UNCED, 1992). Through South Africa's agenda 21 which emanated from the United Nation Earth Summit (1992) in Rio de Janeiro, the process of EE was featured. Much interestingly, and apart from the world's declarations and summits, section 24 of the constitution of the Republic of South Africa (Act 108 of 1996) mandates that everyone has the

right to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures.

The constitution of the country gives direction to other legislative frameworks and policies that are centred on environmental education. They include amongst others; National Environmental Management Amendment Act (Act 14 of 2009); National Environmental Laws Amendment Act (Act 14 of 2013); National Environmental Management: Waste Amendment Act (Act 449 of 2014); White Paper on Environmental Management, 1996; White Paper on National Climate Change Response, 2011; and White Paper on Conservation and Sustainable use of Biodiversity, 1997. Furthermore, recent and upcoming summits that feature the EE agenda include the BRICS Summit that was held in Brazil in July 2025 (<https://brics.br>), and the G20 Summit to be held in South Africa in November, 2025 (<https://voyeglobal.com/g20-summit-2025/h>).

Therefore, EE necessitates that people's attention, especially the youth has to be drawn to understand much about the natural environment and its importance to their everyday lives. That is, EE should be instilled to them (youth) as early as from the eighth grade of schooling. The definition of the concept 'environmental education' could be put by authors in different perspectives. However, we argue that it could not be limited in fixing our 'scorched planet'.

EE is defined by Ramesh et al. (2023) as a process that allows people to explore environmental issues, participate in problem solving and take decisive action to improve the environment. It fosters awareness and encourages people to be responsible with their behaviours towards a green environmental life style (Begum et al., 2021). Since nature is an inimitable and invaluable resource that satisfies all human needs (Uralovich et al., 2023), people's positive behaviours could help in combating environmental problems such as climate change and global warming (Begum et al., 2021). However, lack of EE could interminably see severe deterioration of nature, extreme pollution of water and air, and depletion of resources (Uralovich et al., 2023). These environmental challenges allow for the manifestation of complex economic and socio-political costs that are witnessed even today. Consequently, EE aims to protect and conserve the planet's resources against all sorts of ecological harm. It intends to improve all ecological relationship including the conservation of energy and soil, guarding against pollution of the air and water, effective use of available resources and harnessing natural resources without any ecological imbalances (Ramesh et al., 2023).

What can be deduced from the preceding narrative is that EE encompasses the way in which knowledge is conveyed to the people about their behaviour (good or bad) to the natural environment, and how they respond (through action) to the issues emanating from their behaviours so that the environment is kept on its optimum and natural state. Such valuable information is believed to make a difference on the natural environment if it is broadly inculcated to school learners. Thus, people, especially teenagers (13-18 years) need to be conversant with EE so that they develop critical thinking and to become more conscious of the environment and the issues related to it (Gebrekidan & Gebremedhin, 2024). Since environmental crisis is a global catastrophe, this study underscores that addressing this should begin with collective efforts and initiatives of all secondary schools of neighbouring countries. The next section divulges literature on the need to bring a standalone subject on environmental education in secondary schools.

2.2. The Need to Bring a Subject on Environmental Education in Secondary Schools

The strain on the Earth's natural resources has not only destabilised the planet itself but seems to have (and continue to) worsen the wellbeing of people around the globe. Therefore, people and the youth in particular, need to understand the outcomes of bad environmental practices as early as in their secondary education. It is predicted that in the next few decades, most countries in Europe, South America and Africa will experience a significant increase of temperatures that will potentially trigger frequent droughts, exacerbating current water scarcity (Lin, 2021).

In Germany, school learners require knowledge to be abreast with the consequences of bad environmental behaviour (Lin, 2021). In the Freiburg city, for example, climate change has chronicled widespread heatwaves, wildfires, extreme rainfall patterns leading to drought, rising sea levels and floods. Tovar-Gálvez (2021) argue that upskilling teachers with practical environmental education could help learners in Columbian secondary schools to be conscientized and take a lead in their societies on acceptable environmental behaviours. Organised workshops and seminars in Bogotá (Columbia) are said to have initiated a dialogue between teachers and the learners that motivated all of them to understand an environmental problem, brainstorm a solution and act on the problem through practical means (Tovar-Gálvez, 2021).

Lessons could also be learnt for effective EE from secondary schools in Kazakhstan, a country which is rich in natural resources. Despite limited research to investigate the positives between renewable energy and environmental sustainability, inclusive knowledge of the country's schools has reduced high emissions of greenhouse gases (Raihan & Tuspekova, 2022). This has been done through the development and implementation of policy tools, to encourage renewable energy technology across all schools.

Similar to Columbia and Kazakhstan secondary schools, China has also seen EE playing a critical role in advancing environmental knowledge and shaping eco-friendly habits of young people (Ma et al., 2023). That is, learners' daily lifestyles are weighed as the determinants of the future of the Earth as a planet. In Slovakia, Piscová et al. (2023) assert that EE encourages young people to develop an understanding of ecological balance and their responsibilities, to help them participate efficiently in living harmoniously with the planet.

It is interesting to note that in Kenya, a country which is known for ecotourism programs and conservation approaches, has successfully embraced EE in the secondary education system (Berman, 2021). This sharp turn in encouraging 'ecotourism' than 'tourism' has developed rich understanding of conservation amongst the learners in secondary schools. Similar to Kazakhstan, Ethiopia is blessed with natural resources. However, it is concerning that unsustainable management and utilisation of these resources have led to a decline to agricultural production (Zikargae et al., 2022). Even though human activities such as deforestation, land degradation and dense settlements have increased environmental vulnerability in the country, it is believed that EE in secondary schools promotes environmental literacy, social responsibility and sustainable future.

Tanzania has taken a lead to introduce EE as early as in pre-primary and primary schools. Even though EE is not a subject in and on itself, Gebrekidan and Gebremedhin (2024) claim that Tanzanian secondary schools have recognised the value of EE but lack motivation, funding, inadequate professional development and lack of support from the government to prioritise on the environmental issues. Such challenges have seen continued loss of Tanzania's wildlife, deforestation, lack of access to clean water and improper waste management thus a danger to the country's natural resources.

In the South African perspective, Damoah and Omodan (2021) who conducted a study in the province of Eastern Cape found that most secondary school teachers were dispassionate and unfamiliar with the EE policy. As they argued that the implementation of EE policies

barely effected on the school system, EE is still seen as a policy that should be heavily reliant on original ideas of learners in the classroom. However, this paper argues that even though South Africa's EE policy is unique in that it is supposed to be incorporated by teachers across all subjects (Damoah & Gebremedhin, 2021); a need to introduce a standalone subject requires a closer look as the consequences of irresponsible environment behaviour persist. Sabela-Rikhotso et al. (2022) affirm that over the past decades, there has been limited commitment of the government, private sector and schools to an integrated EE policy in managing natural resources in the country. Several studies prove that there is not much that has been done to adequately protect and conserve South Africa's natural resources. For example, despite the country's efforts in ensuring the protection and sustainable use of water resources (Olisa et al., 2021), Damoah and Adu (2022) argue that the country's estuaries is negatively impacted by poor environmental management such as pollutants entering through industrial and agricultural runoff, sewage outfalls and flows from informal settlements. Moreover, in Mpumalanga province there seem to be a socio-environmental trauma as there is an extraordinary heavy reliance on coal production which in turn contributes to the highest carbon dioxide emission per capita globally (Nel et al., 2023).

The lack of standalone subjects on EE establishes the gap that exists in literature. It concurs with Uralovich et al. (2023), arguing that it is not enough for learners to only access EE in class. As learners are the effective group to receive new knowledge, Trott et al. (2023) argue that it is an additional injustice that the youth is often excluded from spaces of decision making and actions to address the environmental crisis. Davies et al. (2024) highlight that a global challenge for communities is to convert evidence-based intervention on EE into clinical practice that can mitigate environmental challenges.

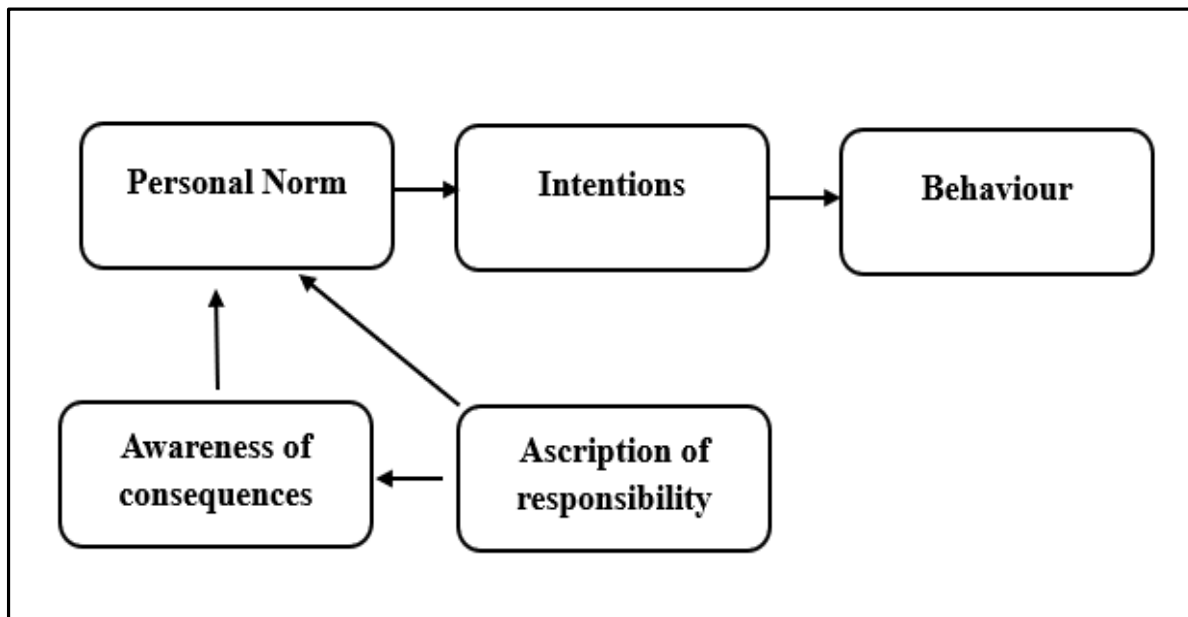
Therefore, with the persistent environmental global concerns, it is imperative that EE should not be merely for theoretical integration but should perhaps be intensified and broadened through practical interventions in a standalone subject. Moreover, through a well-planned curriculum redesign, EE could see positive implication on the Earth's natural resources. Uralovich et al. (2023) maintain that focusing on an effective EE model could serve as a benchmark for learners to get a deep understanding of environmental harm and proactively engage on the restoration of ancient climate conditions.

2.3. Theoretical Framework

The study is premised on Schwartz's (1997) Norm Activation Model (NAM). This theory proposes that pro-environmental actions follow from the activation of personal norms, reflecting feelings of moral obligation to perform or refrain from actions (Steg & Nordlund, 2018). Jaffar and Latiff (2024) describe the elements of Schwartz's (1997) NAM. They include ascription of responsibility (AR), awareness of consequences (AC) and personal norm (PA). These elements are evident in Figure 1.

Figure 1

The Norm Activation Model (NAM)



Source: Adapted from Schwartz (1977)

AC denotes an individual's comprehension of the adverse outcomes that can result from their non-prosocial behaviour. The AR refers to the perception that a person is accountable for the severe consequences that result from failing to behave pragmatically. PN pertains to the ethical obligation to either do or abstain from a particular activity. Savari et al. (2023) argue that the NAM postulates that behaviour begins with a person's awareness of the consequence of a destructive behaviour, followed by developing a sense of responsibility concerning the adverse consequences of that behaviour and then finally raising the person's intentions to act in a pro-social manner.

For this study, a focus is fundamental to imparting knowledge about EE where young people (Grade 8-12) in secondary schools are taught to practise good behaviour and take a responsibility not to further harm the natural environment. These learners could be broadly aware of EE as early as from the eighth grade. As the authors argue that incorporating EE across all subjects could not be enough, the study intended to assess the need to bring a standalone subject that does not only comprehend theory but also put learners' ideas into action. Tovar-Gálvez (2021) affirm that bringing curriculum theories and policies about EE is a problem for teachers because it is not always clear how to move from ideas into practice. The authors strongly believe that the NAM could give a clear direction and its impact would be significant if it harnesses EE as a specific subject.

3. Methods

3.1. Participants of the Study

The study is deemed qualitative in nature. As qualitative research focuses on 'why' rather than 'what' of a research phenomenon (Lukhele & Lebeloane, 2024), this paper was central to the views of educators and learners on the need to bring a subject on EE in secondary schools. Ten (10) secondary school educators and ten (10) learners from Ubombo Circuit Management Cluster (CMC) in the uMkhanyakude district, KwaZulu-Natal were purposefully selected to participate in the study. This group of participants was chosen because the authors believed that they could honestly provide their views and experiences on environmental education. Semi-structured interviews were conducted to gather data from the participants. An audio-tape recorder was used to gather data.

3.2. Research Site and Sample

Ubombo CMC was the chosen site for data collection. The non-probability sampling method was purposively used to select a total of twenty (20) participants (10 educators and 10 learners) from ten secondary schools in the site. That is, one educator and one learner were interviewed from each of the ten schools. The Ubombo CMC is made up of a total of 34 secondary schools. Therefore, ten schools were purposively selected from the CMC to represent the research site. Even though the sampling frame may appear small, Ubombo CMC is in deep rural and secondary schools in this site share common attributes which are believed to generalise the findings of the study area. The criteria set for the participants was that they

had to be educators with more than three years of teaching experience. These criteria excluded educators with below three years of experience as it is believed that they might not necessarily assess the effectiveness of the EE into the existing curriculum. Learners had to be from any grade (Grade 8-12) in the school. Learners below Grade 8 were excluded in the criteria as they could not achieve the study's main aim. Pseudonyms were used for the participants to maintain confidentiality and anonymity. Table 1 shows the socio-demographic data of all the twenty (20) participants.

Table 1

Participants' socio-demographic data

Educators					
Pseudonym	Age group	Qualification level	Experience in teaching	Grade(s) teaching	Subject(s) teaching
Participant A	35-40	B.Ed	4	8 & 9	English
Participant B	25-30	PGCE	3	11 & 12	Maths, English
Participant C	20-25	PGCE	3	8 & 9	English, LO
Participant D	45-50	PGCE	15	11 & 12	Geography
Participant E	50-55	B.Ed	27	12	isiZulu
Participant F	35-40	B.Ed Honours	13	10, 11, 12	Life Sciences
Participant G	35-40	B.Ed	5	10, 11, 12	Business Studies
Participant H	20-25	B.Ed	3	8, 10, 12	English, History
Participant I	25-30	PGCE	4	9, 10, 11	Isizulu, LO
Participant J	20-25	B.Ed	3	10,11,12	Maths, Physics
Learners					
Pseudonym	Age	Gender	Grade	Future career choice	Number of subjects done
Participant 1	16	Male	11	Medical doctor	7
Participant 2	18	Male	12	Social worker	7
Participant 3	18	Male	12	Police	8
Participant 4	13	Male	8	Medical doctor	9
Participant 5	14	Female	9	Psychologist	9
Participant 6	17	Female	11	Teacher	8
Participant 7	16	Female	11	Nurse	7
Participant 8	13	Female	8	Nurse	9
Participant 9	14	Female	9	Cardiologist	9
Participant 10	18	Female	12	Medical doctor	8

Table 1 provides information for both the educators and learners, as participants for the study. As pseudonyms were used for all the participants, data related to the age group, qualification level, teaching experience, grades taught and the name of the subjects taught were collected from educators. These variables were important for the study as they distinguish the

participants with age and their qualification level. This information is vital as it reflects the relevancy of the participants' qualifications to EE and how their teaching experiences influenced the integration of EE into the curriculum. Moreover, it was important to determine how relevant were the grades and the subjects to EE. From this data, it could be deduced that six (6) educators taught languages (English and isiZulu). Only two (2) taught Mathematics (maths) and also two (2) taught Life Orientation (LO).

It is evident from the table that subjects such as Geography, Life Sciences, Business Studies, History and Physical Sciences (Physics) were seldom common from the ten selected schools yet most of them (subjects) feature EE in their content. The preceding data exposes the degree in which environmental education is enacted on the subjects in the selected secondary schools. On the other hand, the data collected from learners included age, gender, grade, future career path and the number of subjects they learn. Drawing from the career choices of learners, it can be deduced that none of them had a career choice related to environmental conservation or sustainability. This data exposes the status quo of the subjects with EE.

3.3. Instrumentation and Data Gathering Process

An interview guide was used to ask questions from the participants. Semi-structured interviews were conducted and responses of participants were recorded through an audio-tape recorder. Interviewee's permission was sought to audiotape their responses. Even though questions were asked in English language, participants were allowed to freely express themselves in isiZulu (a local and an official language in South Africa) so that their responses are pertinent to the research questions.

Their original responses were recorded and translated into English without any interference from the interviewers so that reliability and validity of data was maintained. Participants were also informed that their voluntary participation in the study was not obligatory and that it was for the purpose of research. Therefore, if they felt to withdraw their participation they could do so at no costs. Document analysis was also used to supplement the primary collection of data.

3.4. Data analysis

Thematic data analysis was used for the purpose of the study. The six steps of Braun and Clarke's (2006) thematic data analysis as described by Finlay (2021) were contextualised for the study. To give answers to the research question, the researchers had a procedure for the analysis of data through the generation of relevant themes.

First step: Familiarisation with the data. As the researchers became intimately familiar with the data in this stage (Finlay, 2021), transcripts were read and re-read while taking notes for potential themes. This was carefully done to connect the research objectives.

Second step: Generation of initial codes. The researchers organised the data in an eloquent way through collating codes and data extracts (Finlay, 2021). Moreover, key features that were in line with the research objectives were coded. As the data was re-read, codes were assigned from the transcript by highlighting phrases and single words.

Third step: Searching for themes. In this stage, the researchers were selective in grouping the categories of meaning together. As edified by Mmusi-Phetoe et al. (2025), this was done to ensure that data that carried the same notion was reviewed and combined to a single theme or sub-theme so that they articulate.

Fourth step: Reviewing potential themes. The researchers reviewed the truthfulness of the themes in this fourth step. During the review, themes that were not relevantly addressing the research objectives were discarded. Finlay (2021) articulates that in this stage, themes are collapsed, split or discard those that are not relevant to the research questions.

Fifth step: Defining and naming themes. This step follows after the researchers have checked the themes and included any additional emerging ones (Jowsey et al., 2021). As recommended by Finlay (2021), the researchers concisely refined, crafted and wrote an informative analysis of each theme to tell a convincing story.

Sixth step: Writing the report. Finlay (2021) mentions that, this is where the researcher writes a wider report based on the evidence of findings linked with research objectives. Therefore, the report was compiled in a coherent and logical way while prioritising the order of themes in relation to the research objectives. Data extracts of the educators and learners were grouped separately to ensure a coherent data presentation. This phase sees the establishment of the order of themes connecting logically with each other to give a clear communication of the collected data (Byrne, 2022).

3.5. Research ethics

The researchers firstly applied for ethical clearance before data was collected. After being granted permission by the University of South Africa (Ref: 2023/11/08/17269741/20/AM), the approval letter was then shared to principals of schools where a request was also made to conduct research from their schools. The real names of schools and participants were not mentioned in the study for ethical reasons.

Consent forms were given to educators stipulating that their participation in the study is voluntarily and that they could withdraw if they wished to do so, at no costs. Likewise, consent letters were written and directed to the parents of the learners requesting to interview them. Matters of confidentiality and anonymity were continuously emphasised during the interview process. All participants were given pseudonyms to protect their true identity. All information including consent forms were stored in a locked steel cabinet.

4. Results

Based on the study's aim, the following themes and subthemes emerged during data analysis as summarized in Table 2.

Table 2

Summary of themes, participants' key quotes and link to NAM

Participant	Category	Sub-theme	Participants' key quotes/ frequency of responses
<i>Theme 1: The understanding of environmental education</i>			
D	Educator	Teaching about taking	'...taking care of our natural resources...'
F	Educator	care of the natural	'...teaching anyone about the environment ...'
7	Learner	environment	'...getting knowledge about the environment'
6	Learner		'...teaching about nature...'
4	Learner	No clue about EE	'...my first time hearing about it.'
I	Educator		'...I don't know what to say but...'
<i>Theme 2: The need to bring a subject on environmental education</i>			
A	Educator		'...Our learners need to be educated as from grade 8 to know about the cause of continuing global warming.'
F	Educator	Persistent irresponsible human behavior to the environment and consequences	'...as humans continue to misbehave on our environment.'
H	Educator		'..., people can stop overfishing, cutting trees and uhm...littering on our rivers and oceans...'
			Awareness of consequences
			Ascription of responsibility

Participant	Category	Sub-theme	Participants' key quotes/ frequency of responses
5	Learner		'...People don't want to protect the environment from digging out trees and burning grass. And also the fire also burn animals that are important to us.'
10	Learner	Irrelevancy of other subjects	'... schools in South Africa must replace Creative Arts or LO with a subject about the environment because we don't gain much from these subjects...'
9	Learner		'...if I was the minister, I would scratch out some subjects because I think they add little value to the environment...'
G	Educator		'I mean how many environmental specialists do we have in the country...'
I	Educator	Scarce careers related to environmental conservation	'...you hardly see a number of people employed under the natural environment ...'
7	Learner		'...I really like nature, and I wanted to study something related to the environment...'

Theme 1: The understanding of environmental education

A number of participants had a clue of what environmental education entails. The participants voiced out that EE pertains teachings about taking care of the natural environment. Participant D, a Geography teacher had to say:

Environmental education is about taking care of our natural resources. This means that teachers have to teach the kids how to take care of these resources.

When probed what he meant by resources. He continued to say:

There are so many resources, but eeh I am talking those that are natural like soil, water, forests, grass, animals-there is a lot. So we teach learners to be aware about them.

Participant F, a Life Science educator stated:

Environmental education is teaching anyone about the environment...like yes, what can we do to protect the Earth not to be destroyed.

Participant 7, a learner who want to be a nurse when she finishes school said:

Well, I think environmental education is getting knowledge about the environment.

When asked if this concept is part of their curriculum, she responded:

Yes, there is a portion in Life Sciences that talks about environmental studies, so I know this word from the subject.

Participant 6, a learner who want to be a teacher had to say:

Uhm...although I can't put it exactly but to me it means teaching about nature. And as we know that nature consists of many things like our trees, dams, animals and so on.

Some participants indicated that it was their first time to hear about EE. Some of them also struggled to give their understanding of the concept. Participant 4, a learner who want to be a medical doctor articulated:

I am sorry, I have never heard of such a word. It is my first time hearing about it.

The learner was asked if they did not come across anything related to taking care of soils, water and other natural factors, the learner responded:

I know soil, water and plants in Natural Sciences but environmental education... No it is my first time.

Participant 2, a learner who want to be a social worker had his view:

In my view, I think environmental education is...eh ...I think it something that is learnt in History or Life Sciences. But to answer your question, I think it is more related to living in a good space, like in a clean classroom as it is our right.

When asked what subjects was he doing, he responded:

I do Maths, Physics, accounting, English, isiZulu, LO and Economics.

Participant I, a teacher who teaches isiZulu had to say:

I don't know what to say but I think this is something that must be taught in other subject but let me try... I think is about educating learners about the environment.

Participant C, an English and LO teacher put EE in a different way and he had to say:

Environmental education is teachers and environmentalists trying to address learners, the problems associated with climate change and global warming.

From the participants' views on the understanding of EE, it can be deduced that most of them were unable to elaborate much on the concept. This was identified as a gap owing to sufficient knowledge about EE on the existing subjects. Even though a majority of the participants had a clue about the meaning of EE, some of them had no clue at all.

Theme 2: The need to bring a subject on environmental education

Drawing from the statement of the problem, the researchers sought to assess the need to bring a subject on environmental education. Participants gave their responses and when asked if there was a need to introduce a subject on environmental education, most of them supported the idea. Their responses were thematically analysed and presented as the sub-themes hereunder.

Persistent irresponsible human behaviour to the environment and the consequences. A number of the participants revealed that there was a need to bring a compulsory subject on EE. This is because global environmental problems still continue despite EE infused in some existing subjects. The latter edifies that some elements of Schwartz's (1997) NAM are applicable. The participants understood that irresponsible human behaviour to the environment could result to negative consequences. This is linked to the element of 'awareness of consequences'. Moreover, the element of 'ascription of responsibility' has also been established from the participants' views. That is, some of the participants understood that they had a responsibility to behave pragmatically on the environment, and that if they could not, some global consequences are likely to prevail. Global challenges that participants listed were; floods, climate change, global warming, drought, tsunamis and snowfalls. Participant A, who teaches English had to express himself:

There is nothing in the syllabus that talks about the environment except when there are case studies or cartoons in comprehensions. Learners need to understand global consequences.

Participant F, a Life Sciences educator said:

I think we all know that we are facing a number of challenges around the globe, so there is a need for a new subject that will dwell much on the environment. I am saying this because we as humans continue to misbehave on our environment.

When probed how humans misbehave, she continued to say:

People are polluting the water and also industries pollute the air. That is why we are having climate change. There is also a problem of poaching and some animals such as the black rhino are slowly becoming rare.

Participant H, an English and History educator had to say:

I think there is a need to have a subject for environmental education. For example, a learner learns by doing so if there is that subject, learners will be able to know not only the theory but also to practice what they learnt in the classroom. So if they have a specific subject, people can stop overfishing, cutting trees and uhm...littering on our rivers and oceans.

Participant C, a Geography educator expressed:

Well, there's no doubt that we need such a subject. Even the government knows that they can't fight poor environmental behaviour alone. So to bring a subject of environmental education will really help and make people aware of the consequences of their behaviour. Learners need to be taught young as they are that if they pollute the environment, some animals that live in water can die and that the water quality can be compromised.

Participant 1, a learner who want to pursue a career a policeman had to say:

And another thing, this thing of floods that we hear about in Durban are a result of the lack of knowledge about the environment. To add, we also heard that snowfalls killed people in Durban, I think last year. So my point is that we need the subject.

Participant 5, a learner who want to be a psychologist expressed:

Yes, I think it is best for us to be taught about the environment.

She was asked to elaborate if there was a need to introduce a new subject on EE and why she thought so. She mentioned:

A new subject is good because it will help us as kids to know exactly what is our role to save the environment from dangers.

When asked what dangers she was referring to, she responded:

People don't want to protect the environment from digging out trees and burning grass. And also the fire also burns animals that are important to us.

Two learners had an opposing view towards the research question. They opined that there was no need for a new subject on EE.

Participant 6 mentioned:

No, I think there is no need for a new subject because we already have Geography and Tourism and we learn these things. Another subject is Life Sciences and we learn about environmental studies now so there is no need for a new subject.

Participant 8, a learner who want to pursue a nursing career had to say:

I don't think so. We are already overloaded with nine subjects and I think people who must be taught about the environment are those that are doing bad about it.

The preceding findings reveal that most of the participants saw a need to bring a subject on EE. They gave reasons that are as a result of irresponsible human behaviour. They opined that people pollute water resources such as rivers and oceans. They also commented on deforestation, pollution of the air through industries and poaching.

The participants also mentioned that these behaviours have negative consequences on the environment. This could be ascribed to NAM's element of 'awareness of consequences.' Drawing from the preceding narrative, the participants revealed that learners need to be aware of the importance of the environment as from their early grades. This is attributed to the element of 'ascription of responsibility'. Subsequently, when learners are aware about the negative consequences of irresponsibility, they could raise their personal intentions to act in a pro-social manner. Lack of information about EE was mentioned as another reason that exacerbate environmental challenges such as the floods and snowfalls in Durban.

Irrelevancy of other subjects. Some participants opined that there was a need to bring a new subject on EE because other subjects were weighed as irrelevant to the South African curriculum. Participant 9, a learner who want to pursue a career in cardiology had to opine:

Schools in South Africa must replace Creative Arts or LO with a subject about the environment because we don't gain much from these subjects and we learn them twice a week.

Participant 10, a learner who want to be a medical doctor had to say:

You know if I was the minister, I would scratch out some subjects because I think they add little value to the environment. Amongst the eight subjects, there is nothing practical to minimise the impact of humans to the environment.

The two participants argued that some subjects are irrelevant to address the challenges associated with environmental hazards. They suggested that there should perhaps be some subjects that can be reviewed as they do not adequately address environmental education. The latter is attributed to the elements of ‘awareness consequences’ and ‘ascription of responsibility’. That is, since the participants knew that there are potential consequences of harming the environment, they need to establish intentions to act in a pro-social manner. Realising that other subjects are irrelevant, this underlines that they (participants) need to be proactive to lessen environmental harm.

Scarce careers related to environmental conservation. About three out of the twenty participants opined that a new subject related to environmental education is necessary. This is due to a few number of people working to ensure the conservation of the environment. This is ascribed to NAM’s element of ‘ascription of responsibility’. Therefore, the participants suggested that if such a subject is introduced, there are learners that would opt for careers related to the natural environment. Their involvement in environmental careers could see societies abstaining from irresponsible environmental practices (personal norm). Participant G, a Business Studies educator said:

There is a need for the subject. I mean how many environmental specialists do we have in the country? Just here in this area alone, you see we have beautiful rivers and mountains but these treasures are not conserved against pollution and so on.

Participant I who teaches isiZulu and LO had to say:

Yes, we need a subject about environmental education. I think you hardly see a number of people employed under the natural environment because they lack information about opportunities there. Also, our kids can learn and develop love to work in the environment. We will see all this global warming reducing if we encourage our learners to be conservationist or something.

Participant 7, a learner who want to be a nurse opined:

As I said earlier on that I want to be a nurse, actually that was not my choice from the first place. I really like nature and I wanted to study something related to the environment.

Some participants saw an opportunity that will both benefit their livelihoods as well as the natural environment if a new subject on EE is brought into the curriculum. They opined that if learners pursue a career on environmental conservation, then the natural environment could be protected. The latter could be linked to NAM's element of 'personal norm.'

5. Discussion

5.1. The Understanding of Environmental Education

Based on the findings, most participants have shown an understanding of environmental education. The responses of the participants are attributed to most of the elements of the NAM. For example, the element (AC) was recognised as they (participants) characterised EE as an awareness of the natural environment in which learners could be informed about it as early as in Grade 8. Moreover, the element of (AR) is perceived whereby learners are believed to develop a sense of responsibility to take care of the natural environment. It is evident from the findings that education about the environment is wide. That is, it includes the protection of the components such as soils, rivers, vegetation (grass and trees), oceans, air and animals.

However, some participants showed a lack of understanding on EE. The authors argue that the South African policy on EE is not adequately incorporated by all teachers in their subjects as edified by Damoah and Gebremedhin (2021). Participants, particularly learners affirmed that it was their first time hearing about EE. Some learners also opined that EE is incorporated in some subjects such as History or Life Sciences. The choice of subjects in school could therefore be a justification for a gap of EE enactment. That is, subjects such as languages (English and isiZulu) and Mathematics hardly address EE. It is therefore argued that even though most participants had a clue about EE, there is a grey area to understand the concept from the existing subjects.

5.2. The Need to Bring a Subject on Environmental Education

The findings undeniably reveal that there is an overt need to bring a compulsory subject on EE in secondary schools. Participants opined that due to persistent irresponsible human behaviour on the environment and its consequences, schools should consider introducing a subject on EE. Furthermore, participants voiced out that irrelevancy of other subjects and scarce careers related to EE are the driving forces necessitating EE in secondary schools.

Persistent irresponsible human behaviour to the environment and the consequences.

It is evident that if a subject on EE is not introduced, the planet is likely to continue ‘scorching’. The researchers underline that learners are best recipients of new knowledge. That is, if EE is not well harnessed as early as in Grade 8, we are likely to see the continuation of irresponsible human behaviour on the environment and its consequences thereof. The preceding narrative is therefore ascribed to the element of ‘awareness of consequences.’

Based on the findings, participants asserted that the natural environment is indeed severely deteriorated through people’s negative behaviour as Uralovich et al. (2023) warned. People negatively respond to nature through air and water pollution, deforestation and poaching. These irresponsible human behaviour saw harsh consequences such as climate change, global warming, tsunamis and snowfalls. The authors want to agree with participant 1 who opined that the recurrence of floods in Durban is as a result of lack of knowledge about EE. Olanrewaju and Reddy (2022) sustain that the Durban floods are exacerbated as a result of overpopulation that has led to the density of settlements, poor waste management and lack of information about the dangers of irresponsible human behaviour on the natural environment. The preceding arguments integrate the NAM’s elements of ‘ascription of responsibility’ and ‘personal norm.’

It can be deduced that bringing a subject on EE in secondary school could see the applicability of Schwartz’s (1997) Norm Activation Model advancing for the best in our planets. As the authors argued that learners are best recipients of new knowledge, through the NAM’s elements (AC, AR and PA), learners are more likely to ascribe their responsibilities and become aware of the consequences of their socio-environmental behaviour. Therefore, they are believed to take an obligation to abstain from irresponsible behaviour thus raising other people’s intentions to act in a pro-social manner. This justifies that bringing a new subject could help learners to put EE theory into practice.

Irrelevancy of other subjects. Findings from two participants suggest that some subjects were irrelevant to be in the South African curriculum. They (participants) saw a need to replace some subjects with a new subject related to EE. The need to replace some of the subjects is due to some persisting global challenges. As participant 10 opined that it is better to practice something that is learnt in class, this implies that the subject could involve a section where learners demonstrate practical skills rather than gaining theory alone.

Scarce careers related to environmental conservation. Some participants supported that there was a need to bring a new subject on EE due to scarce careers that are related to environmental conservation. It is evident from the findings that if a new subject related to EE is introduced, learners are likely to be eager for some careers related to the natural environment. This could also address the high rate of unemployment in South Africa as well as enhancing the protection of the Earth's natural resources from rural and urban space.

5. Conclusion

The paper was guided by Schwartz's (1997) Norm Activation Model. The model stipulates that behaviour begins with a person's awareness of the consequence of an irresponsible behaviour towards the natural environment. Therefore, the authors argue that as learners are best recipients of new knowledge, they can take an obligation to abstain from irresponsible behaviour if EE is established as early as in grade 8. That is, bringing a new subject related to EE could help learners put theory into practice thus acting in a pro-social manner on the natural environment.

As the findings of the study reveal that there is a need to bring a new subject related to EE, there has to be a move from theory in the classroom into practice. Despite some participants suggesting that some subjects need to be scratched out, it is revealed that scarce careers related to the protection of the environment need to be revisited. Therefore, the educators' limited knowledge and learners' disconnection from environmental careers both justify the need for curriculum reform.

Grounded from the study's major findings and realising that the environmental crisis is a global issue, addressing this should begin with the collective efforts and initiatives of all neighbouring countries. Subsequently, it is recommended that the Department of Basic Education (DBE) should revisit its curriculum to assess whether the integration of EE on the existing subjects is having a significant impact in reducing the global challenges and their consequences. This could be achieved through the analysis of the good lessons from different nations, adoption of practical implementation steps such as- educator training needs, resource development and effective curriculum design reforms. However, the limitation of the study is the small sample size which could not adequately generalize the study's site. Drawing from the existing gap in literature on how a standalone subject could be brought into the South African school curriculum, this implies the need for further research.

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Institutional Review Board Statement

This study was conducted in accordance with the ethical guidelines set by University of South Africa (Ref: 2023/11/08/17269741/20/AM). The conduct of this study has been approved and given relative clearance(s) by the University of South Africa.

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