

Challenges teachers face in the integration of Environmental Education into the South African curriculum

¹Damoah Benjamin , ²Prof E.O.Adu

1. Faculty of Education, University of Fort Hare, South Africa.

2. Faculty of Education, University of Fort Hare, South Africa.

Corresponding author: Damoah Benjamin

ABSTRACT: This study focuses on the integration of environmental education into other subjects in the school curriculum. The study critically examine challenges faced by various subject teachers in the process of teaching environmental education as an integrated component in their subject areas. The role of teachers in the implementation of environmental education in developing an environmentally literate citizenry is of great significance. It was recommended among others that, the government should develop curriculum with clear goals and content with specific guideline which shall develop teachers' capacity in the teaching of environmental education. Successful implementation of any educational policy, largely depends on teacher's competencies. Therefore all necessary steps should be taken to address challenges confronting teachers in the implementation of EE as an integrated component.

KEY TERMS: *Environmental education, integration, curriculum*

I. INTRODUCTION

There are over one billion people starving to death as a result of over 1.2 billion hectares of land severely degraded by human activities (O'Riordan, 1995). This has necessitated the call for an integrated approach in the teaching of environmental education (EE) in the school curriculum to prepare people to be more competent and well sought-after to deal with environmental issues. According to Adu (2014), EE has shifted from engaging learners outside the classroom to learning about their immediate environs. EE has taken centre-stage in global intergovernmental conferences from the 1970s, as the world seeks alternative ways of addressing further environmental degradation. The first major international environmental conference from the 1960s to 1970s was the 1972, Stockholm Convention, coupled with the first UN Environmental Agency, United Nations Environment Programme (UNEP) established in 1973 (Barrow, 2005).

In the United Nations Conference held in Stockholm (1972), where the world's rich and poor nations came together to discuss matters of environmental concern. It was proposed that UNESCO and other environmental agencies take considerable measures in ensuring that EE is adopted and integrated across-curricular, globally (UNESCO, 1972).

Quality teaching and learning of environmental education through a formal education curriculum is one of the main responses to the deteriorating state of the global environment. According to McDonald (2004), the advent of constitutional rule in the South African political arena has brought about new direction in dealing with environmental concerns. Agreeing with Adu (2015), education plays important role in ensuring sustainable development.

According to the Council for Scientific and Industrial Research (2004), Section 24 of the Constitution of the Republic of South Africa (RSA, 1996) legally mandates the government to ensure that people in South Africa are not harmed by the environment and the environment is protected against abuse. The CSIR (2004) document implies that government and other stakeholders are to initiate and implement measures to preserve and protect the Environment from further degradation. Based on the backdrop of this Constitutional requirement as enshrined in Section 24 of 1996, South African Constitution, Environmental Education (EE) has been incorporated in all disciplines of the entire school curriculum both GET and FET phase of South African Education system.

South Africa, as a signatory to United Nations (UNESCO, UNEP and UNCED) international conferences, has responded to the global call and declarations by incorporating EE into the school-based curriculum at all phases. South African environmental policies and White paper on Environmental and Development (1995) support the

incorporation of environmental education into the school curriculum. Prior to 1994, the burden of protecting and preserving the environment rested on the shoulders of conservation bodies and non-governmental organisations, thus neglecting the formal education system (Loubser, 2005).

Implementing the Tbilisi Declaration (1977) and the Rio De Janeiro Agenda 21, the government of the Republic of South Africa has taken conscious efforts to integrate EE themes across curricular in the education system. The White Paper on Education and Teaching (1995) stipulated that an interdisciplinary approach should be adopted. Environmental education should be incorporated into learning areas at all levels of formal education system and training to create environmentally literate and responsible citizens who shall conserve and protect scarce natural resources.

This, premised on the Constitution of the Republic of South Africa (1996), entrenched an Environmental content in the Bill of Rights Section 24. This states that every citizen has the right to an environment that is not harmful to their health or well-being and the environment should have protected for the benefit of present and future generations, through reasonable legislations and other measures.

In addition to the process of EE integration, the post-apartheid government showed preparedness to safeguard the environment by the initiation of a Green Paper on the environment (1996), which received the green light in 2001. The Green Paper urged the government to create awareness of environmental issues through the integration EE into the formal education system. UNESCO (2006) was emphatic that governments, curriculum developers and teachers have a crucial role in setting up activities and programmes that find solutions to the unending global environmental problems the world is facing today.

According to Galloway (2004), in any democratic dispensation, the quality of education is of utmost importance. The newly revised Curriculum and Assessment Policy Statement (2011), which came into effect in January 2012, is sensitive to environmental issues. The CAPS (2011), document emphasizes the need for EE integration across curricular in raising responsible citizens who shall be equipped with relevant EE knowledge, skills and attitudes to deal with emerging environmental issues.

According to Barrow (2009), environmental issues affect everyone, and its integration in the school curriculum cannot be downplayed. The new curriculum seeks to improve the quality of life of the citizenry through sustainability of the environment and its ecosystem. This can only be achieved through the integration of EE across the curriculum. However this noble idea has being confronted with series of challenges in its implementation.

In view with this goodwill, the South African education system recognizes EE as an important component of the entire school curriculum and not as a stand-alone subject. The role of every teacher, within the spirit of the CAPS document, is to arouse the interest of learners in environmental issues through the integration of EE themes into their respective subjects. This study, therefore, focused on challenges teachers' face in teaching of environmental education as an integrated component into their subject areas of speciality.

II. RESEARCH OBJECTIVES

In an era of global call for action against environmental degradation and the integration of EE in the school curriculum, it is imperative to know the extent at which EE had been integrated into FET subjects. Hence, the objective of this study is to find out challenges confronting the implementation of EE integration in the school curriculum.

III. RESEARCH QUESTION

What challenges do teachers face in the integration of EE into other subjects in the curriculum?

IV. Literature Review

The research study is supported by national and international literatures based on environmental education and integration of environmental education as a component in the school curriculum, and policy documents.

4.1 Theoretical framework

The theoretical framework of the study is based on Opportunity to Learn (OTL). The concept of OTL was formulated by international Association of Achievements (McDonnell, 1995). OTL is multiplicity of factors that create the conditions for teaching and learning, such as curricula, learning materials, facilities, teachers and instructional experiences.

In this study, the researcher examined variables like challenges faced by teachers regarding the integration of EE in the FET curriculum. In addition, the study explored how subject teachers of Life Sciences, Physical Sciences, Mathematics and languages incorporate EE into their subject areas to achieve the anticipated outcomes prescribed by the national policy (DOE, 2011).

4.2 Environmental Education as integrated Component of the School Curriculum

According to Palmer (1998), EE in the school curriculum can be defined as total experience, skills, values, attitude and knowledge required to raise learners who are environmentally literate to make decisions, solve problems and initiate measures towards the conservation of the environment.

The integrated approach is one of the ways of incorporating EE content areas into all school subjects across curricular. Jackson (2010) and Klein (2011) recognise the integrated approach as a multidisciplinary approach, where EE content takes centre stage of other subjects. Other schools of thought also classified it as a whole school approach to EE.

The idea of integration, in this context, denotes the fusion of EE themes into content areas of other subjects in the school curriculum. According to Drake (2014), the common approach to include EE in the school curriculum is the integrated approach. This approach is recommended by many stakeholders because various environmental issues can be addressed across others subject in the school curriculum.

To address environmental issues, there is a need for collective effort and action. It is, therefore, imperative to have EE integrated into all school subjects; hence, the integrated approach, sometimes referred to as whole school approach. It is further argued that, environmental issues should be addressed holistically through an interdisciplinary context in order not to leave any child behind (Kimaryo, 2011).

According to Kimaryo (2011), the notion behind EE integration is to draw inspiration from different subject areas, which facilitates the exchange of ideas from different subjects and teachers. This is supported by Palmer's (1998) argument that, the implementation of EE through the integrated approach shall close the gap in the system between rhetoric and practicality of environmental issues and EE.

Rusinko (2010) argued that the integrated approach is an effective approach to incorporate EE into school subjects. However, it requires a lot of time, resources and teachers' experiences. Kimaryo (2011) affirmed that, the Tanzanian education system has effectively integrated EE into all primary school subjects. The author added that EE is taught in all subjects to equip learners with the necessary skills and attitude towards the environment.

Apart from the inclusion of EE in other subjects, EE has also taken centre stage in in extra-curricular activities, which include cleaning of school premises, management of school gardens, planting of trees and recycling of waste. The extra-curricular activities further heighten the understanding of environmental issues and changes the misconceptions learners have toward the environment (Kimaryo, 2011). Many countries, globally, have joined hands together in dealing with environmental issues.

According to Ofwono-Orechoet al.(1998), Adebayo and Olawepo (1997), Hua (2004), Finnish National Board of Education (2004) ,Flaws and Meredith (2007), Uganda, Nigeria, China, New Zealand and Finland have adopted the integrated approach to EE. The integrative approach calls for the incorporation of environmental themes across-curricular. All the afore-mentioned countries seek to educate the populace on environmental issues through a formal education system. In raising responsible citizenship, the curriculum intents to create environmental awareness among learners and instil the notion of conservation of the environment from further degradation. In certain countries, EE is fully integrated into learning areas such Geography, Biology, Social Studies, Natural Sciences and Physical Sciences in the school curriculum (Jeronen & Jeronen, 2008).

Abid and Holt (2003) indicated that EE is critical for promoting sustainable development to create environmentally literate citizenry and equally equip people to address environmental issues confronting societies which include, poverty, degradation, water and air pollution. These problems endanger human life (European Commission, 2013). Therefore, the sustainability of the environment and its ecosystems largely depends on effective teaching and learning through a formal education system that gives equal opportunities to all learners to acquire moderate EE knowledge.

4.3 Challenges teachers face in the implementation of EE integration.

Integrating EE into other subjects creates several challenges and limitations in the entire school curriculum (Palmer, 1998).It takes time to implement new ideas and policies (Clark Jr, 2011). Clark Jr, and Mokhele (2011) noted that there are many hindrances in the implementation of EE integration. Mokhele (2011) conducted a study in two different schools in Mpumalanga province. The case study focused on two primary school teachers on integration of EE into respective teaching subjects. The findings of the study revealed that; teacher's level of competence is vital. The researcher explored teachers' basic knowledge on how integration of EE is implemented in the classroom setup at different schools. It was revealed that there is total lack of support from provincial and district education offices in building competent teachers who can integrate EE into their teaching.

Mokhele (2011) further argued that, Mpumalanga schools have implemented the national environmental education policy, like other eight provinces in South Africa. This policy urges all schools in South Africa to integrate EE into all subject areas at all levels of education. The national policy document does not define a specific time allocation for EE to be taught, and the curriculum does not recognise EE as a stand-alone subject but rather as an integrated component in the curriculum. The study revealed that EE implementation is clearly marginalised in the classroom. Teachers focus much on their subject content instead of striking a balance of

integrating EE themes in the content. Another setback in the implementation of EE is lack of formal policy guidelines to assess the teaching of EE as an integrated theme.

Mokhele (2011) indicated that curriculum implementation is compulsory for all public schools in South Africa, and many teachers have different perceptions regarding implementation as an integrated component. Mokhele argued that, most teachers in government schools lack ideas towards successful implementation of the curriculum because they are not trained on integrating EE into their instructional hours. It was discovered that although there is well-defined national policy on EE integration, the two schools implement the same policy differently due to lack of understanding of the policy. The study concluded that there was no EE integration, as trumpeted by national policy makers, because teachers only concentrate on the content-base of their respective subjects instead of incorporating EE themes in their lesson delivery. A major factor that affects the success of EE integration is the teacher's inability to incorporate EE into the curriculum logically (Hart & Oonyo, 2003).

V. Methodology

5.1 Research Design

The research employed phenomenological qualitative methods. The study further adopted interpretivism paradigm. The researcher seeks the understanding of respondents' lived experiences. Interpretivist paradigm help to analyse systematically and objectively the direct experience of teachers teaching various subjects at the high school level. Data was collected through semi-structured interviews. In order to answer the research questions, the study used interview guide approach.

5.2 Sample and Sampling Techniques

The study sampled 6 teachers teaching different subjects in one Secondary School in the East London Education District. In this qualitative interpretative research study, respondents were purposively selected.

5.3 Data Analysis

The data for this qualitative study was collected through in-depth interviews. Inductive analysis style was adopted to analyse the data. This is a process through which researchers create meaning out of data collected through specific guidelines.

V. PRESENTATION OF RESULTS

The respondents in this study were six teachers in the FET phase in one high school at Mdantsane Township. Throughout the interview process, field notes were taken by the researcher, and a tape recorder was used to record the responses of respondents. The researcher used a tape recorder to verify, edit and analyse the responses of respondents at the later stage of the study. The tape-recorded data was then transcribed into written text.

Most respondents interviewed in this study indicated that they teach EE in their respective subjects. They disclosed that, although idea of teaching EE as an integrated component is commendable, they are not integrating EE properly into their subjects, as prescribed by the CAPS document. Several factors impede the effectiveness of their work. These challenges include curriculum, teaching and learning factors and teacher-related issues. All factors hindering EE integration are illustrated diagrammatically below, and each factor is discussed in detail.

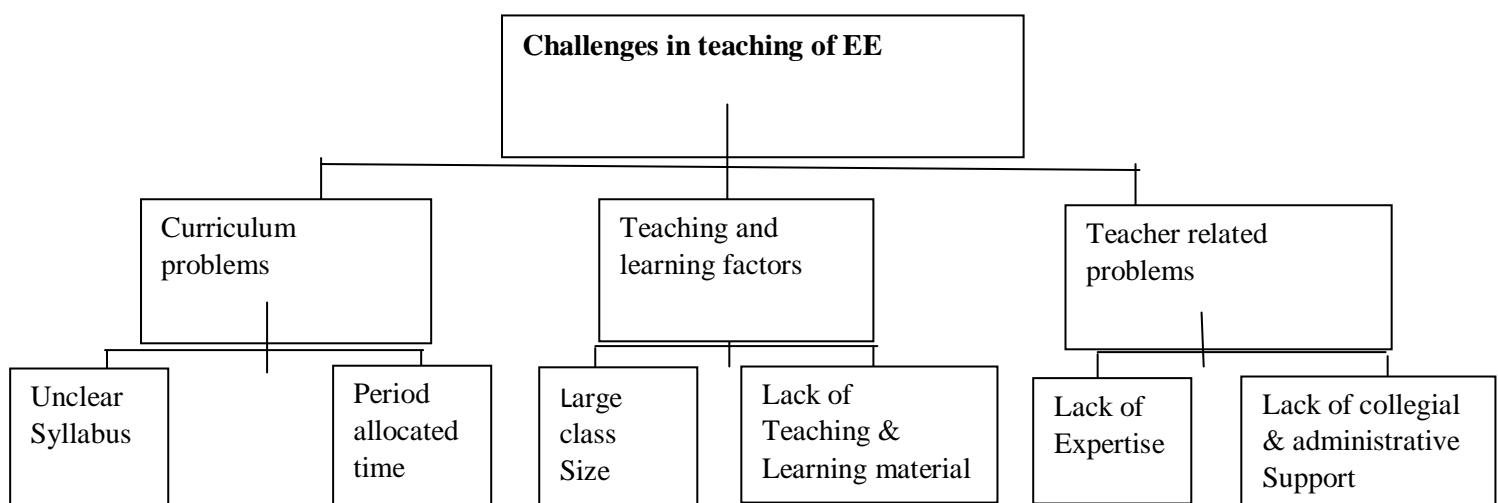


Figure 6.1: Challenges facing teachers in teaching EE as an integrated component adapted from (Kimaryo, 2011)

6.1 Curriculum Challenges

In this category, respondents indicated that the present curriculum is one of the factors affecting the implementation of EE. Their argument was based on the uncertainties and the unclear nature of the current CAPS document, subject syllabus and time allocation to each period.

All the respondents admitted that there is no clear interpretation on what needs to be integrated and how it should be integrated into the subject content. In fact, there is no policy guideline that suggests how EE should be integrated into subjects. This is a major issue threatening the teaching of EE in other subjects. What needs to be taught as an integrated component is not defined in detail by the syllabus.

The approach adopted by the CAPS document to incorporate EE into the curriculum is the integrated approach. In this approach, EE content or themes are incorporated into content areas of other traditional subjects like Mathematics, Languages and Economics etc., specifically at the FET phase of the South African curriculum (DOE, 2011). The syllabus of any subject serves as a guideline for a teacher. It directs and limits what need to be taught in a specific chapter. The concepts of each topic or chapter are clearly stated and defined for subject teachers follow.

With the emergence of EE as an integrated component into other traditional subjects, teaching of EE has now become a collective responsibility for all teachers, irrespective of their subject area of specialisation. The intention behind the introduction of EE as an integrated component is highly commended. However, in practice, subject teachers at the FET phase struggle to implement the idea of integration into their subject content. The integrated component is not specified in the syllabus. This hinders the advancement and the implementation of EE. Most respondents concluded that, they do not know of any environmental content to integrate into their subjects. These are some the verbatim excerpts from the interview:

“I have been teaching Mathematics for years, but I have a serious challenge on how to integrate EE content into my topic. I have taken my time to peruse the syllabus entirely and there is nothing in the syllabus that specifies the integration of EE content. I am willing to teach it but I don't know to go about it as a teacher and am being honest and sincere” (Respondent, 2).

“I have difficulty in trying to integrate EE content into my subject. I have taught English language for years on passages for comprehension with environmental content. Unfortunately, the syllabus does not spell out what I need to stress on in my teaching, the idea of integration is fantastic but in practice is dead on arrival. I personally do not know what skills to develop whether comprehension skills or environmental content. There is no policy guideline on how to go about EE integration; to me it is very stressful” (Respondent, 1).

All respondents in this study shared similar concerns. There is prescribed and defined syllabus that gives clear guidelines on what to teach and a specific skill that ought to be developed. However, with the inclusion of EE into all subjects, there is no direction on how it should be done. These frustrations exhibited by respondents have an adverse effect on the teaching and implementation of EE as an integrated component into other subjects. Respondents admitted that they have not received any training from the district office or from Education Development Officers (EDO) or from any subject advisers. Therefore, they do not know what to teach with regards to EE integration into their subjects, and the idea of EE integration into other subjects still remains a mirage.

6.2 Period allocated time

Teachers are focused on the content areas that are examinable and produce results. Therefore, teachers have less time to search for ways to integrate EE into their content area. Respondents believe that the time to teach the core content is limited and they have limited time to think of integrating EE content into their subjects. Grade 12 assessment instructions for each year only give attention to content areas that are examinable, and nothing about EE integration. The Assessment Instruction is what guides teachers on what to do, what to teach and what to assess at a given period. Therefore, with the limited time, teachers are more focused on topics that are examinable as prescribed in the assessment instruction. There is no time to waste on teaching topics that are non-examinable. For teachers to integrate EE effectively, more time have to be allocated to each subject. A respondent had this to say:

“I don't mind teaching EE in my subject, if it is clearly specified in the Syllabus, besides syllabus issue, I have less allocated period on the timetable and more content areas to finish within a limited time, without finishing the syllabus my learners are bound to fail their matric exams. Hmm... there is too

much pressure on those of us teaching Grade 12 classes. We concentrate only what is written in the assessment instruction. I do not have enough time to look for information on how to integrate EE, it is hectic “.

6.3 Teaching and learning related factors

Respondents said one of the challenges hindering the integration of EE is teaching and learning. To ensure effective teaching and learning in the classroom, there are many factors that come into play. These factors include proper classroom management and provision of teaching and learning materials. Respondents were concerned with overcrowded classrooms in township schools and lack of teaching and learning materials. Lessons can be well-taught only when there is coherence and order in the classroom setting. Overcrowded classrooms make the class noisy and do not support effective lesson delivery.

Large class size

Respondents highlight that large class size is a major problem that hinders EE integration. In teaching EE as an integrated component, respondents need to adopt a participatory approach of teaching. However, with a class of 65 learners, it is extremely difficult to teach, even if EE is clearly specified in the syllabus. Respondents admitted that overcrowded classes hinder effective teaching and learning. They struggle to manage their classrooms with big numbers, and it is very difficult to assess their work to get positive feedback. This factor makes it difficult for teachers even to think about ways to integrate EE into their content areas.

Environmental learning sometimes involves taking learners to do practical work, but with such big class numbers, it is impossible to do so. Through observation, the researcher saw that most learners had no spaces to sit during English period in Grade 12. Most students were sitting on broken chairs and others stood at the corners of the classroom. Effective teaching and learning goes with effective classroom planning, which includes learners comfort. A respondent had this to say:

“My major concern as teacher is the overcrowded classrooms. There is too much noise in the classroom and it is very difficult to control learners due to the large size of classes. Even if we intend to integrate EE into our subject content, I don’t know how effective it may be” (Respondent, 6).

From the above statement, it can be concluded that overcrowded classes hinder progress of teaching and learning, and this could affect the implementation of EE as an integrated component.

6.4 Lack of teaching and learning resources

Respondents revealed that there is lack of teaching and learning resources, and this hinders the effectiveness of their lesson delivery. Most respondents confirmed that their lesson delivery is mostly abstract in nature due to lack of teaching and learning materials. This is a major challenge in teaching and learning. A respondent said:

“Even if we intend to teach EE, we have no teaching and learning materials. It shall be unwise to teach environmental related topics in abstract. There is lack of materials and funding to buy them ourselves” (Respondent, 5).

Further interaction with respondents revealed that even with traditional subjects like Life Sciences, Physical Sciences, teachers do not have the relevant teaching and learning material to do the practical component of the subject, as prescribed by the curriculum. Mostly, their teaching is purely based on the theoretical aspect, thus neglecting the practical aspect. There is no scientific laboratory in the school where the study took place, and learners study sciences just like History, memorising scientific terms without knowing the practical aspect of the subject. Even though respondents are willing to integrate EE into their subjects, lack of teaching and learning resources remain a serious academic challenge.

Most learners, as observed by the researcher on the field of study, have textbooks shared among learners. Respondents struggle to give homework to learners due to lack of study material. How would teachers manage to explain concepts in textbooks to learners sharing one textbook?

This is a major challenge that affects teaching and learning from all angles, including incorporating of EE into other subjects. Another respondent indicated that,

“We have no teaching and learning materials; the worse of it all is that, there is no provision of funds to buy teaching and learning materials either and this is very critical issue affecting effective teaching and learning” (Respondent, 2).

Respondents added that there is shortage of textbooks, teacher's guide and other relevant teaching and learning materials. With the introduction of EE as an integrated component into other subjects, there should be provision of relevant teaching guides and other teaching materials to assist teachers to teach EE effectively. Some teachers are willing to volunteer their time to buy these teaching and learning materials. However, there is no funding allocation for teaching and materials. Teaching of EE is not entirely an indoor subject; there is a need to take these learners on field trips for them to have a practical experience on issues pertaining to the environment.

6.5 Teacher-related factors

One of the challenges hindering the implementation EE integration into other subjects is the teacher related factor. The success of EE integration largely depends on the teacher's involvement. The teacher is the heart of the system, and whatever affects the teacher directly affects the entire school curriculum. The CAPS document prescribes EE integration into all subjects, which makes the teaching of EE a collective responsibility. The main actors of EE integration implementation are themselves a constraint to the success of the integration.

From the interview conducted, it was discovered that most respondents lack the ability and the competence to teach EE as an integrated component. Most of them lack basic knowledge about the environment, so their ability to teach EE is questionable. It was revealed during the interview that, most teachers were not fully informed about the CAPS document and its content. Therefore, teachers are incapable of integrating EE content into their respective subjects, as per their interview responses. Most respondents could not even define EE; therefore, how could they devise appropriate teaching methodology to implement EE integration into their subjects?

The CAPS document indirectly urges teacher to be more innovative in thinking about ways to teach EE in their subjects. The syllabus of each subject, especially non-sciences related subjects, does not specify where, when and how to integrate EE into the content of their subject. There is no policy guideline to assist teachers in lesson planning. Therefore, the curriculum requires innovative thinkers, people with the ability to think outside the box to find their own means to integrate EE into other subject. Based on the interviews, it was revealed that most respondents were not willing to do anything that is not prescribed by their subject syllabus. With such a stereotype mind set, the idea of EE integration is only possible on the face of the CAPS document, but its practical implementation remain a serious challenge. In analysing the interview responses, the researcher discovered that lack of expertise and administrative support hinder the implementation of EE.

Lack of expertise by teachers

As explained above, most respondents do not understand the basic concepts of EE. Respondents indicated that, for them to teach EE effectively as prescribed in the curriculum, they need to master the content of EE and be more knowledgeable about what to teach. This may boost their confidence in teaching EE as an integrated component into other subjects.

According to respondents, since the inception of the CAPS document in 2011, they have not received any formal training on how to integrate EE into their respective subjects. There has being no training material or assessment instruction guidelines on what to teach and the extent to which EE should be integrated. As a result, most respondents see EE integration as a punishment from the Department of Education and it remains a huge challenge because they lack the expert knowledge to implement EE into their subjects. A respondent indicated that,

"The problem I have with the integration of EE into my content is that I do not have the expert and tactical way of strategizing on how to teach EE. I have little knowledge about EE and it is extremely difficult to blend EE content in my subject because as a teacher, I am not fully privy to environmental issues, therefore, what am I going to teach in the classroom?" (Respondent, 6).

Another respondent added that,

"I did not study EE at school. I have no idea about the methodologies used to teach EE into my subject content. Therefore, teaching, EE is a major challenge on my side" (Respondent, 3).

According to respondents, they face serious setbacks in the implementation of EE with insufficient knowledge of EE. Therefore, most of them are incapable of teaching the EE as an integrated component. The situation could be improved with administrative support discussed next.

6.6 Lack of Administration Support

Most respondents complain about lack of support as another challenge that impedes the implementation of EE. As indicated above, there is no clarity on how EE should be integrated into other subjects. To ensure effective teaching and learning of EE, teachers were supposed to be trained since the inception of the CAPS document. Eight years down the line, not a single workshop or training has been done by the departmental officials or schools. Teachers admitted that there is lack of support even from colleagues. The main concern is that all teachers are clueless on how to implement EE integration into their subjects.

A respondent indicated that,

“One of the challenges I have with regards to EE implementation is lack of support from the district office, school administration and colleague teacher, most of my colleagues have no clue on how to integrate EE and it’s unfortunate I cannot get support from anyone” (Respondent, 4).

Teachers are expected to help one another whenever a colleague needs an explanation or interpretation on certain topics or concepts. In this case, teachers are not able to do so because they do not have sufficient information on EE implementation, and the school has no support to offer to teachers to integrate EE effectively.

VII. DISCUSSION OF RESULTS

Respondents disclosed that even though the idea of teaching EE as an integrated component is laudable and innovative, they admitted that they are not integrating EE into their subjects as prescribed by the CAPS document. The study established the following as the barriers of EE integration:

The researcher established that there is no clarity on how to integrate EE as prescribed by CAPS (2011). The syllabus of various subjects does not specify when, how and the extent of EE integration. There is no policy guideline to be followed by teachers, and this is a major setback on the implementation of EE as an integrated component.

Regarding period allocation time, the researcher established that teachers are focused on the content areas that are examinable and produce results. Therefore, teachers have less time to search for ways to integrate EE into their content area. Respondents believe that the time to teach the core content is limited, and they do not have enough time to think of integrating EE content into their subjects.

To ensure effective teaching and learning in the classroom, there are many factors that come into play. These factors include proper classroom management and provision of teaching and learning materials. Respondents were concerned with overcrowded classrooms in the township schools and lack of teaching and learning materials. Overcrowded classrooms make the class noisy, and this does not support effective lesson delivery. The researcher established that overcrowded classrooms and lack of teaching and materials were some of the factors hindering the implementation of EE.

The success of EE integration largely depends on the teacher’s involvement. The teacher is the heart of the system, and whatever affects the teachers directly affects the entire school curriculum. The CAPS document prescribes EE integration into all subjects, which makes the teaching of EE a collective responsibility. The main actors of EE integration implementation are a constraint to the success of the integration.

The researcher established that most respondents lack the ability and the competence to teach EE as an integrated component. Most of them lack basic knowledge about the environment and their ability to teach EE is questionable.

VIII. CONCLUSION

The study concludes that, the idea of teaching EE as an integrated component is laudable. However with the above stated challenges facing EE implementation, it is an open secret that EE integration is still in limbo. The main actors are under-resourced and confused on how to go about the implementation of EE integration into other subjects. The policy has failed to spell out a clear direction on how teachers should integrate EE into their subjects. Therefore, EE integration faces serious challenges. It is doable theoretically but practically, it has failed to achieve the anticipated results due to the numerous problems confronting its implementation in the classroom.

IX. RECOMMENDATIONS

The idea of EE as an integrated component is very innovative and brilliant, but curriculum developers need to re-align the whole policy. There should be clear policy guidelines on how teachers should integrate EE into their subject content without any stress. There should be provision of assessment instructions to guide teachers on how to teach EE content in their subjects.

Curriculum developers are required to review the objectives of EE, stating explicitly what needs to be taught. The content should be rearranged to meet the goals of EE.

Curriculum developers should consider integrating wide coverage of EE content into all subjects. The objectives of such topics should be clearly defined for effective teaching and learning. EE should be given more attention at the FET phase, specifically in Grade 12, which is the final and exit class of the phase. The researcher, therefore, suggests that, the national curriculum developer should:

1. Should provide curriculum materials with clear policy guidelines on how to integrate EE effectively into other subjects.

2. Curriculum developers should prepare adequate course materials to cover the various aspects of EE integration, as stated in the CAPS document. Workshops and training should be provided, whenever material is given to teachers to develop their competence in teaching of EE in the classroom.

3. There should be regular workshops to help in capacity building. These orientation programmes may help teachers to improve and sharpen their skills in the teaching of EE.

4. Universities should re-align their curriculum to have an EE integrated component so that newly trained teachers would be able to integrate EE without any impediment. Appropriate teaching strategies and other relevant techniques should be taught before students graduate as qualified teachers ready to implement EE content into their subjects of speciality.

5. Qualified specialised subject advisors are to be appointed at the various district offices. These officers could serve as resource persons to facilitate the integration of EE into other content areas.

Though EE is not a stand-alone subject like other subjects, its implementation as prescribed by the CAPS document, is too technical and requires strategic planning to ensure effective implementation in the classroom. Presently, there are no checks and balances on how teachers integrate EE across curricula. There is no policy yet to monitor the implementation of EE as an integrated component into other subjects. Therefore, appointment of qualified subject advisors may drive the implementation of EE integration. Teachers can then be guided whenever there is a need to do so.

Environmental education should remain as an integrated subject. The burden of conserving, caring for and protecting the environment should not be a section of people in the society. It is our collective responsibility to ensure that the environment is well taken care of. It is therefore important for every child to acquire basic environmental knowledge. The significance of EE integration is priceless and endless.

REFERENCES

Journal Papers:

- [1]. Adu, E. O. (2015). Information communication and technologies education: A veritable tool for sustainable future and integration into Nigeria's development agenda. *Journal of Communications*, 6(2), 236-241.
- [2]. Adu, E. O. & Ngibe, N. C. (2014). Continuous Change in Curriculum: South African teachers' Perceptions. *Mediterranean Journal of Social Sciences*, 5(23), 983.
- [3]. Adebisi A & Olawepo J.A (1997). Integration of Environmental Education in Social Science Curricula at the Secondary School Level in Nigeria: *problems and prospects*, *Environmental Education Research*, 3(1), 83-93.
- [4]. Abid, S. (2006). Teaching for Quality Education in Environmental Education: *Challenges and Possibilities*. *Possibilities. Quality in Education Teaching and Leadership*. Aga Khan University, Karachi.
- [5]. Jeronen, J. & Jeronen, E. (2008). Renewable energy in Finland – A case study of Finish Internet material on climate change and renewable energy sources. In I. Palmberg & E. Jeronen, (Eds.). *Harmoni eller konflikt? Forskning om miljömedvetenhet i skolan och lärutbildningen*. Vasa: Pedagogiska fakulteten, Åbo Akademi
- [6]. Klein, E. S. & Merritt, E. (1994). *Environmental education as a model for constructivist teaching*. *The Journal of Environmental Education*, 25(3), 14-21
- [7]. Rusinko, C. A. (2010). Integrating sustainability in higher education: a generic matrix. *International Journal of Sustainability in Higher Education*, 11 (3), 250 – 259.
- [8]. UNESCO (2006), *Expert Meeting on Intercultural Education*. Paris: UNESCO, 20-22 March 2006.
- [9]. UNCED (1992). *Agenda 21, The United Nations Programme of Action from Rio*. New York: UN.
- [10]. UNESCO. (1972). *The Stockholm Declaration*, Sweden.
- [11]. UNESCO (1977). The Tbilisi Declaration. *Intergovernmental Conference on Environmental Education*, (October), 1–96. USSR.
- [12]. UNESCO-UNEP (1994). International Environmental Education programme series 29, *A prototype Environmental Education Curriculum for Middle School*. New York: UN
- [13]. Department of Environmental Affairs (2011). *National Strategy for Sustainable Development and Action Plan (NSSD 1)*, 6–37, [Online]: RSA: Available url: <http://www.environment.gov.za>
- [14]. McDonnell, L. (1995). *Opportunities-to-learn as a research concept and policy instrument*. *Educational Evaluation and Policy Analysis*, 17(3):305-322.
- [15]. Mokhele, M.L. (2011). *Integrated environmental teaching in South Africa: An impossible dream? Perspectives in Education*, 29(4), 78–86.
- [16]. Oonyu, J.C. (2003). *Primary Teachers' Perceptions of Major Constraints to the Teaching of Environmental Education in Eastern Uganda*. *Uganda Journal of Education*, 4(107), 122.
- [17]. O'Riordan, T. (1995). *Environmental Science for Environmental Management*. New York: Longman.
- [18]. McDonald, D. A. (Ed.). (2004). *Environmental Justice in South Africa*. Juta and Company Ltd. University of Cape Town Press. [online]: RSA: Available url: <https://books.google.co.za/books?>

- [19]. Palmer, J. A., Suggate, J., Bajd, B., Ho, R. K., Ofwono-Orecho, J. K. W., Peries, M., ... & Staden, C. V. (1998). An overview of significant influences and formative experiences on the development of adults' environmental awareness in nine countries. *Environmental education research*, 4(4), 445-464.
- [20]. Flaws, M. G., & Meredith, K. L. (2007). A wind shift: Integrating curriculum for education for sustainable development. *New Zealand Geographer*, 63(1), 55-61.
- [21]. Finnish National Board of Education. (2004). *National Core Curriculum for Basic Education*. Vammala: Vammalan Kirjapaino Oy
- [22]. Hua, B. (2004) Integrating Environmental Education into the Elementary School Curriculum, *Chinese Education & Society*, 37:4, 48-52, DOI: 10.1080/10611932.2004.11031658
- [23]. South Africa. (1996b). Constitution: Bill of Rights. Act no 108 of 1996. Pretoria: Government Printer.
- [24]. Holt, D. (2003). *The Role and Impact of the Business School Curriculum in Shaping Environmental Education* at Middlesex University. *International Journal of Sustainability Higher Education*, 4(4), 324 – 34

Chapters in Books:

- [25]. Barrow, C. (2005). *Environmental Management and Development*. New York: Routledge.
- [26]. Barrow, C. (2009). *Environmental Management for Sustainable Development*. New York: Routledge.
- [27]. Department of Basic Education. (2011). *Curriculum and Assessment Policy Statement (CAPS): Foundation Phase Mathematics, Grade R-3*. Pretoria: Government Printer
- [28]. Department of Basic Education. (2011). *Curriculum and Assessment Policy Statement (CAPS): FET Phase Mathematics, Grade 10-12*. Pretoria: Government Printer
- [29]. Department of Basic Education. (2011). *Curriculum and Assessment Policy Statement (CAPS): FET Phase Life Science, Grade 10-12*. Pretoria: Government Printer
- [30]. Department of Education. (2003). *National Curriculum Statement Grades 10-12 (General). Physical Sciences (Vol. 12)*. Pretoria: Government Printer
- [31]. Department of Basic Education. (2017). *Curriculum and Assessment Policy Statement (CAPS): FET Phase Guidelines to strengthen CAPS Implementation, Grade 10-12*. Pretoria: Government Printer
- [32]. Department of Basic Education. (2011). *Curriculum and Assessment Policy Statement (CAPS): Guidelines for responding to learner diversity in the classroom through curriculum and assessment policy statements Grade s R-12*. Pretoria: Government Printer
- [33]. Drake, F. (2014). *Global warming*. Routledge
- [34]. Loubser, C. (2005). *Environmental Education: Some South African perspectives*. Pretoria: Van Schaik.
- [35]. Palmer, J. A. (1998). *Environmental Education in the 21st Century*. New York: Routledge
- [36]. South Africa (1995c) *White Paper on Education and Training*. Pretoria: Government Printer.
- [37]. South Africa. (1996b). Constitution: Bill of Rights. Act no 108 of 1996. Pretoria: Government Printer
- [38]. Clark Jr., E. T. (2011). Implementing an Integrated Curriculum. *Encounter*, 24(4), 34–45. Retrieved 16 July, 2017 from Ebscohost database.
- [39]. Department of Basic Education. (2011). Curriculum and Assessment Policy Statement (CAPS): Guidelines for responding to learner diversity in the classroom through curriculum and assessment policy statements Grade s R-12. Pretoria: Government Printer
- [40]. Jackson, P.W. (1992). Conceptions of curriculum and curriculum specialists. *Handbook of research on curriculum*, 3-40.

Theses:

- [41]. Galloway, G.M.M. (2004). *A conceptual analysis of visionary leadership and its implications for educational transformation in schools*. Unpublished Masters dissertation, Stellenbosch University, Cape Town, South Africa.
- [42]. Kimaryo, L.A. (2011). *Integrating Environmental Education in Primary School Education in Tanzania Teachers' Perceptions and Teaching Practices*. Finland: Abo Akademi University Press.
- [43]. Mokhele, M.L. (2007). *Opportunities to Learn Environmental Education: A case Study of Mpumalanga province*. M.Ed Dissertation. University of Pretoria, South Africa.