Challenges, opportunities and strategies of distributed leadership in managing environmental education curriculum in South African secondary schools

Nonkanyiso Pamella Shabalala

Abstract

The study explores the application of distributed leadership in managing environmental education curricula in South African secondary schools. Adopting a qualitative case study design, data was collected through semi-structured interview and observations involving principals, heads of departments, teachers and subject advisors who were purposively sampled. The findings reveal key challenges in implementing distributed leadership, such as hierarchical tensions, teacher preparedness and administrative burdens, that hinder the effective implementation of distributed leadership. These factors hinder the full realization of distributed leadership, which is important for interdisciplinary environmental education. However, the study also points up opportunities for enhancing teacher empowerment, encouraging collaboration and promoting curriculum innovation. Practical strategies for overcoming these challenges include professional development, role clarity and a culturally relevant approach grounded in the African philosophy of Ubuntu. The research contributes to educational leadership discourse and provides practical recommendations for integrating environmental education into curricula through distributed leadership.

About the author:
University of South Africa, College of Education, Department of Science and Technology Education, Peller St, Muckleneuk Campus, Pretoria, South Africa. Email: eshabapn@unisa.ac.za

1. Introduction

In contemporary educational leadership, the concept of distributed leadership has gained increasing recognition as a model for managing complex educational settings. Distributed leadership involves sharing leadership responsibilities among various stakeholders, including principals, heads of departments, teachers and other staff members, rather than concentrating authority in a single leader. This model offers a more inclusive approach to leadership, encouraging collaboration and collective decision-making, which are critical for addressing the challenges of modern education (Shava & Tlou, 2018). Distributed leadership emphasizes collective responsibility and collaboration, challenging traditional hierarchical structures by distributing leadership roles among various stakeholders (Göksoy, 2015; Bush, 2013; Baștea et al., 2023). It has shown positive impacts on organizational improvement and student achievement, fostering creativity, innovation and shared decision-making (Baștea et al., 2023). However, challenges such as role ambiguity and power struggles can arise, which require careful planning and role definition (Baștea et al., 2023).

Distributed leadership has been particularly effective in educational institutions, where it facilitates the development of communities of practice and supports long-term sustainability initiatives (Avissar et al., 2017; Reis & Guimaraes-Iosif, 2012). It aligns well with the holistic nature of environmental education, promoting cross-disciplinary collaboration (Shabalala et al., 2023). Environmental education covers different topics such as ecology, sustainability, climate change and conservation, requiring the collaborative efforts of principals, teachers and support staff to integrate these topics in all school subjects comprehensively into school curricula. Given the urgency of global environmental crises, schools play an important role in equipping students with the knowledge and skills necessary to address sustainability challenges and promote environmental stewardship (Gan, 2021). However, managing environmental education within the school curriculum presents significant challenges. Its interdisciplinary nature requires collaboration between teachers of different subjects and grade levels, but it often competes with other priorities for limited school time and resources. Teachers face challenges such as competing demands, limited time and inadequate resources, which hinder their ability to integrate environmental education fully (Marques & Xavier, 2020; Tan & Pedretti, 2010). Additionally, the subject is frequently treated as supplementary, rather than integrated into the core curriculum (Lee & Kim, 2017) and this perception limits its impact on student learning. Teachers' values, beliefs and lack of proper training can further complicate

the implementation of environmental education (Spence et al., 2013). Practical barriers such as insufficient access to outdoor spaces and misalignment between the curriculum and the department of basic education expectations also hinder its effective delivery (Tan & Pedretti, 2010). Despite recognition of its importance in educational policy, these challenges continue to impede the practical implementation of environmental education in schools (Stanišić & Maksić, 2014).

This study explores how distributed leadership can improve the management of environmental education curricula. Specifically, it aims to explore the challenges, opportunities and strategies associated with implementing this leadership model in South African schools. South African schools often operate within hierarchical structures that prioritize top-down leadership, making it difficult to implement shared leadership models like distributed leadership. This research highlights the specific challenges to implementing distributed leadership in such contexts and further explores how shared leadership can increase better collaboration, accountability and curriculum integration. The specific objectives were: to explore how distributed leadership is applied in environmental education curriculum management, to identify challenges and opportunities in implementing distributed leadership for environmental education and to propose strategies for effective integration of distributed leadership in managing environmental education curricula.

2. Literature Review

The integration of environmental education into school curricula presents unique challenges that demand innovative leadership approaches. Distributed leadership provides a substitute to traditional hierarchical leadership by emphasizing shared responsibilities and collaborative decision-making among various stakeholders, including principals, heads of departments (HODs) and teachers. This leadership model aligns particularly well with the interdisciplinary and transformative nature of environmental education where effective implementation requires the active involvement of various teachers. While distributed leadership has been widely recognized for its potential to enhance adaptability and innovation in educational leadership, its application in managing environmental education curriculum remains underexplored, particularly in South Africa, where hierarchical structures dominate the educational system.

This study explores the theoretical foundations of distributed leadership, emphasising its fundamental principles and relevance to educational contexts. It further explores the unique challenges associated with integrating environmental education into the curriculum, such as resource constraints, interdisciplinary complexity and teacher preparedness. In the discussion of findings section, empirical evidence demonstrating the effectiveness of distributed leadership in addressing these challenges is discussed, with particular attention to its application within the South African context.

2.1 Theoretical Foundations of Distributed Leadership

Distributed leadership is rooted in the idea that leadership is not confined to an individual but is a collective and emergent practice embedded in the interactions of leaders, followers and their contexts. Spillane (2005) describes distributed leadership as a framework where leadership tasks are distributed based on expertise, situational needs and collaborative engagement. This model challenges traditional top-down approaches by decentralizing decision-making, encouraging shared responsibility and promoting innovation through collective agency (Shabalala, 2024). Gronn's (2002) concept of "concertive action" further supports this view, emphasizing that leadership emerges through collaborative efforts rather than hierarchical directives. These theoretical perspectives provide a foundation for understanding the potential of distributed leadership to address the challenges associated with managing interdisciplinary educational initiatives of environmental education.

The principles of distributed leadership focus on encouraging collaboration, empowering all stakeholders and creating participatory governance structures. This study points that distributed leadership thrives in environments where there is a shared vision, open communication and mutual accountability. Cherkowski and Brown (2013) emphasize the importance of establishing a collective understanding of organizational goals to align efforts and maximize impact. Similarly, Harris (2008) asserts that distributed leadership enhances teacher agency, enabling teachers to take on leadership roles and contribute to decision-making processes. These characteristics make distributed leadership particularly relevant for educational settings that require adaptability and innovation, such as the integration of environmental education into school curriculum.

In South Africa, the application of distributed leadership is complicated by the historical legacy of hierarchical governance in schools. While policies promoting decentralized

leadership, such as the establishment of School Governing Bodies (SGBs), aim to democratize decision-making, systemic challenges persist. Grant (2017) points that the practical implementation of distributed leadership is often hindered by entrenched power dynamics, resource inequalities and cultural constraints. However, the African philosophy of Ubuntu, which emphasizes interconnectedness, mutual respect and collective responsibility, offers a culturally resonant framework for implementing distributed leadership in South African schools.

2.2 Distributed Leadership in South Africa

Distributed leadership in South Africa is shaped by a unique socio-political and historical context. The legacy of apartheid established rigid hierarchical governance structures in schools, creating a culture of top-down decision-making that marginalized teacher agency and collaborative practices (Grant, 2017). While post-apartheid reforms, such as the introduction of SGBs, aimed to democratize school leadership, the transition has been slow and uneven. Many schools continue to grapple with entrenched power dynamics, resource inequities and cultural challenges that hinder the effective implementation of distributed leadership.

Culturally relevant leadership models, such as those inspired by Ubuntu, offer a framework for addressing these challenges. Ubuntu, a philosophy deeply rooted in African traditions, emphasizes interconnectedness, collective responsibility and mutual respect (Ajitoni, 2024). These values align with the principles of distributed leadership that promote inclusivity, shared accountability and participatory governance. In the South African educational context, Ubuntu-driven leadership practices have been shown to promote collaboration among stakeholders, empower teachers and create a supportive environment for curriculum innovation (Mpofu & Sefotho, 2024). Shabalala and Gumbo (2024) illustrate how Ubuntu-based distributed leadership models have enabled cross-disciplinary collaboration and enhanced teacher ownership of environmental education initiatives, despite the constraints of hierarchical school structures. However, implementing distributed leadership in South Africa requires addressing several structural and systemic barriers. Resource constraints, such as insufficient funding for professional development and inadequate infrastructure, undermine schools' ability to adopt collaborative leadership models. Additionally, the persistence of hierarchical tensions between school management and teachers limits opportunities for shared

decision-making. To overcome these challenges, there is a need for targeted policy interventions, capacity-building initiatives and institutional reforms that prioritize participatory leadership practices. Promoting Ubuntu principles and investing in teacher empowerment, South African schools can transition from hierarchical governance to a more inclusive and collaborative leadership culture, making distributed leadership a viable framework for advancing environmental education.

2.3 Challenges in Integrating Environmental Education

The interdisciplinary nature of environmental education presents significant challenges for its integration into school curriculum. Environmental education spans multiple disciplines, including life sciences, geography and physical sciences, requiring collaboration among teachers from different academic backgrounds. Marques and Xavier (2020) identify misaligned teaching objectives and inconsistent curriculum delivery as common barriers to effective environmental education implementation. The absence of defined guidelines and support structures for interdisciplinary education These challenges are augmented by the lack of clear guidelines and support structures for interdisciplinary teaching, leading to fragmented approaches and limited impact. Addressing these issues requires leadership models such distributed leadership, which promote collaborative decision-making and align efforts across disciplines.

Teacher preparedness is another barrier to integrating environmental education into school curriculum. Many teachers lack the training and expertise needed to design and deliver interdisciplinary lessons that integrate sustainability themes. Spence et al. (2013) argue that the absence of targeted professional development programs leaves teachers feeling ill-equipped to engage with environmental education content. This gap in capacity undermines the potential of environmental education to promote environmental awareness and critical thinking among students. To address this, professional development initiatives focus on building teachers' confidence and competence in delivering environmental education, while leadership models such as distributed leadership may provide the necessary support for collaborative and innovative teaching practices.

Resource limitations further complicate the integration of environmental education, particularly in resource-constrained environments in South Africa. Schools often lack access to outdoor learning spaces, adequate teaching materials and technological resources, which are

important for experiential learning in environmental education. Additionally, administrative burdens, such as compliance with departmental mandates, reduce teachers' ability to focus on curriculum innovation. These constraints accentuate the need for systemic changes in resource allocation and leadership practices. Decentralizing decision-making and promoting collective accountability, distributed leadership has potential to address these challenges, enabling schools to optimize limited resources and create impactful environmental education programs.

2.4 Distributed Leadership in Environmental Education

Empirical studies demonstrate the transformative potential of distributed leadership in advancing environmental education. In South Africa, Shabalala and Gumbo (2024) point how Ubuntu-driven distributed leadership models may empower teachers to take ownership of environmental education initiatives, encouraging collaboration and cross-disciplinary integration. These models emphasize shared decision-making and mutual accountability, creating an enabling environment for innovative curriculum practices. Similar findings are reported in Canada, where Fazio and Karrow (2014) document the role of teacher leaders in promoting environmental literacy through project-based learning. These examples stress distributed leadership's capacity to address the issues of interdisciplinary education and promote sustainable teaching practices.

Teacher empowerment emerges as a key outcome of distributed leadership in educational contexts. Empowered teachers are more likely to engage in decision-making processes, innovate in their teaching methods and collaborate with colleagues to design interdisciplinary curriculum. Greany and Waterhouse (2016) in their research stress the importance of teacher leadership in fostering curriculum innovation, particularly in high-accountability systems. Involving teachers in leadership roles, distributed leadership not only enhances their professional growth but also creates a culture of collaboration and collective responsibility, needed for the successful integration of environmental education.

In addition to promoting innovation and empowerment, distributed leadership contributes to the sustainability of educational reforms. Promoting collective accountability, distributed leadership ensures that initiatives such as environmental education are embedded within the school's culture and practices, enabling them to endure beyond individual leadership tenures. Evidence from global studies, such as Avissar et al. (2017) in Israel, demonstrates that distributed leadership facilitates the integration of sustainability initiatives into organizational

structures, ensuring long-term impact. These findings emphasize the critical role of distributed leadership in creating resilient and adaptive educational systems capable of addressing challenges of integrating environmental education.

3. Methodology

3.1 Research Approach and Design

This study adopted a qualitative research approach (Priya, 2021), which is appropriate for exploring participants' lived experiences and the challenges of distributed leadership in environmental education curriculum management in South Africa secondary schools. Qualitative research is characterized by its inductive nature and its ability to provide in-depth, context-rich perspectives into human behaviour and social phenomena (Alase, 2017). It emphasizes subjective interpretations, allowing researchers to capture participants' perspectives in their own terms (Pervin & Mokhtar, 2022).

A case study design was employed to explore the application of distributed leadership in three South African secondary schools (Hyett et al., 2014). This design facilitates an in-depth exploration of leadership practices within real-life settings, offering rich context-specific findings (Savolainen, 2014; Vohra, 2014). The case study approach was particularly suited to this research as it allowed for a comprehensive understanding of the interactions between school management teams and other stakeholders involved in environmental education.

3.2 Sampling Procedure

Participants were selected using purposive sampling methods to ensure the inclusion of individuals with direct experience in distributed leadership and environmental education, such as school management team (SMT) members (principals, deputy principals, head of departments and teachers. Purposive sampling is a non-probability technique that allows researchers to deliberately select participants based on their knowledge, roles or expertise relevant to the study's objectives (Etikan et al., 2016). Purposeful sampling was used (Campbell et al., 2020), to ensure that the participants had direct experience with distributed leadership and environmental education. From each of the three schools (three participants: one principal, one deputy/head of departments and one natural sciences teacher) and two subject advisors (natural science) from one department of basic education district were selected. The study involved 11 participants, representing their perspectives and experiences.

3.3 Data Collection

Data were collected through semi-structured interviews and school observations (Jamshed, 2014). The semi-structured interviews aimed to capture participants' perceptions of distributed leadership and its role in managing environmental education curricula. Topics covered included challenges, opportunities and strategies associated with distributed leadership. The flexible nature of semi-structured interviews allowed the researcher to explore emerging themes and adapt questions as needed, ensuring a deep understanding of participant perspectives (Adams, 2015; Ruslin et al., 2022).

School observations provided complementary insights into the practical application of distributed leadership. These observations focused on staff interactions during curriculum planning, leadership meetings and the integration of environmental education into teaching practices. Observations also pointed out barriers such as hierarchical tensions and collaboration challenges, which were triangulated with interview data for consistency.

3.4 Data Analysis

Thematic analysis was employed to analyze the collected data, a method well-suited for identifying, analyzing and interpreting patterns of meaning within qualitative data (Maguire & Delahunt, 2017; Dawadi, 2020). Interview transcripts were reviewed to identify recurring themes, which were grouped into broader categories aligned with the research objectives. Observational data served to corroborate these findings, ensuring reliability and depth.

Quotations are included to illustrate key findings and provide context. For example, one participant remarked, "*Teachers undermine head of departments, especially head of departments who come from other schools to join our school*," emphasizing the hierarchical tensions that hinder effective distributed leadership. Themes such as hierarchical challenges, teacher empowerment and collaborative practices were substantiated through both interview responses and observed interactions.

3.5 Ethical Considerations

All participants provided informed consent and their anonymity was ensured throughout the study (Badampudi et al., 2022). Ethical clearance certificate was obtained from the affiliated university (**REF: 2021/02/10/49634062/31/AM**) and all data were securely stored to protect participant confidentiality. The study adhered to the principles of voluntary

participation and informed consent, ensuring that participants were fully aware of their rights to withdraw from the study at any time.

4. Results and Discussion

This section is organized to present and critically analyze the key findings in relation to the study's objectives. The discussion focuses on three main themes: (1) the challenges of implementing distributed leadership, including hierarchical tensions, teacher preparedness, and administrative burdens; (2) the opportunities distributed leadership creates for fostering collaboration, empowering teachers, and promoting curriculum innovation; and (3) the strategies needed to enhance the effectiveness of distributed leadership in managing environmental education curricula.

4.1 Challenges of Distributed Leadership in Curriculum Management

Distributed leadership, although offering the potential to democratize school leadership and curriculum management, faces numerous challenges that hinder its successful implementation. In managing environmental education curriculum, these challenges become particularly pronounced due to the interdisciplinary nature of the content, the need for collaboration across departments and the hierarchical structures within schools.

4.1.1 Teacher preparedness and hierarchical tensions

The integration of environmental education into South African curriculum faces significant challenges, particularly in curriculum leadership and teacher preparedness (Shabalala et al., 2023). Hierarchical power relations in schools hinder stakeholder participation in curriculum management, impeding environmental education implementation (Shabalala et al., 2023). Distributed leadership is proposed as a potential solution to these challenges, as it involves various stakeholders in decision-making processes (Harris, 2004; Shabalala et al., 2023). In this study, one of the key challenges identified was the lack of teacher preparedness in delivering environmental education content. Mrs. Sydney, a principal, expressed that *"curriculum management is a vast subject; it is not easy. Teachers do not prepare."* This statement points to the inadequacies in teacher preparedness, which directly affects the effectiveness of distributed leadership. Teachers are expected to contribute meaningfully to the development and implementation of environmental education across

different subjects, but without adequate preparation, their ability to participate in leadership and decision-making processes is compromised. Harris and Spillane (2008) stressed that teacher preparedness is important for distributed leadership, as it requires teachers to be not only knowledgeable in their subject matter but also capable of planning and delivering cross-curricular content. In his study, Harris (2004) suggested that teacher leadership, which is closely related to distributed leadership, can contribute to building professional learning communities within schools. In the context of environmental education, lead teachers play an important role in curriculum leadership, especially in primary schools, demonstrating that instructional leadership can be decentralized despite South Africa's centralized education system (Jita & Mokhele, 2013). However, the lack of understanding of curriculum leadership among some teachers and school managers remains a significant obstacle to effective environmental education integration (Shabalala et al., 2023).

The lack of preparation further extends to the failure of teachers to submit work on time, as noted by Mrs. Sydney. She stated that *"teachers undermine head of departments, especially head of departments who come from other schools to join our school."* This response demonstrated the hierarchical tensions that exist between teachers and their immediate supervisors, often undermining the principles of distributed leadership. Distributed leadership is predicated on mutual respect and collaboration between different leadership levels, but when teachers undermine head of departments—particularly those perceived as outsiders—it creates friction that hampers effective leadership and curriculum management. Though distributed leadership has gained prominence as means to empower teachers and create democratic institutions, the challenges of existing hierarchical structures and power dynamics within schools still exists (Hatcher, 2005; de Lima, 2008). This aligns with the findings of Harris (2008), who argued that distributed leadership is frequently undermined by entrenched hierarchical structures in schools, which create barriers to collaboration and shared responsibility. The effectiveness of distributed leadership often depends on departmental structures and the role of department coordinators as teacher leaders (de Lima, 2008). Furthermore, the success of teacher teams in distributed leadership contexts is influenced by factors such as purpose, autonomy, and patterns of discourse (Scribner et al., 2007). These factors shape team interactions and can either promote or hinder effective collaboration and problem-solving (Scribner et al., 2007). To maximize the potential of distributed leadership, schools must address both structural and social dynamics, while helping teachers and principals

develop awareness of effective collaborative practices (Scribner et al., 2007). In another instance, Mr. Mthunzi, a principal, raised concerns about the unrealistic expectations set by the department of basic education, stating, *"the department expects us to cover the stipulated amount of work within a given time; how we do it is our problem."* This pressure to complete an extensive curriculum within a limited timeframe leaves little room for teachers to engage in meaningful collaboration or leadership. The demands of completing paperwork, meeting deadlines and maintaining records detract from the time that teachers could spend developing and implementing environmental education content. As Mr. Mthunzi noted, *"the evidence to show that teachers have taught is impossible to bookkeep because they are concentrating on going to the classroom and making copies to be given to learners."* The administrative burden undermines both the teaching and leadership capacities of teachers, as they are forced to prioritize compliance over creativity and innovation in curriculum delivery (Bush & Glover, 2012). Mthiyane et al. (2019) and Szcezsiul and Huizenga (2014) also affirms that not only teachers are faced with unrealistic expectations and heavy administrative burdens, but principals and head of departments experience the same challenges which limits their abilities to provide meaningful support to teachers. In corroboration, O'Donovan (2015) in his study identified a similar challenge of increased workload and expanding role definitions for school leaders and yet, after nine years the same problem still prevails.

The issue of hierarchical tensions is further compounded by the reluctance of head of departments to hold teachers accountable. Mrs. Mkhize, a principal, remarked that *"some head of departments are scared of teachers,"* which prevents them from effectively managing and leading the curriculum. Distributed leadership requires all stakeholders, including head of departments, to exercise authority and hold others accountable. However, when heads of departments are hesitant to address issues of teacher performance—such as when a teacher falls behind in lesson planning—it compromises the integrity of the leadership model. This finding is consistent with earlier research by Leithwood et al. (2009), which highlighted the importance of accountability in distributed leadership. Without clear lines of accountability and open communication, distributed leadership cannot function effectively, as power dynamics and interpersonal conflicts remain unresolved. Distributed leadership in schools involves sharing responsibilities among various stakeholders, including heads of departments and teachers. Head of departments are key role players in curriculum leadership, professional development and improving teaching and learning (Munje et al., 2020; du Plessis & Eberlein,

2018). They are expected to monitor, motivate and manage personnel while serving as role models (Tapala et al., 2021). Therefore, it is imperative for head of department to ensure that they establish clear lines of accountability, open communication and the willingness to address teacher performance issues (Munje et al., 2020). Successful implementation of distributed leadership depends on employing the collective knowledge and expertise of all stakeholders in a collaborative manner (Williams, 2011).

Furthermore, teachers themselves face significant challenges in acclimating to their roles within the curriculum management structure. Ms. Khumalo, a teacher, shared her experience, saying, *"when I came, it was difficult because when I was asking how far teachers have gone with learners, no one had information."* This lack of information and guidance left her feeling isolated and without the support needed to manage the curriculum effectively. Teacher isolation and lack of mentorship are major obstacles to the successful implementation of distributed leadership, as they prevent teachers from collaborating with their peers and sharing best practices (Gronn, 2000). Ms. Khumalo's experience highlights the need for a more structured approach to teacher induction and professional development to ensure that new teachers are supported and empowered to take on leadership roles within the curriculum management framework. The experience of Ms Khumalo is further affirmed by the findings of Govender (2018). The author mentioned that teachers struggle with inadequate professional development and support during curriculum reforms, feeling isolated and lacking guidance (Govender, 2018). This isolation hinders collaboration and sharing of best practices, which are important for successful distributed leadership (Williams, 2011). Anthony et al. (2019) mention that this shortfall may be addressed by teacher leaders who may serve as mentors to support novice teachers through professional development and promote collaboration and mediators between principals and experienced teachers. To actualize distributed leadership, a structured approach to teacher induction and ongoing professional development is needed, along with recognition of the realities of the South African context (Williams, 2011; Govender, 2018).

Beyond the interpersonal dynamics between teachers and head of departments, the structure of the curriculum itself presents challenges that impede the effective application of distributed leadership. Mr. Mofolo, a subject advisor, identified several key issues, including (a) *"too much content to be taught in a limited time"* and (b) *"uninteresting content."* The volume of content required to be covered, combined with its lack of relevance or appeal to

both teachers and learners, makes it difficult for teachers to engage meaningfully with the curriculum. As noted by Khoza (2016), curriculum overload and the lack of engaging, practical content can demotivate teachers, making them less likely to embrace leadership roles. Moreover, the focus on matriculation results magnifies these challenges, as schools prioritize exam performance over the quality of teaching and learning in lower grades (Brezicha et al., 2014).

These challenges reveal a broader issue in curriculum management, the misalignment between the expectations placed on teachers and the realities of their working conditions. Holloway et al. (2018) found that prescribed distributed leadership models can create tension between teachers' expectations and actual experiences, often leading to increased workload without meaningful empowerment. Teachers are expected to deliver an extensive and often unengaging curriculum while managing administrative tasks and interpersonal conflicts with colleagues and head of departments. Cardno (2003) explored the role of principals as curriculum leaders, noting that administrative burdens and external demands can hinder their effectiveness. This situation makes it difficult to foster the collaboration and shared responsibility that are central to distributed leadership. Moreover, the focus on exam results creates a narrow definition of success, further limiting the opportunities for innovation and creativity in teaching (Kirkpatrick & Zang, 2011). However, distributed leadership can enable positive changes in organizational culture, encourage collaboration across departments and facilitate the development of different "bottom-up" and "top-down" structures (Avissar et al., 2017). Despite these challenges, distributed leadership remains a promising approach for promoting sustainability in educational institutions, though it requires mechanisms to re-culture schools, develop teacher-leadership capacity and reflect on future leadership directions (Avissar et al., 2017; O'Donovan, 2015). Strategies such as shared management, prioritization and developing others as curriculum leaders may help mitigate these challenges.

4.1.2 Administrative burden and lack of engagement

Another significant challenge identified in this study is the overwhelming administrative burden placed on teachers, which detracts from their ability to engage fully with the environmental education curriculum. Mr. Mthunzi, a principal, noted that teachers are *"overwhelmed with paperwork,"* which takes time away from essential tasks such as lesson planning and actual teaching. This challenge is particularly pertinent in schools since

environmental education is integrated across different subjects, requiring planning and coordination among teachers to ensure effective delivery of content. The administrative demands placed on teachers, such as documenting their activities, preparing reports and fulfilling other bureaucratic requirements, reduce the time and energy they can dedicate to engaging students in meaningful learning experiences (Kim, 2019). The findings support the statement made by Kim (2019) that administrative workload is a major obstacle, reducing time for instructional preparation and student feedback, especially in public schools. In addition, Damoah and Adu (2019) mention that over and above the challenges of administrative workload, teachers struggle with implementing environmental education across subjects due to unclear guidelines, lack of resources and insufficient support from department of basic education. Additional challenges include an overcrowded curriculum, low priority of environmental education in schools, limited outdoor access and teacher apathy (Tan & Pedretti, 2010; Shabalala, 2024). These factors contribute to a notable gap between teachers' ideal vision of environmental education and their actual practices. To address these issues, recommendations include developing clear curriculum goals, providing specific integration guidelines, appointing subject advisors and equipping teachers with necessary resources (Damoah & Adu, 2019; Shabalala, 2023). Overcoming these challenges is important for successful environmental education implementation and promoting environmental literacy among students.

The burden of administration does not only limit teachers' engagement with their students but also impairs their ability to collaborate effectively with colleagues and participate in distributed leadership initiatives. Distributed leadership thrives in environments where teachers have the capacity and time to contribute to decision-making and curriculum management. However, as Mr. Mthunzi explained, the excessive paperwork *"makes it impossible to keep evidence that teachers have taught,"* as their primary focus shifts towards classroom management and administrative tasks rather than leadership and curriculum development. This administrative overload curtails the time teachers could spend in collaborative settings, hindering the potential for distributed leadership to improve curriculum management and implementation (Spillane, 2006). In addition to the administrative burden, the study found a general lack of engagement among some teachers with the environmental education curriculum. Mr. Mofolo, a subject advisor, observed that *"teachers should be teaching something that is interesting to them and students"*, yet the current curriculum is

viewed as unengaging. This lack of enthusiasm leads to a diminished sense of commitment from teachers, which has a cascading effect on student interest in environmental education. Teacher engagement is important in distributed leadership because it ensures that they actively participate in curriculum development and provide meaningful contributions to leadership processes. When teachers are disengaged or view the curriculum as irrelevant, it undermines the entire premise of distributed leadership, which relies on the active and willing participation of all stakeholders. Distributed leadership shows potential for improving educational outcomes. It correlates positively with teachers' affective commitment (Ross et al., 2016) and organizational commitment (Devos et al., 2014). The quality of support from leadership teams and cooperation within these teams are important for teachers' organizational commitment, rather than the mere distribution of leadership functions (Devos et al., 2014).

Teachers' disengagement is further reinforced by the uninteresting nature of some of the curriculum content. As noted by Mr. Mofolo, the environmental education curriculum is often perceived as lacking in practical applications that are relevant to students' lives. This issue is compounded by the overwhelming amount of content that teachers are expected to cover in a limited time frame. Mr. Mofolo highlighted that *"too much content and very little application"* is a significant challenge for teachers, as they struggle to find the time to engage students in meaningful discussions about environmental issues while also meeting the stringent content requirements imposed by the curriculum. As mentioned, in South Africa the curriculum lacks clear guidelines for environmental education integration, similarly, in Botswana, there is a misalignment between environmental education policy and practice, with many teachers showing limited understanding of the program's requirements and unable or unwilling to participate effectively (Nkambwe & Essilfie, 2012). These studies highlight a common gap between teachers' views on what environmental education should be and their current practices. To address these issues, governments need to develop clearer curriculum goals, provide specific guidelines and offer support for teachers to successfully implement environmental education (Damoah & Adu, 2019; Tan & Pedretti, 2010).

Moreover, the focus on matriculation results further diminishes teacher engagement, as the emphasis on exam performance pushes teachers to prioritize content that will appear in examinations rather than fostering a deeper understanding of environmental issues. Mr Mofolo remarked that *"district focuses on Matric results,"* which places pressure on teachers to teach to the test rather than explore the broader societal implications of environmental education.

This focus on matriculation distorts the priorities within the curriculum, as teachers are encouraged to drill students on content that will secure high exam scores, rather than inspire critical thinking and real-world application of knowledge (Hargreaves & Shirley, 2009). Lotz-Sisitka (2011, 2012, 2013) reports on efforts to develop a national network and curriculum framework for environmental education, emphasizing the need for deeper conceptual understanding beyond mere awareness-raising. The research reveals a tendency towards problem-based knowledge that fails to support social innovation (Lotz-Sisitka, 2011, 2012, 2013). In his study, Lotz-Sisitka (2009) discussed the importance of carefully designed analytical tools to assess educational quality, noting discrepancies between official curriculum content and teacher practices.

4.1.3 Focus on matric results over comprehensive learning

A recurring theme in the interviews was the overwhelming focus on matriculation results, which often shifts attention away from the lower grades and discourages a more holistic approach to teaching environmental education. As Mr. Mofolo, a subject advisor, explained, *"the department expects us to focus on matric results, but this limits what we can do in other grades."* Munasi and Madikizela-Madiya (2021) in their study pointed that, a major issue is the exam-oriented approach, which curtails teachers' and subject advisors' agency in integrating environmental education into subjects such as life sciences. Despite environmental education being mandated across the curriculum (Peden, 2006), its implementation remains largely paper-based due to resource constraints and curriculum limitations (Fru & Ndaba, 2023). This emphasis on matriculation exams creates a narrow definition of success within the educational system, where the quality of teaching in earlier grades is neglected in favour of short-term performance metrics that prioritize exam results over comprehensive learning (Monyooe et al., 2013). This emphasis on exam results has implications for the socio-environmental relevance of the education system and environmental education (Munasi & Madikizela-Madiya, 2021). To address these issues, revisions to the curriculum and assessment policies, along with improved resource allocation, are recommended (Fru & Ndaba, 2023).

In many South African schools, as observed in this study, the pressure to achieve high matriculation pass rates affects how curriculum is managed and implemented (Monyooe et al., 2013). Teachers, head of departments and principals feel compelled to dedicate most of their efforts towards ensuring that students pass these critical examinations, often at the expense of

cultivating a deeper understanding of environmental education or broader life skills in earlier grades. Despite these challenges, the Curriculum and Assessment Policy Statement (CAPS) advocates for environmental education integration across all grades and subjects (Hebe, 2019). Geography is considered a key vehicle for teaching environmental education due to its focus on human-environment relationships (Dubé, 2014). The sustainable development theme is central to the curriculum, with suggested implementation strategies including enquiry and issues-based approaches (Dubé, 2014). Ongoing efforts to realize environmental learning within the school system continue, despite systemic challenges (Monyooe et al., 2013).

Mr. Mthunzi, a principal, expressed frustration over the expectations placed upon teachers to cover the curriculum content within a specified time. The participant added, *"how we do it is our problem."* The need to adhere to strict curricular timelines for the sake of exam results leaves little room for creativity or deviation from the prescribed content. This diminishes opportunities for students to explore environmental issues beyond the surface level, as teachers prioritize exam preparation over engaging with topics that may not be directly tested but are nonetheless essential for environmental awareness and critical thinking (Leithwood & Jantzi, 2000). A significant gap exists between the action-oriented goals of environmental education and the emphasis on knowledge acquisition in schools (Stevenson, 2007). This discrepancy is attributed to the traditional structure of schooling, which conflicts with the critical inquiry and political action goals of environmental education (Stevenson, 2007). To develop enduring habits of environmental thoughtfulness, in-depth study of select environmental issues is recommended over broad coverage of many topics (Stevenson, 1997). This challenge is not unique to environmental education. High-stakes testing environments, characterized by their focus on standardized assessments, often lead to a narrowing of the curriculum, where subjects not deemed "exam-critical" are given less attention (Stuart, 2012). This curriculum narrowing, a rational response to high-stakes testing, reduces students' opportunities to develop different talents and restricts creative activities (Berliner, 2011). In South Africa, environmental education has undergone paradigm shifts from being primarily conservation-focused to becoming a cross-curricular theme emphasizing sustainable development and environmental justice (Peden, 2006). Consequently, students miss out on developing a meaningful understanding of sustainability issues, as teachers focus on test preparation (Munasi & Madikizela-Madiya, 2021; Peden, 2006).

To address the challenges posed by the focus on matriculation results, educational leaders need to take steps to create a more balanced approach to curriculum management. This could involve restructuring the curriculum to allow for more interdisciplinary learning and experiential activities that engage students in meaningful discussions about environmental issues. As Mr. Mofolo suggested, *"you can take the same topic, but you can make it very interesting to students".* Incorporating project-based learning, fieldwork and collaborative group activities into the curriculum, teachers can make environmental education more relevant and engaging, while still adhering to exam-related content requirements. Additionally, reducing the emphasis on matriculation results and placing greater value on the quality of teaching and learning in earlier grades could help create a more comprehensive educational experience. In support, Leithwood and Jantzi (2000) states that educational policies that recognize the importance of formative assessments, rather than solely relying on summative exams, could provide teachers with the flexibility they need to explore topics like environmental education in greater depth.

4.2 Opportunities and Strategies for Effective Distributed Leadership

Despite the significant challenges identified in previous sections, distributed leadership presents various opportunities for improving the management of environmental education curriculum. These opportunities primarily center around promoting better communication, enhancing collaboration, empowering teachers through role delegation and restructuring curriculum content to engage students more effectively. This section focuses on the strategies that can promote the benefits of distributed leadership to address the current challenges to effective curriculum management.

4.2.1 Enhancing communication and collaboration

One of the key opportunities of distributed leadership is its potential to enhance communication and collaboration within schools. This leadership model encourages open dialogue and the sharing of responsibilities among various stakeholders, including principals, head of departments and teachers. In the study, participants frequently mentioned the need for better communication to overcome the challenges of curriculum management. Ms. Nkosi, a subject advisor, emphasized that *"when communicating, one needs to be careful of the manner of approach. It is important to listen to teachers and involve them in decisions."* This highlights

the role of communication not just as an information exchange tool but also as means to foster inclusiveness and collaboration.

Effective communication is critical in distributed leadership, as it enables transparency, trust-building and conflict reduction (Bush & Glover, 2012; Harris, 2008). In this study, it was observed that the schools that employed communication strategies such as regular staff briefings, WhatsApp groups and informal meetings were more successful in engaging teachers in leadership roles. For example, participants in these schools mentioned that the use of open communication channels encouraged teachers to share their ideas and concerns, making them feel more involved in the decision-making processes. Ahmad et al. (2018) affirm that open communication channels encourage teachers to share ideas and concerns, increasing their involvement in decision-making processes. However, cultural context can influence the extent of distributed leadership; in some cases, teachers may have limited involvement in administrative decisions due to prevailing authoritarian norms (Berjaoui & Karami, 2019).

Despite this, high-performing leadership teams are characterized by internal coherence, a focus on high standards and two-way communication with stakeholders (Bush & Glover, 2012). Moreover, promoting open communication leads to more collaborative decision-making, which is aligned with the principles of distributed leadership. When teachers are involved in decisions about curriculum management, they are more likely to feel a sense of ownership and responsibility, which in turn enhances their motivation to contribute meaningfully. As noted by Spillane (2006), effective communication not only distributes leadership but also distributes the accountability for the outcomes, creating a more dynamic and engaged school environment.

4.2.2 Empowering teachers through role delegation

Delegating specific leadership roles to teachers and head of departments is a censorious strategy in the effective implementation of distributed leadership. Assigning clear responsibilities to various stakeholders within the school, teachers can be empowered to contribute meaningfully to curriculum management and school leadership. In the study, Mrs. Sydney, a principal, emphasized that *"heads of departments manage the curriculum under the guidance of the deputy principal, creating a layered system that works because everyone knows their role"*. This structured delegation of leadership responsibilities ensures that all staff members are aware of their roles, promoting a sense of ownership and accountability. This

approach allows teachers to actively participate in school leadership, rather than simply following directives. Studies show that head of departments contributes meaningfully to curriculum management, instructional leadership and improving teaching and learning outcomes (Munje et al., 2020; Brown et al., 2000). However, the implementation of distributed leadership varies across contexts. In Nigerian schools, it is often practiced as simple delegation rather than true distribution of leadership (Sasere & Makhasane, 2023). Senior leaders' approaches to managing departments range from quasi self-managing units to hierarchical control, with varying degrees of participatory management (Montecinos et al., 2024). While distributed leadership can empower teachers and promote accountability, its full benefits are not always realized, especially in centralized education systems (Sasere & Makhasane, 2023). For effective implementation, there is a need for radical changes in middle management development and training to support head of departments as curriculum leaders and managers (Brown et al., 2000).

In case one and case three, however, observations revealed that role delegation often takes place within a highly hierarchical system. The principal in both schools primarily gave orders directly to the school management team (deputy principal and head of departments), who then communicated these directives to teachers. As observed, *"the principal gives orders or directly communicates with the members of the SMT (deputy principal and head of departments), then the deputy principal communicates with the head of departments, and finally the head of department communicates with teachers in matters of curriculum management."* Studies indicate that principals often delegate curriculum management responsibilities to deputy principals and heads of departments (Govindasamy & Mestry, 2022; Mpisane, 2015). While this hierarchical structure ensures role delegation, it can limit teacher autonomy if communication flows strictly top-down (Shaeffer, 1994). However, effective leaders can exercise agency within organizational structures to improve academic quality and enable more democratic processes (Chingara & Heystek, 2019). Research suggests that successful curriculum management requires a collaborative culture, with principals providing adequate resources and support for teacher development (Govindasamy & Mestry, 2022). Additionally, shared decision-making and teacher participation in curriculum discussions are important for professional development and institutional wisdom (Shaeffer, 1994; Mpisane, 2015).

Moreover, a *"dysfunctional and co-dependent relationship among the staff"* was observed in these cases, which indicated a lack of collaboration and shared responsibility. Several participants expressed reluctance to openly share their opinions, with one participant noting that *"they do not want to be seen as bad-mouthing their fellow colleagues."* This suggests that, while role delegation exists, there is limited collaboration and trust among staff members, potentially hindering the success of distributed leadership. School politics and interpersonal tensions also seemed to play a role in preventing effective collaboration. Collaborative teacher support is important for school success, with communication, openness and trust being key factors (García-Martínez et al., 2021). Trust is one of the important components in distributed leadership, with the relationship between trust and leadership development being dynamic and mutually reinforcing (Smylie et al., 2007). Purpose, autonomy and patterns of discourse shape collaborative interactions within teacher teams, influencing the social distribution of leadership (Scribner et al., 2007). Despite understanding the benefits of empowering teachers, some deputy principals lack trust in teachers' ability to take on leadership roles (Sibanda, 2018).

In contrast, case two presented a more effective model of distributed leadership through role delegation. The relationship between the staff and the principal in this case was more collaborative, with teachers feeling empowered to report directly to the principal when necessary. As observed, *"here the staff has the allowance to report straight to the principal."* This open line of communication between the principal and teachers fostered a more inclusive environment, where staff members felt more engaged in leadership processes. Research indicates that principals who distribute leadership across their schools can facilitate effective professional learning communities (DeMatthews, 2014). The implementation of distributed leadership practices may be influenced by organizational structures, common vision and teacher engagement as experts (Grenda, 2011). In middle schools, interdisciplinary teams can serve as a mechanism for participatory decision-making and teacher leadership development (Grenda, 2011). Grant (2011) found that components of distributed leadership, such as setting direction, redesigning the organization and managing instruction, are moderately related to one another and can predict leadership effectiveness. However, the relationship between inclusive education and distributed leadership can be complex, with contextual factors shaping understandings and practices in different school settings (Miškolci et al., 2016).

The principal in case two demonstrated a strong sense of organization and transparency, which further enhanced the effectiveness of role delegation. The researcher noted that when arriving at the school, the administrative staff directed them to the principal, who was *"very neat and organized."* This initial interaction set the tone for the visit, as the principal ensured that all necessary permissions were in place and personally guided the researcher through the process of meeting with the relevant participants. This attention to detail and order created a sense of professionalism and trust, which translated into a more effective working relationship between the principal, head of departments and teachers. Research suggests that effective school leadership involves a balance between organizational structure and professional trust. Principals who demonstrate a professional orientation by extending adaptive discretion to teachers and trust among faculty members are more likely to enhance teacher professionalism (Tschannen-Moran, 2009). Babaoğlan (2016) states that trust between principals and teachers contributed to the successful schools and requires intentional development. Leadership in educational settings is multifaceted, involving influencing group processes, achieving goals and shaping organizational culture (Babaoğlan, 2016). Adopting practices that build trust among school leaders, teachers, students and parents, principals can create an environment that supports teacher professionalism and, ultimately, improved student performance.

Furthermore, the principal in case two actively involved various stakeholders in curriculum management. *"Different committees work hand in hand with the principal,"* including representatives from teachers, school management teams, parents and non-academic staff. The school also implemented a rotational assembly devotion timetable, where teachers took turns leading assemblies. This inclusive approach to leadership reflects a deeper commitment to distributed leadership, where all stakeholders are given opportunities to contribute to leadership roles. The active involvement of various groups in school governance strengthens the overall capacity for leadership and creates a more collaborative and cohesive school environment. Distributed leadership in schools involves various stakeholders in decision-making processes and shared sense of purpose and inclusive environment (Tejeiro, 2024). This approach, promoted by principals, contributes significantly to developing inclusive schools by encouraging cooperative teamwork, student-centered approaches and participation of students and families (Tejeiro, 2024). Distributed leadership enhances different leadership qualities, enabling teachers to engage their skills and become self-empowered (Masekoameng & Zengele, 2015). It also allows principals and teachers to build capacity, adapt to challenges,

and effectively serve all students in an inclusive manner (DeMatthews, 2015). While most schools involve staff in decision-making, the extent of student and parent involvement varies (Tejeiro, 2024). Some barriers may hinder full participation of students and families (Tejeiro, 2024). Distributed leadership strengthens school leadership capacity and creates a more collaborative environment, though training for management teams and legislative changes may be necessary to fully realize its benefits.

4.2.3 Restructuring curriculum content for greater engagement

One of the most significant opportunities for improving environmental education through distributed leadership lies in restructuring the curriculum to make it more engaging and relevant to students. In the study, Mr. Mofolo, a subject advisor, suggested that *"the amount of content should be lessened and the focus should be on practical applications where environmental education has real-world implications for society."* This recommendation highlights the need for a curriculum that prioritizes experiential learning and real-world relevance over rote memorization of content. To address the need for experiential learning in environmental education, Corscadden and Kevany (2017) present a hybrid model that expands traditional infrastructure and provides students with hands-on learning opportunities.

Research on curriculum design supports this approach, suggesting that students are more likely to engage with content that is relevant to their lives and that allows for active (Leithwood & Jantzi, 2006). Studies emphasize the importance of connecting students to their local environment and encouraging critical thinking about sustainability issues (Payne, 2006; Suarlin, 2023). Effective strategies include project-based learning, field trips and practical activities that allow students to apply classroom knowledge to real-world contexts (Corscadden & Kevany, 2017; Suarlin, 2023). Participatory methodologies involving multiple stakeholders, including students, teachers and community members, can create more sustainable and locally relevant curricula (Hartwig, 2021). These approaches have been shown to improve environmental knowledge, awareness and positive behaviours among students and teachers (Suarlin, 2023). However, challenges such as limited resources and teacher preparedness must be addressed (Suarlin, 2023).

Restructuring the curriculum in this way would also address one of the key challenges identified in the study—the unengaging nature of some of the current environmental education content. As noted by Mr. Mofolo, teachers are more likely to engage with the curriculum if it

is interesting to them and their students. Incorporating more hands-on, practical learning experiences into the curriculum, teachers can create lessons that are more engaging and meaningful, which in turn can increase student interest and motivation (Mills et al., 2024). Additionally, a more engaging curriculum could also alleviate some of the administrative burdens on teachers, as it would allow for more integrated, cross-disciplinary teaching approaches. This integrated approach may promote a holistic understanding of environmental issues and create environmentally conscious citizens (Damoah et al., 2024). This integrated approach could reduce the amount of content that teachers need to cover while still ensuring that students develop a deep understanding of environmental issues.

5. Recommendations

Based on the findings of this study, several recommendations are proposed to improve the management of environmental education through distributed leadership in schools. Schools should prioritise teacher empowerment by granting teachers more autonomy in decision-making processes, particularly in curriculum development. Empowered teachers are more likely to engage actively in curriculum innovation and take ownership of environmental education. Empowerment can be supported through professional development opportunities (Pentang, 2022) that enhance teachers' leadership skills and understanding of environmental education. In addition, by creating spaces for teachers to participate in leadership roles and school governance, fostering a culture of shared responsibility.

Effective communication is needed for the success of distributed leadership. Schools should establish clear communication channels among staff to encourage collaboration and reduce misunderstandings. Regular meetings, digital platforms (such as staff WhatsApp groups), and informal discussions can help improve transparency and ensure that everyone is aligned with the school's objectives for environmental education. Distributed leadership requires clearly defined roles and responsibilities. Schools should ensure that leadership responsibilities are explicitly outlined for teachers, head of departments, and senior management. This can prevent role ambiguity and foster a sense of ownership in curriculum management, particularly for interdisciplinary subjects like environmental education.

Teachers often face heavy administrative loads, which detract from their ability to engage in leadership activities and focus on curriculum planning. Schools should explore ways to reduce paperwork and streamline administrative tasks. This could involve simplifying

reporting procedures or allocating dedicated administrative support, allowing teachers to devote more time to environmental education and leadership responsibilities. Environmental education is most effective when integrated across the curriculum and embraced by the whole school. Schools should adopt a whole-school approach, encouraging collaboration among teachers from different subjects to embed sustainability themes throughout the curriculum. Practical initiatives, such as eco-projects or school-wide sustainability programmes, can further enhance student engagement and bring environmental education to life.

School leaders, including principals and head of departments, should undergo training on distributed leadership principles. Such training will equip them with the skills to delegate responsibilities effectively, support teacher autonomy, and build collaborative leadership structures. By developing leadership capacity at all levels, schools can better support the integration of environmental education and other interdisciplinary subjects. In the South African context, it is recommended that schools consider adopting an Africanised approach to distributed leadership, incorporating the principles of ubuntu—emphasising community, interconnectedness and shared responsibility. This can promote a more culturally relevant and inclusive leadership model that resonates with the needs of local communities and supports the goals of environmental education.

6. Conclusion

This study demonstrates the significant potential of distributed leadership in improving the management of environmental education in schools. Through decentralising leadership responsibilities and empowering teachers, distributed leadership promotes collaboration, shared decision-making and collective accountability. However, the research also highlights several challenges, including hierarchical tensions, administrative burdens and insufficient teacher preparedness, which can hinder the effective implementation of distributed leadership. These challenges limit the integration of interdisciplinary subjects like environmental education, which require cooperation across disciplines and innovative approaches to teaching. Despite these advantages, the study highlights the need for clear communication, structured delegation of roles and ongoing professional development to fully realise the benefits of distributed leadership. Without these elements, schools may struggle to overcome entrenched hierarchical systems and an overemphasis on exam results, which can undermine collaborative leadership. To maximise the impact of distributed leadership, schools must foster a more

inclusive and supportive leadership culture. Doing so will not only improve the integration of environmental education but also create a more dynamic and innovative educational environment overall.

ORCID

Nonkanyiso Pamella Shabalala – https://orcid.org/0000-0002-8580-2293

References

Adams, W. C. (2015). Conducting semi-structured interviews. In K. E. Newcomer, H. P. Hatry, & J. S. Wholey (Eds.), *Handbook of Practical Program Evaluation* (4th ed., pp. 492–505). Wiley. https://doi.org/10.1002/9781119171386.ch19

Ahmad, N. A., Mohamed, S., Hasnan, K. A., & Ahmad Puad, F. N. (2018). The use of teacher's joke increases students' involvement inside the classroom. *The International Journal of Social Sciences and Humanities Invention, 5*(10), 5039–5046. https://doi.org/10.18535/ijsshi/v5i10.06 .

Ajitoni, B. D. (2024). Ubuntu and the philosophy of community in African thought: An exploration of collective identity and social harmony. *Journal of African Studies and Sustainable Development, 7*(3), 1-13. https://doi.org/10.4314/jassd.v7i3

Alase, A. (2017). The interpretative phenomenological analysis (IPA): A guide to a good qualitative research approach. *International Journal of Education & Literacy Studies, 5*(2), 9-19. https://doi.org/10.7575/aiac.ijels.v.5n.2p.9

Anthony, A. B., Gimbert, B., Luke, J. B., & Hurt, M. H. (2019). Distributed leadership in context: Teacher leaders' contributions to novice teacher induction. *Journal of School Leadership, 29*(1), 54–83. https://doi.org/10.1177/1052684618825086.

Avissar, I., Alkaher, I., & Gan, D. (2017). The Role of Distributed Leadership in Mainstreaming Environmental Sustainability into Campus Life in an Israeli Teaching College: A Case Study. *International Journal of Sustainability in Higher Education, 19*, 518-546.

Babaoglan, E. (2016). Improving principal and teacher relationship: Predictive power of school principals' leadership with teachers' organizational trust perception. *Educational Planning, 23*(2), 7–17.

Badampudi, D., Fotrousi, F., Cartaxo, B., & Usman, M. (2022). Reporting consent, anonymity, and confidentiality procedures adopted in empirical studies using human participants. *e-Informatica Software Engineering Journal, 16*(1), 220109. https://doi.org/10.37190/e-Inf220109

Baştea, A.-R., Catalano, H., & Dohotaru, A. I. (2023). An overview of distributed leadership and its shortcomings in educational settings. *Educatia 21 Journal, 25*(12), 116-126. https://doi.org/10.24193/ed21.2023.25.12

Berjaoui, R. R., & Akkary, R. K. (2019). Distributed leadership as a path to organizational commitment: The case of a Lebanese school. *Leadership and Policy in Schools, 19*(8), 1–15. https://doi.org/10.1080/15700763.2019.1637900

Berliner, D. (2011). Rational responses to high stakes testing: the case of curriculum narrowing and the harm that follows. *Cambridge Journal of Education*, *41*(3), 287–302. https://doi.org/10.1080/0305764X.2011.607151

Brezicha, K., Bergmark, U., & Mitra, D. L. (2014). One size does not fit all: Differentiating leadership to support teachers in school reform. *Educational Administration Quarterly, 50*(1), 1–37. https://doi.org/10.1177/0013161X14521632

Brown, M., Rutherford, D., & Boyle, W. (2000). Leadership for school improvement: The role of the head of department in UK secondary schools. *School Effectiveness and School*

Improvement, 11(2), 237–258. https://doi.org/10.1076/0924-3453(200006)11:2;1-Q;FT237

Bush, T. & Glover, D. (2012). Distributed leadership in action: Leading high performing leadership teams in English Schools. *School Leadership & Management, 32*(1), 21-36. http://doi.org/10.1080/13632434.2011.642354

Bush, T. (2013). Distributed leadership. *Educational Management Administration & Leadership, 41*, 543 - 544.

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing, 25*(8), 652– 661. https://doi.org/10.1177/1744987120927206

Cardno, C. (2003). Secondary school principals as curriculum leaders: A New Zealand study. Paper presented at the *New Zealand Association of Research in Education (NZARE) and Australia Association of Research in Education (AARE) Conference*, Auckland, New Zealand. Retrieved from https://pdfs.semanticscholar.org/62ff/b89d708db843b562431ad2a07f198a98a6ba.pdf

Cherkowski, S., & Brown, W. (2013). Towards distributed leadership as standards-based practice in British Columbia. *Canadian Journal of Education, 36*, 23-46.

Chingara, R., & Heystek, J. (2019). Exploring distributed leadership in schools: Practices and perceptions of secondary school principals in Zimbabwe. *The International Journal of Educational Management, 33*(7), 1596–1609. https://doi.org/10.1108/IJEM-01-2018-0028

Corscadden, K. W., & Kevany, K. (2017). The TREEhouse: A hybrid model for experiential learning in environmental education. *Applied Environmental Education and Communication, 16*(1), 56–67. https://doi.org/10.1080/1533015X.2017.1284001

Damoah, B., & Adu, E. O. (2019). Challenges teachers face in the integration of environmental education into the South African curriculum. *American Journal of Humanities and Social Sciences Research, 3*(10), 157–166.

Damoah, B., Khalo, X., & Adu, E. (2024). South African integrated environmental education curriculum trajectory. *International Journal of Educational Research, 125*, 102352. https://doi.org/10.1016/j.ijer.2024.102352

Dawadi, S. (2020). Thematic analysis approach: A step by step guide for ELT research practitioners. *NELTA Journal, 25*(1-2), 62–71.

De Lima, J. Á. (2008). Department networks and distributed leadership in schools. *School Leadership & Management, 28*(2), 159–187. https://doi.org/10.1080/13632430801969864

DeMatthews, D. E. (2014). How to improve curriculum leadership: Integrating leadership theory and management strategies. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 87*, 192 - 196.

Devos, G., Tuytens, M., & Hulpia, H. (2014). Teachers' organizational commitment: Examining the mediating effects of distributed leadership. *American Journal of Education, 120*(2), 205–231. https://doi.org/10.1086/674370

Du Plessis, A., & Eberlein, E. (2018). The role of heads of department in the professional development of educators: A distributed leadership perspective. Africa Education Review, 15(1), 1-19. https://doi.org/10.1080/18146627.2016.1224583

Dube, C. (2014). Environmental concerns in the geography curriculum: Perceptions of South African high school teachers. *Southern African Journal of Environmental Education, 30*, 131–146.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1–4. https://doi.org/10.11648/j.ajtas.20160501.11

Fazio, X., & Karrow, D. D. (2014). Exploring the professional characteristics and contexts of school-based environmental education 'leaders'. *Alberta Journal of Educational Research, 59*(4), 613 –629.

Fru, R. N., & Ndaba, T. L. (2023). Educators' perceptions and approaches to environmental education and pro-environmental behaviour in South African secondary schools. *International Journal of Learning, Teaching and Educational Research, 22*(5), 359–373. https://doi.org/10.26803/ijlter.22.5.18

Gan, D. (2021). Environmental education leadership – the perceptions of elementary school principals as expressed in their drawings and explanations. *Environmental Education Research, 27*, 1440 - 1466.

García-Martínez, I., Montenegro-Rueda, M., Molina-Fernández, E., & Fernández-Batanero, J. M. (2021). Mapping teacher collaboration for school success. *School Effectiveness and School Improvement*, *32*(4), 631–649. https://doi.org/10.1080/09243453.2021.1925700

Göksoy, S. (2015). Distributed leadership in educational institutions. *Journal of education and training studies, 3*, 110-118.

Govender, S. (2018). South African teachers' perspectives on support received in implementing curriculum changes. *South African Journal of Education, 38*(Supplement 2), S1–S12. https://doi.org/10.15700/saje.v38ns2a1484

Govindasamy, V., & Mestry, R. (2022). The principal's role in managing curriculum change: Implications for the provision of quality education. *South African Journal of Education, 42*(4), 2294. https://doi.org/10.15700/saje.v42n4a2294

Grant, C. (2017). Distributed leadership in South Africa: Yet another passing fad or a robust theoretical tool for investigating school leadership practice? *School Leadership & Management, 37*(5), 457-475. https://doi.org/10.1080/13632434.2017.1360856

Grant, C. P. (2011). *The relationship between distributed leadership and principal's leadership effectiveness in North Carolina*. (Doctoral dissertation). North Carolina State University, USA

Greany, T., & Waterhouse, J. (2016). Rebels against the system: Leadership agency and curriculum innovation in the context of school autonomy and accountability in England. *International Journal of Educational Management, 30*, 1188 - 1206.

Grenda, J. P. (2011). *Instances and principles of distributed leadership: A multiple case study of Illinois middle school principals' leadership practices* (unpublished doctoral dissertation). University of Illinois, Urbana-Champaign. https://core.ac.uk/download/pdf/4837297.pdf

Gronn, P. (2000). Distributed properties. A new architecture of leadership. *Educational Management and Administration, 28*, 317-338.

Gronn, P. (2002). Distributed leadership as a unit of analysis. *Leadership Quarterly, 13*, 423-451.

Hargreaves, A., & Shirley, D. (2009). *The fourth way: The inspiring future for educational change*. San Francisco: Corwin Press.

Harris, A. & Spillane, J. (2008). Distributed leadership through the looking glass. *British Educational Leadership, Management & Administration Society, 122*(1), 31-34. http://dx.doi.org/10.1177/0892020607085623

Harris, A. (2004). Distributed leadership and school improvement. *Educational Management, 32*(1), 11-24.

Harris, A. (2008). Distributed leadership: According to the evidence. *Journal of Educational Administration, 46*(2), 172-188.

Hartwig, E. A. (2021). Ecology-based curriculum design for transformative times: An integrated, context-responsive approach. In R. Iyengar & C.T. Kwauk (Eds.) *Curriculum and Learning for Climate Action* (pp. 206-218). Brill.

Hatcher, R. G. (2005). The distribution of leadership and power in schools. *British Journal of Sociology of Education, 26*, 253 - 267.

Hebe, H. (2019). Locating the position of environmental education in the South African school curriculum: The case of Grade R. *EURASIA Journal of Mathematics, Science and Technology Education, 15*(9), em1750. https://doi.org/10.29333/ejmste/108486

Holloway, J., Nielsen, A. W., & Saltmarsh, S. (2018). Prescribed distributed leadership in the era of accountability. *Educational Management Administration & Leadership, 46*, 538 - 555.

Hyett, N., Kenny, A., & Dickson-Swift, V. (2014). Methodology or method? A critical review of qualitative case study reports. *International journal of qualitative studies on health and well-being*, *9*, 23606. https://doi.org/10.3402/qhw.v9.23606

Jamshed, S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy, 5*(4), 87–88. https://doi.org/10.4103/0976-0105.141942

Jita, L. C., & Mokhele, M. L. (2013). The role of lead teachers in instructional leadership: A case study of environmental learning in South Africa. *Education as Change, 17*(1), 123–135. https://doi.org/10.1080/16823206.2014.865998

Khoza, S. B. (2016). Is teaching without understanding curriculum visions and goals a high risk? *South African Journal of Higher Education, 30*(5), 104–119. https://doi.org/10.20853/30-5-595

Kim, K. N. (2019). Teachers' administrative workload crowding out instructional activities. *Asia Pacific Journal of Education, 39*(1), 1–19. https://doi.org/10.1080/02188791.2019.1572592

Kirkpatrick, R., & Zang, Y. (2011). The negative influences of exam-oriented education on Chinese high school students: Backwash from classroom to child. *Language Testing in Asia, 1*(3), 36–45. Retrieved from https://doi.org/10.1186/2229-0443-1-3-36

Lee, S. K., & Kim, N. (2017). Environmental education in schools of Korea: Context, development, and challenges. *Japanese Journal of Environmental Education, 26*(4), 7–14.

Leithwood, K., & Jantzi, D. (2000). The effects of transformational leadership on organizational conditions and student engagement with school. *Journal of Educational Administration, 38*(2), 112–129. https://doi.org/10.1108/09578230010320064

Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement, 17*(2), 201–227. https://doi.org/10.1080/09243450600565829

Leithwood, K., Mascall, B., & Strauss, T. (2009). *Distributed leadership according to the evidence*. London, Routledge. http://doi.org/10.4324/9780203868539

Lotz-Sisitka, H. (2009). Epistemological access as an open question in education. *Journal of Education, 46*, 57–80.

Lotz-Sisitka, H. (2011). Teacher professional development with an education for sustainable development focus in South Africa: Development of a network, curriculum framework, and resources for teacher education. *Southern African Journal of Environmental Education, 28*, 31–57. https://doi.org/10.4314/sajee.v28i0.64253

Lotz-Sisitka, H. (2013). Conceptions of quality and 'learning as connection': Teaching for relevance. *Southern African Journal of Environmental Education, 29*, 26–38. https://www.researchgate.net/publication/315843121

Lotz-Sisitka, H. (2012). *Teacher professional development with an education for sustainable development focus in South Africa: Development of a network, curriculum framework and resources for teacher education.* Association for the Development of Education in Africa (ADEA). African Development Bank (AfDB), Tunis.

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Teaching and Learning in Higher Education, 8*(3), 3351–3364. http://ojs.aishe.org/index.php/aishe-j/article/view/335

Marques, R., & Xavier, C. R. (2020). The challenges and difficulties of teachers in the insertion and practice of environmental education in the school curriculum. *International Journal on Social and Education Sciences, 2*(1), 49–56. https://doi.org/10.46328/ijonses.v2i1.45

Masekoameng, M.C., & Zengele, T. (2015). Distributed leadership in schools. *International Journal of Educational Sciences, 10*, 359 - 369.

Mills, K., Weisgrau, J., Burke, Q., Lee, K., Solorzano, T., & Coenraad, M. (2024). Shifting education with learning pathways: Becoming your portrait of a graduate. *Digital Promise*. https://doi.org/10.51388/20.500.12265/205

Miškolci, J., Armstrong, D., & Spandagou, I. (2016). Teachers' perceptions of the relationship between inclusive education and distributed leadership in two primary schools in Slovakia and New South Wales (Australia). *Journal of Teacher Education for Sustainability, 18*(2), 53-65. https://doi.org/10.1515/jtes-2016-0014

Montecinos, C., Cortez, M., Zoro, B., & Zett, I. (2024). Senior leaders' theories of action for managing subject departments as a school improvement strategy. *Educational Management Administration & Leadership, 52*(3), 520-540. https://doi.org/10.1177/17411432221089200

Monyooe, L., Tjatji, M., & Mosese, E. (2013). South Africa's increased matriculation passes: What skunks behind the rose? *Journal of Education and Training Studies, 2*(1). https://doi.org/10.11114/jets.v2i1.278

Mpisane, B. B. (2015). *The role of high school heads of department as leaders of learning* (Master's dissertation). University of KwaZulu-Natal, Edgewood Campus, South Africa.

Mpofu, J., & Sefotho, M. M. (2024). The relationship between the philosophy of ubuntu and the principles of inclusive education. *Perspectives in Education, 42*(2), 128–144. https://doi.org/10.38140/pie.v42i2.7338

Mthiyane, N., Naidoo, J., & Bertram, C. (2019). Context matters: Heads of Department's leadership practices in monitoring and supporting teachers in schools participating in Jika iMfundo. *Journal of Education, 75*, 57–76. https://doi.org/10.17159/2520-9868/i75a05

Munasi, K. R., & Madikizela-Madiya, N. (2021). Agency curtailed: Implications for the integration of environmental education in life sciences. *International Journal of Educational Development in Africa, 5*(1), 1-15. https://doi.org/10.25159/2312-3540/9685

Munje, N. P., Tsakeni, M., & Jita, L. C. (2020). School heads of departments' roles in advancing science and mathematics through the distributed leadership framework.

International Journal of Learning, Teaching and Educational Research, 19(9), 39–57. https://doi.org/10.26803/ijlter.19.9.3

Nkambwe, M., & Essilfie, V. N. (2012). Misalignment between policy and practice: Introducing environmental education in school curricula in Botswana. *Educational Research and Reviews, 7*(1), 19–26.

O'Donovan, M. (2015). The challenges of distributing leadership in Irish post-primary schools. *International Electronic Journal of Elementary Education, 8*(2), 243–266.

Payne, P. (2006). The technics of environmental education. *Environmental Education Research, 12*, 487– 502.

Pentang, J. T. (2022). A fighter for life: Growing professionally amid challenges. In A.D. Magnaye, J.A. Sario, & D.A. Soguilon (Eds.), *Fighters for life: building self-confidence and self-motivation* (pp. 1-7). EDUHEART Book Publishing.

Peden, M. (2006). Review of environmental education: Some South African perspectives. *Journal of Education, 40*, 170–174.

Pervin, N., & Mokhtar, M. (2022). The interpretivist research paradigm: A subjective notion of a social context. *International Journal of Academic Research in Progressive Education and Development, 11*(2), 419–428.

Priya, A. (2021). Case study methodology of qualitative research: Key attributes and navigating the conundrums in its application. *Sociological Bulletin, 70*(1), 94 -110. https://doi.org/10.1177/0038022920970318

Reis, G., & Guimaraes-Iosif, R. (2012). The death and life of a school-based environmental education and communication program in Brazil: Rethinking educational leadership and ecological learning. *Applied Environmental Education & Communication, 11*, 123 - 132.

Ross, L., Lutfi, G. A., & Hope, W. (2016). Distributed leadership and teachers' affective commitment. *NASSP Bulletin, 100*(3), 159–169. https://doi.org/10.1177/0192636516681842

Ruslin, R., Mashuri, S., Abdul Rasak, M. S., Alhabsyi, F., & Syam, H. (2022). Semi-structured interview: A methodological reflection on the development of a qualitative research instrument in educational studies. *IOSR Journal of Research & Method in Education, 12*(1), 22–29. https://doi.org/10.9790/7388-1201052229

Sasere, O. B., & Makhasane, S. D. (2023). Exploring distributed leadership practice in Nigerian secondary schools. *Journal of Educational and Social Research, 13*(2), 90-92. https://doi.org/10.36941/jesr-2023-0034

Savolainen, T. (2014). Trust-building in e-leadership: A case study of leaders' challenges and skills in technology-mediated interaction. *Journal of Global Business Issues, 8*(2), 45 - 56.

Scribner, J. P., Sawyer, R., Watson, S. T., & Myers, V. (2007). Teacher teams and distributed leadership: A study of group discourse and collaboration. *Educational Administration Quarterly, 43*, 100 - 67.

Shabalala, N. P. (2023). Exploring strategies for environmental education interventions through distributed leadership in secondary schools in South Africa. *International Journal of Educational Studies and Policy, 4*(1), 15–27. https://doi.org/10.5281/zenodo.7656786

Shabalala, N. P. (2024). Distributed leadership as a potential strategy for the management of environmental education curriculum in secondary schools. *Pedagogical Perspective, 3*(2), 255-272. https://doi.org/10.29329/pedper.2024.62

Shabalala, N. P., & Gumbo, M. T. (2024). Africanising distributed leadership in environmental education curriculum management. *Southern African Journal of Environmental Education, 39*, 1-24. https://doi.org/10.4314/sajee.v39.11

Shabalala, N. P., Hebe, H., & Mnguni, L. (2023). Characterization of curriculum leadership by South African school leaders and teachers in environmental education. *Problems of Education in the 21st Century, 81*(3), 401–415. https://doi.org/10.33225/pec/23.81.401

Shabalala, N. P., Hebe, H., & Mnguni, L. (2023). Distributed leadership: A potential agency for traversing power relations as impediments to curriculum transformation and implementation of environmental education. *Jurnal Penelitian dan Pembelajaran IPA, 9*(1), 29–57. https://doi.org/10.30870/jppi.v9i1.19500

Shaeffer, S. (1994). Participation for educational change: A synthesis of experience. *International Institute for Educational Planning (IIEP)*. Paris: UNESCO.

Shava, G. N., & Tlou, F. N. (2018). Distributed leadership in education: Contemporary issues in educational leadership. *African Educational Research Journal, 6*(4), 279–287. https://doi.org/10.30918/AERJ.64.18.097

Sibanda, L. (2018). Distributed leadership in three diverse public schools: Perceptions of deputy principals in Johannesburg. *Issues in Educational Research, 28*, 781-796.

Smylie, M. A., Mayrowetz, D., Murphy, J., & Louis, K. S. (2007). Trust and the development of distributed leadership. *Journal of School Leadership, 17*(4), 469-503.

Spence, E., Wright, T., & Castleden, H. (2013). Present, absent, or tardy? A study of the barriers, bridges, and beliefs concerning environmental education among a cohort of sixth grade teachers in Nova Scotia. *Applied Environmental Education & Communication, 12*, 197 - 206.

Spillane, J. P. (2005). Distributed Leadership. *The Educational Forum, 69*, 143-150.

Spillane, J. P. (2006). *Distributed Leadership*. San Francisco: Jossey-Bass.

Stanišić, J., & Maksić, S. (2014). Environmental education in Serbian primary schools: Challenges and changes in curriculum, pedagogy, and teacher training. *The Journal of Environmental Education, 45*, 118 - 131.

Stevenson, R. B. (1997). Developing habits of environmental thoughtfulness through the in-depth study of select environmental issues. *Canadian Journal of Environmental Education, 2*, 183–202.

Stevenson, R. B. (2007). Schooling and environmental education: Contradictions in purpose and practice. *Environmental Education Research, 13*(2), 139–153. https://doi.org/10.1080/13504620701295726

Stuart, C. D. D. (2012). *Succeeding through uncertainty: Three L2 students in a first-year composition class* (Doctoral dissertation). University of Washington Digital Repository.

Suralin, S. (2023). Integrating environmental education to form environmental care characters in schools. *Advances in Community Services Research, 1*(2), 44–53. https://doi.org/10.60079/acsr.v1i2.335.

Szczesiul, S., & Huizenga, J. (2014). The burden of leadership: Exploring the principal's role in teacher collaboration. *Improving Schools, 17*(2), 176–191. https://doi.org/10.1177/1365480214534545.

Tan, M. K., & Pedretti, E. (2010). Negotiating the complexities of environmental education: A study of Ontario teachers. *Canadian Journal of Science, Mathematics and Technology Education, 10*, 61 - 78.

Tapala, T. T., Fuller, M., & Mentz, K. (2021). Perceptions of departmental heads on their curriculum leadership roles: Voices from South Africa. *Leadership and Policy in Schools, 21*(3), 1–14. https://doi.org/10.1080/15700763.2020.1854790.

Tejeiro, F. (2024). Distributed leadership and inclusive schools. *International Journal of Educational Leadership and Management, 12*(1), 36–56. https://doi.org/10.17583/ijelm.10997

Tschannen-Moran, M. (2009). Fostering teacher professionalism in schools: The role of leadership orientation and trust. *Educational Administration Quarterly, 45*(2), 217–247. https://doi.org/10.1177/0013161X08330501

Vohra, V. (2014). Using the multiple case study design to decipher contextual leadership behaviours in Indian organizations. *The Electronic Journal of Business Research Methods, 12*(1), 54–65.

Williams, C. G. (2011). Distributed leadership in South African schools: Possibilities and constraints. *South African Journal of Education, 31*(2), 190-200.