Perspectives of Secondary School Principals on Their Support for the Implementation of Climate Change Education

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Abstract

The inclusion of climate change education in the educational system has been suggested at conferences and meetings of global leaders. Most nations worldwide are attempting to include climate change education in their curricula. However, in South Africa, there seem to be little efforts that are focusing on supporting the implementation of climate change education at the school level. This paper investigated the perspectives of secondary school principals on their support for climate change education. This case study was based on a qualitative research method and four principals were purposively selected from the twenty secondary schools which participated in the climate change education project. One-on-one semi-structured interviews were used to collect data. The Deming Cycle model was used as the theoretical lenses of the study. It emerged from the data that though, through different strategies, all principals were using motivation as a strategy to support the implementation of climate change education in their schools. It can be concluded from this study that although principals used divergent strategies to support the implementation of climate change education in their schools and they were serious about climate change, a component that was key to sustainable schools. It is therefore recommended that clear guidelines on principals' support for the implementation of climate change education in schools which among other things clarify the principals' roles be developed by the Department of Basic Education.

Keywords: climate change, climate change education, support, education for sustainable development, implementation

1. Introduction

1.1 Introduce the Problem

Various human activities and escalating technological development are causing the earth's climate to change more quickly than it has in the past. According to Ali (2019), climate change (CC) is caused by unprecedented globalization that paints a dismal picture of the depletion of our natural resources. CC is any long-term alteration to the patterns of typical weather for a particular area or the entire planet. It has become a phenomenon that affects the world at large (Ekpoh 2014). This means that the world's leaders must make a significant effort to address CC issues. This implies that climate change education (CCE) is important to address the challenges that go with CC in the 21st century and beyond. Education must be made CC-compatible and linked to sustainable development. People should be given the necessary information (Mansoor, Farrukh, Jahan Lee & Wahab, 2022) and coping mechanisms to deal with the effects of CC on our planet and to lessen those effects. Education is viewed as a means of fostering socioeconomic development and as a catalyst for change in a variety of contexts. CCE may come in as one of many ways to deal with the CC issue by teaching people about the causes, effects, and challenges of CC. By fostering learners' sustainability competencies, Education for Sustainable Development (ESD) aims to empower and transform them into global citizens (Rieckmann, 2017). Thus, the inclusion of CCE in the educational system has been suggested at conferences and meetings of global leaders. Most nations worldwide are attempting to include CCE in their curricula (Mavuso, Khalo, Kafu-Quvane, & Olawumi, 2022). However, in South Africa, there seems to be little effort that are focusing on supporting the implementation of CCE at the school level. Despite the importance of CCE in addressing the CC-challenges in South Africa, school principals are not adequately supporting teachers in the implementation of CCE in their classrooms. Teachers needs support from their principals around pedagogy and

teacher capacitation program for effective implementation of CCE. This paper, therefore, investigated the perspectives of secondary school principals on their support for CCE. It also sought to investigate how secondary school principals support the implementation of CCE in their schools.

1.2 Literature Review

1.2.1 The Role of School Principals in Supporting Climate Change Education in Schools

School principals are tasked with leadership and management roles. This means that they must ensure the day-to-day professional running of the schools and effective curriculum implementation. As part of the education for sustainable development agenda, in South Africa and elsewhere CCE has been integrated into the school curriculum which school principals are to ensure its delivery. Chabalala and Naidoo (2021) state that, principals are instructional leaders who must ensure that CCE is part of teachers' lesson plan delivery. This implies that principals are to play a significant role in making sure that schools remain sustainable institutions. The fundamental components and tenets of sustainable schools, as well as what is known about effective school leadership, can be used to create a new model of school leadership for sustainability (Kadji-Beltran, Zachariou & Stevenson, 2013). For the school principals to ensure that CCE is implemented and translated into practices for leading sustainable schools, in their school, they must build a vision and set directions, develop people, redesign the organization and manage the instructional programs (Kadji-Beltran, et al., 2013).

To equip people of all ages to take on responsibility for building and enjoying a sustainable future, the United Nations Decade of Education for Sustainable Development strives to refocus education around the globe (UNESCO 2004). With such a mandate, education for sustainable development (ESD) or sustainability is an ambitious, complicated, and wide-ranging educational reform that will be difficult for schools to implement in terms of intellectual, pedagogical, and strategic problems (Kadji-Beltran et al., 2013). This implies that school principals have a mammoth task of ensuring that schools are conforming with ESD goals. Building vision and setting directions, therefore, requires that school principals work with all the stakeholders to develop a mission that spells out how CCE will be considered. All stakeholders should have a common understanding and attitude toward the CCE implementation. This means that school principals should inspire teachers and other stakeholders in the school (Ni, Yan & Pounder 2018). With regards to developing people, school principals should have teacher development programs that seek to capacitate teachers on issues of CC. According to Mansoor et al (2022), stakeholders' attention to environmental issues is shown in strict environmental rules, rising green product demand, and pressure to adhere to international standards. Businesses have implemented environmental management systems to reduce pressure from diverse stakeholders, which improves their brand recognition and competitive edge. Organizations are creating green products in the cutthroat business environment of today to cater for consumers' environmental consciousness. To do this, will require using green innovation as a weapon in the marketplace to meet rising competitiveness and client needs. The first-mover advantage in the resource-efficient creation of green products, according to academics, results from the adoption of green ingenuity, which ultimately increases market share. This means that like other organizations, schools must create customers' environmental consciousness through redesigning the organization and managing the instructional programs.

As part of enhancing an attitude that penetrates all facets of the school (curriculum, policy, and culture), place sustainability at the center of the school's mission. The vision of their sustainable school is supported by a moral need to teach students how to contribute to building more just and sustainable communities and society. Make sure there are ongoing opportunities for all staff members to learn about the ESD tenets, for teachers to become proficient at incorporating them into their lesson plans and pedagogy, and for administrative and technical support staff to become knowledgeable about applying the tenets in the context of their respective practices (Kadji-Beltran et al., 2013 and Mulford, 2011).

To develop and harness the collective power of the entire school staff and community for learning and action on ESD, it is necessary to reorganize internal structures and cultivate cultural norms. One way to do this is to support and encourage the creation of a school-wide professional learning community that takes ownership of ESD initiatives and approaches and engages in cooperative research and learning. A strong professional learning community for ESD is defined by shared objectives for sustainability education, meaningful collaboration between members, with local communities, and with outside organizations, in-depth critical inquiry, reflection, and dialogue that challenges presumptions, beliefs, values, and potential alternatives to approaches to ESD, and opportunities for members to influence their work (Kadji-Beltran et al., 2013; Mulford, 2011).

School leaders and teachers need to have a solid grasp of the intricate relationships that exist between people and the environment (Khalifa, Gooden, & Davis 2016; Allen, Grigsby, & Peters 2015). When it comes to the activities

learners choose, education is essential in encouraging and supporting them to make informed decisions. As a result, numerous suggestions have been made for school principals to consider when implementing their institutional management strategy from the viewpoint of learning strategies. Principals as leaders need to act proactively by undertaking sustainable development projects that address biodiversity in fostering CCE (Inwood, Christie, & Ärlemalm-Hagsér, 2021).

In other countries like Cyprus for instance, education for sustainable development has been introduced and established as a priority task for the schools (Ministry of Education and Culture, 2008). In Cyprus, Principals are mandated by the 2007 National Action Plan for Environmental Education to create sustainable environmental research. The 2007 National Action Plan for Environmental Education compels principals to support and enable the adoption of an environmental education curriculum, which is currently being implemented in schools for the first time, as leaders for sustainable schools. This represents a change from a fragmented and marginalized approach to sustainable development concerns to a coordinated and comprehensive incorporation of ESD in the educational strategy and vision of all schools (Ministry of Education and Culture, 2009). However, the regulations and statutes that establish the duties and authority of principals in schools, which put a priority on daily operations and executing managerial and administrative chores, provide a barrier to their function as school leaders (Ministry of Education and Culture, 2009). Furthermore, the study Kadji-Beltran et al (2013) conducted in Cyprus showed that principals lack knowledge of the specific source of appropriate expertise. In this study, principals expressed low confidence in their skills to administrate a school according to ESD principles. It emerged from this study that supporting environmental education by school principals included communicating trust, encouraging risk-taking, honoring teachers' opinions, and developing teams (Kadji-Beltran et al., 2013). The study conducted in Nigeria revealed that secondary school principals are aware of CC. However, they believed it to be a national issue with little to no bearing on school administration, and as a result, did not give it much thought when choosing their institutional management strategies or when creating their lesson plans and curricula. It is imperative that school principals consider CC when deciding on their institutional management strategy, as well as when creating their timetable and curriculum. Doing so will help to significantly reduce the risk that students, teachers, and the rest of their staff will face because of the effects of CC (Ekpoh, 2014)

In South Africa, School principals are thought to be key players in implementing school health promotion (Kwatubana, Nhlapo, & Moteetee 2021). This implies that their comprehension might improve school health promotion. As part of school health promotion, and environmental education which includes CCE, principals should play a critical role. However, there is a dearth of literature that focuses on how principals support the implementation of CCE in South African schools. Most of the literature focuses on the challenges faced by teachers in executing CCE (Stevenson, Nicholls, & Whitehouse, 2017; Sezen-Barrie, Miller-Rushing, & Hufnagel, 2020; Mavuso, Khalo, Kafu-Quvane, & Olawumi, 2022). The purpose of this paper, therefore, was to ascertain how secondary school principals perceived their role in supporting the implementation of CCE in their schools.

To address the nation's vulnerability, the South African National Climate Change Response Policy White Paper suggests teaching about CC and associated subjects at all levels of formal education (Department of Environmental Affairs, Republic of South Africa, 2011). This appears to be a positive move in the fight against CC in South Africa (Mavuso et al., 2022). The actions taken to address the issue of CC in South Africa led to the incorporation of CCE into the academic curriculum across all areas with the adoption of the Curriculum and Assessment Policy Statement in 2011 (Aylett, 2015). Despite the inclusion of CCE in the curriculum, little to no improvement in the topic's teaching and learning in the classroom has been made (Dawson & Carson, 2020; Mavuso et al., 2022). This means that there is a systematic problem that must be investigated on how principals are supporting the implementation of CCE in schools. Hence, the paper focuses on the perspective of secondary school principals on their support for the Implementation of CCE.

1.2.2 Climate Change

One of the most complicated concerns facing the planet's situation at the moment is CC. Being a global issue, all countries are negatively impacted regardless of each country's contribution to CC; therefore, it does not matter where greenhouse gas emission (GHGs) reductions or sink enhancements take place, all countries are affected although the impact is more pronounced in certain spatial contexts such as developing countries, such as those in Southern Africa (Jiri, Mafongoya, Mubaya, & Mafongoya 2016; Watkiss, Hunt, Blyth, & Dyszynski 2015; Anderson 2012). Emerging weather risks like floods, heat waves, and droughts are linked to CC in South Africa. Due to CC, these meteorological risks have been occurring more frequently and with higher intensity recently than they did in the past. The National Climate Change Response White Paper (2018) describes South Africa's susceptibility to CC in terms of

increasing risk in regions with limited water resources and a reliance on agriculture and commercial forestry. Reducing emissions and adapting to the effects of CC are both necessary (preparing for unavoidable consequences). These two problems have many facets. Electricity systems, transportation, construction, industry, and land use all need to be altered to reduce GHG emissions. Given knowledge of the climate and catastrophic occurrences, adaptation calls for planning for resilience and catastrophe management. There are various methods to make a difference, thus a wide range of issues might be considered as an opportunity.

1.2.3 Climate Change Education

CCE has occasionally been restricted in some circumstances to concentrating on climate literacy and environmental education. CCE employs a variety of techniques to equip people with information about CC and tactics for reducing and adjusting to its negative effects (Nkoana, Verbruggen & Hugé 2018). It is one of the most important tactics for combating CC (IPCC 2014). Environmental education (EE), the overarching phrase, includes CCE (EE). EE is a process that increases environmental awareness and empowers people to look into environmental issues, find solutions, and take action to improve the environment. It is an effort to promote the literacy and decision-making skills of communities in CC. This implies the requirement for thorough and multifaceted CCE is necessary. As a result, CCE is a part of EE that is explicitly geared at providing communities with options to mitigate the effects of CC in the future (Monroe, Plate, Oxarart, Bowers & Chaves 2019). The Curriculum Assessment Policy Statement (2011), the most recent South African school curriculum, refers to 'CCE' in relation to 'environmental education' and 'sustainable development' (DBE, 2011). The connection between the environment, human rights, social justice, and inclusivity is represented through the curriculum's guiding principles, which is where CCE is implemented (DBE, 2011).

1.3 This Study Was Guided by the Following Research Questions

- What are the perspectives of secondary school principals on their support for the implementation of CCE?
- How do secondary school principals support the implementation of CCE?

1.4 Theoretical Framework-Deming Cycle model

This study used the Deming cycle model as a theoretical lens to establish how principals support the implementation of CCE in schools. Managers must always seek to enhance their service and manufacturing procedures, according to Deming. Additionally, he emphasizes that quality improvement is a constant process and that managers must continually look for and adopt new ways to cut waste and enhance performance (Fercoq, Lamouri & Carbone 2016). The Deming Plan-Do-Check-Act Cycle is one of the most widely used standard ways for structuring the implementation of continuous improvement, while there are other models as well. Every phase of the cycle works toward the overarching objective of raising customer happiness (Nguyen, Nguyen, Schumacher & Tran, 2020). The Deming cycle model has four stages of the implementation of continuous improvement, these are plan, do, check, and act (P-D-C-A). This cycle is a continuous management process of organizational improvement. In the planning stage of the Deming cycle, teams spend more time and effort thinking about, studying, analyzing, and understanding the current situation. In the planning stage, resources are identified, and responsibilities are assigned to the team members. The second stage of the cycle (Do) involves the implementation of the plans and in this process, it is important to follow the plan, document any changes to the plan along with the rationale for the changes, and measure progress from both the client's and the organization's perspective (Jagusiak-Kocik, 2017). The 'check' stage focuses on an analysis and assessment of the initial improvement plan and the outcomes produced during its execution in the previous stage. Performance information is compiled and examined. Actual and anticipated outcomes of the modifications put into place are compared. The goal is to evaluate if the intended changes were effective in resolving the fundamental issue and whether its symptoms have lessened. The main focus is on figuring out what was learned, what can be used generally for use in subsequent actions to better, and what is still dysfunctional (Nguyen et al., 2020; Jagusiak-Kocik, 2017). The 'act' is the cycle's last phase. During this phase, effective upgrades are formalized as the new norm (s). Institutionalizing changes ensures that advancements are consistently reflected in updated rules, procedures, and processes. Additionally, the newly enhanced modification is broadly implemented across the entire organization, and a few key learnings from the team's experience are documented and/or extrapolated for use in subsequent improvement efforts. The PDCA cycle is then continued by identifying additional business areas where the lessons learned can be used and/or by creating a new effort to enhance a part of the initial process that fell short of initial expectations (Arredondo-Soto, Blanco-Fernández, Miranda-Ackerman, Solís-Quinteros, Realyvásquez-Vargas & García-Alcaraz, 2021).

This theory is relevant in this paper because this study sought to investigate how secondary school principals plan for

CCE in their schools and how they implemented these plans. It also sought to establish how their intervention in the implementation of plans worked and how they acted when needed. This means that this theory assisted the researchers in establishing the perspectives of secondary school principals on their support for the implementation of CCE and how they support the implementation of CCE in their schools.

2. Methodology

The case study design and qualitative research method were employed in this investigation. To answer the how and why of the research, case study research entails a thorough assessment of current events in a practical setting. It helps researchers concentrate on the subject at hand (Creswell & Creswell, 2018). Based on their location and closeness to the training provider, five of the twenty secondary schools in the Amathole West Education District were chosen. These are the schools that took part in the Keep-It-Cool Climate Change Education (KIC-CCE) training program run by one higher education institution and were purposively selected for the study. From the five schools, only four principals participated in the one-on-one semi-structured interviews. To comply with anonymity issues, these principals were given codes P1, P2, P3, and P4. The schools were coded as SNB, SVI, CIV, and SAK. The researchers sought the consent of participating Principals before engaging them and were informed that they are free to opt out of the research at any time they wish. One principal out of the five principals selected for the study opted out and was unable to participate in the one-on-one semi structured interview. The consent of the participants selected for the study was also sought before recording the interview. The interview lasted for thirty-five minutes because all the principals interviewed were found to have a very tight schedule of duty. This accounted for the difficulties encountered by the researcher in scheduling appointments with them. In line with the qualitative research, and as suggested by (Terry, Hayfield, Clarke, & Braun 2017) thematic approach was used to analyze the data. The analysis of data collected from participants were analyzed under different themes to determine how selected principals for the study perceived their support for the implementation of CCE and how they support the implementation of CCE in their schools.

3. Research Findings

This section presents and analyses the data about how the selected school principals perceived their support for the implementation of CCE and how these principals support the implementation of CCE in their schools. Three themes, that is, supporting through the motivation of teachers, initiation of stakeholders' involvement, and providing technical support and resources emerged from the data.

3.1 Supporting Climate Change Education Through Motivation

When asked if they motivate teachers to participate in the CCE, all principals indicated that they do motivate their teachers to participate in the CCE training. For instance, P1 from SAK secondary school commented:

> *...Now that there is significant improvement in Natural Sciences and Geography which is because of high levels of teachers' motivation more learners are now enrolling for the subject…*

This was an indication that P1 viewed the teacher motivation level and participation in the training program as having a significant impact on the teaching and learning environment and that resulted in learners showing interest in these subjects. P4 from SNB secondary school also commented that he motivates teachers to participate in CCE training programs. For instance, when asked about why he motivates teachers, he replied that:

> *"…indeed, subjects like Geography and Natural Sciences cover many topics that relate to CCE..."*

From the P1 point of view above, it could be noted that he considered the fact that these two subjects cover a lot of work on CCE, and this might be the reason that causes him to motivate teachers teaching these subjects. P1 further reported: "*…there is a committee elected for CCE in my school…"*

P2 from SVI secondary school reported:

> *"…I motivate Geography and Natural Sciences teachers and encourage them to participate in the CCE project. I also motivate them to form PLC at my school…"*

It can be noted from the excerpt above that P2 regarded the formation of PLC as having a significant impact on the implementation of CCE in his school. P3 from CIV secondary school commented:

> "*…I encouraged the school community to participate in the school-community CCE project. I encouraged the school governing body to participate in the project…"*

It can be noted from the above presentation that all principals were using motivation as a strategy to support the implementation of CCE in their schools. However, their motivation strategies differed from principal to principal. For instance, on one hand, some, though for different reasons were motivating teachers to participate in the CCE project, and others were encouraging teachers to form PLCs which according to them, played a significant role in CCE implementation. A principal from SAK secondary school, on the other hand, indicated that he encouraged stakeholders to establish a specific committee to deal with the CCE matters.

3.2 Initiate Stakeholders' Involvement

With regards to involving stakeholders in the implementation of CCE, all principals indicated that they do encourage most stakeholders to participate in the CCE program in their schools. For instance, P4 noted that, unlike other principals who involved all the stakeholders, he did not encourage Subject Advisors and School Governing Body to participate in the CCE project. P3 from CIV secondary school also reported that she does not involve all the stakeholders as she indicated that Subject Advisors and the Department of Environmental, Forestry, and Fisheries (DEFF), critical stakeholders of environmental education were not involved in her school. P1 from SAK commented:

> "*…I encourage School Governing Body, school community in CCE project and I also provide support for the design of school community CCE project…"*

P4 from SNB secondary school corroborated:

> *"…Yes Sir, I managed to speak with two Subject Advisors (Geography and Natural Sciences) about the CCE project that we are driving at our school because Subject Advisors are the drivers of the Subjects. I informed them so that they know about what is happening regarding the CCE project in the school. Their response was so positive…"*

It can be noted from the P4 point of view that Subject Advisors are critical role players in the implementation of CCE. It might be that these principals regard them as officials who have expertise and experience in terms of CCE. Hence, he referred to them as drivers. P4 further indicated that he involved other departments such as DEFF and he also liaised with the local municipality to source information that will assist the school in using water sparingly.

P4 commented:

> *…This [CCE] project needs all the stakeholders. The main stakeholders that should not be left behind are the learners. They are the ones that should be included in this project. We have encouraged the learners to participate in this project. all the trees that are in the school compound are planted by these learners…*

It can be noted from the above excerpts that most principals involved stakeholders in the implementation of CCE in their schools. This might be an indication that these principals regarded stakeholders' involvement as playing a critical role in the implementation of CCE. He further indicated:

> *"…SGB is part of school stakeholders, whatever project that is happening in our school, the SBG must be aware of it and if there are changes that will be made in our school such as planting trees, seeking a donation from our area. We wrote letters to some of the departments using the SGB. We manage to unpack the importance of the CCE project which is a project fighting climate change…"*

Regarding supporting the implementation of CCE through stakeholders' involvement, it can be noted from the above presentation that different stakeholders were involved. Learners, SGBs, Subject Advisors, DEFF, and Local Municipality were according to the selected principals regarded as critical stakeholders who played important roles in the implementation of CCE.

3.3 Providing Technical Support and Resources

All participants indicated that they provide technical support for the implementation of CCE in their schools. However, their approach differed from school to school. For instance, when asked about how he supports the implementation of CCE in the school, P4 replied:

> *"…I managed to give the educators the materials. Actually, the school and the SGB manage to ask for donations from the Department of Agriculture, and they managed to provide tools such as the wheelbarrow, spade, and other materials. The school also managed to give resources such as information and manage to provide transport for CCE training of teachers…"*

It can be noted from the P4 point of view that supporting the implementation of CCE was about providing the educators with the necessary materials needed in the CCE and that equipment was important for the implementation of CCE. Furthermore, it appeared that this principal saw funding as crucial to CCE implementation in the school.

He further commented:

> *"…As I already said that I manage to collect information which is the document am talking about from the Department of Agriculture and also from DEFF with information on how to plant trees around the school environment. And we manage to get information from the municipalities on how to use water [sparingly] because water is very important in this CCE project as well. So, the educators did not leave the learners behind, and we manage that situation that the environment was conducive for the learners…"*

It can be noted from the above excerpt that equipping stakeholders with information according to P4 plays a big role in terms of CCE implementation in the school. Crucial to the implementation of CCE was according to P4 the importance of saving water and the involvement of learners. It can be noted that this principal played a leading role in the implementation of CCE as he according to the above excerpt was the one who coordinated the sourcing of information about saving water.

P2 from SVI secondary school reported:

> *"…I coordinate and facilitate the establishment of CCE PLC at my school and I also provide technical support to this PLC…"*

Regarding providing technical support and resources, P1 reported:

> *"…I have been providing technical and administrative support to CCE PLCs at my school. I also provide and foster a conducive teaching and learning environment for CCE. We organized an education tour to a [water] reservoir…"*

It can be noted from P1 that administrative support was necessary for the implementation of CCE in his school and that taking the learners to the water reservoir was a way of educating learners about the importance of water a critical aspect of CCE.

It can be noted from the above presentation that supporting the implementation of CCE through providing technical resources was mainly characterized by the provision of necessary materials, information about the importance of water, funding, and availability of implements and transport. Administrative support was also reported to have played a big role in the implementation of CCE.

4. Discussion of Findings

It emerged from the data that all principals were using motivation as a strategy to support the implementation of CCE in their schools. This was an indication that they consider teacher motivation crucial to the implementation of CCE. It could be noted that this was in line with the Deming Cycle Model of continuous organizational improvement. Deming Cycle (PDCA) suggests that teams spend more time and effort thinking about the current situation (Bateman, Philp & Warrender 2016). The benefit of working collaboratively is that it increases the motivation level and aspect that is important for the implementation of the project. Furthermore, that motivation was done to teachers, and other stakeholders suggest that the schools engaged in some form of planning when it comes to the implementation of CCE in their schools. However, the data shows that principals' motivation strategies differed from principal to principal. This, therefore, shows that no framework was guiding the principals in terms of how they should support the implementation of CCE in their schools. Each principal used his or her strategy in terms of initiating CCE implementation activities. It also appeared from the data that the selected principals' focus for motivation ranged from teacher motivation to stakeholders' motivation. The fact that principals were motivating teachers and other stakeholders in the implementation of CCE, is as suggested by Kadji-Beltran et al., (2013) part of the fundamental components and tenets of sustainable schools, as well as what is known about effective school leadership, can be used to create a new model of school leadership for sustainability.

Regarding the support of the CCE implementation in schools, the selected principals indicated that they involved the stakeholders such as learners, SGBs, Subject Advisors, DEFF, and Local Municipality. The involvement of stakeholders seemed to focus on the planning and the execution of the CCE which was in line with the 'plan' and 'do' stages of the Deming Cycle Model. However, there was no indication of how stakeholders were involved in terms of analyzing, studying, and acting on the challenges of the implementation of CCE. This might be an indication that in the selected schools the issue of the involvement of stakeholders was limited to planning and execution of the CCE without monitoring the implementation. Literature (Kadji-Beltran et al., 2013) suggests that for school principals to ensure that climate change education is implemented and translated into practices for leading sustainable schools, they must build a vision and set directions, develop people, redesign the organization, and manage the instructional

programs. However, though one principal pointed out that the CCE committee was established in his school, there was no explicit indication that this school and other schools' missions were built, and strategic directions were made concerning leading sustainable schools.

In line with the views of Khalifa et al (2016) and Allen et al (2015). school leaders and teachers need to have a solid grasp of the intricate relationships that exist between people and the environment. When it comes to the activities learners choose, education is essential in encouraging and supporting them to make informed decisions. It emerges from the data that the selected principals promoted CCE by providing support for the implementation of CCE through the provision of technical resources which was mainly characterized by the provision of necessary materials, information about the importance of water, funding, and availability of implement and transport. Administrative support was also reported to have played a big role in the implementation of CCE. The provision of information was an indication that the selected principals were concerned about grasping the intricate relationships that exist between people and the environment.

5. Conclusion and Recommendation

It can be concluded from this study that although principals used divergent strategies to support the implementation of CCE in their schools, they were serious about CC a component that was key to sustainable schools, and that the involvement of teachers, learners, and other stakeholders was instrumental in the implementation of CCE. It can also be concluded that the support lacked adequate strategic planning and intervention strategy and focused more on the execution.

It is therefore recommended that clear guidelines on principals' support for the implementation of CCE in schools which among other things clarify the principals' roles be developed by the Department of Basic Education and that teacher professional development programs for principals on CCE be enhanced and implemented on an ongoing basis. It is also recommended that further research on a larger scale on how school principals support and monitor the implementation of CCE be conducted.

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