

Integrating Environmental Ethics in Teaching and Learning Through the Use of Ubuntu Principles: Review of Literature

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ABSTRACT

Conversations about integrating environmental ethics into the school curriculum have recently gained attention. Scholars and stakeholders have advocated for the inclusion of ecological ethics to foster an understanding of moral values and cultivate a sustainable relationship between humans and the environment. This need has become particularly urgent in light of the global environmental crisis affecting countries like South Africa. The purpose of this paper is to review articles published between 2011 and 2023 that examine the extent to which ecological ethics education, incorporating Ubuntu values, has been integrated into the curriculum. The majority of the 27 articles selected for this study are from Scopus-indexed journals and adhere to the PRISMA model. A qualitative research design was employed. Findings from the study indicate that teachers struggle to integrate environmental ethics, rooted in Ubuntu values, into their teaching due to a lack of appropriate knowledge areas that cultivate empathy in textbooks. Integrating Ubuntu values with environmental ethics has the potential to foster a positive relationship between humans and the environment. The study concludes that certain strategies, such as virtual reality experiences, can enhance students' understanding of Ubuntu and the ethical dimensions of humanness and communalism. Additionally, the study suggests that using Ubuntu philosophy to integrate environmental ethics into the classroom may contribute to the decolonization of education in Africa.

KEYWORDS

Ubuntu values; environmental ethics; integration; environmental awareness; teaching and learning.

INTRODUCTION

Issues surrounding the integration of environmental ethics education into the school curriculum have recently generated discussions among researchers. This debate cuts across different disciplines and has followed the advent of the 4th Industrial Revolution (4IR) (Mlangeni & Seyama-Mokhaneli, 2024; Olawumi & Mavuso, 2023; Terblanché-Greeff, 2019). To create a sustainable relationship between humans and the environment, it is expedient to develop ethical awareness and responsibilities. Traditional environmental ethics often draw upon Western philosophical frameworks. However, exploring alternative philosophical paradigms that offer unique insights into our relationship with nature is imperative in a world characterized by diverse cultures and perspectives.

Ubuntu values are entrenched in communalism, an African philosophy emphasizing humanity, communal identity, interconnectedness, tolerance, and respect, among others. These values are essential ingredients that teachers can use while integrating environmental ethics education into their teaching. Ubuntu emphasizes the relationship between the well-being of individuals, the community, and the environment (Boboyi, 2024; Maphalala, 2017; Nkambule, 2023). Using Ubuntu's philosophy in integrating environmental ethics education into teaching and learning in the classroom will provide a transformative strategy for environmental ethics education (Mthimkhulu, 2024). The Ubuntu philosophy, which emphasizes humanity, communal identity, interconnectedness, tolerance, and respect, can assist learners in developing a sense of environmental consciousness and ethical responsibilities in their environment. This strategy can assist in creating a framework that practitioners can adopt to promote a holistic understanding of the environment and help learners create empathy towards their immediate environment.

This paper examines the literature to determine the extent to which environmental ethics education can be integrated using Ubuntu values. The paper explores how educators can leverage Ubuntu principles to foster a strong sense of environmental solidarity and stewardship. By incorporating principles such as humanity, communal identity, interconnectedness, tolerance, and respect, this paper aims to enhance educational experiences and empower learners to be proactive members of their community, environment, and the world as a whole. Additionally, by advocating for the integration of Ubuntu philosophy in teaching and learning environmental ethics education, this paper seeks to promote environmental literacy and a deeper understanding of the interconnectedness and interrelatedness of all forms of life, with the goal of preserving the integrity of the environment for both present and future generations.

Background

The impact of climate change on humanity, particularly in Africa, is significant. Africans and developing countries are greatly affected by climate change, with the effects being more pronounced due to increased problems such as drought, deforestation, food insecurity, and water shortage. It is crucial to respond urgently to save Africa from imminent disaster (Ofori et al., 2021). While climate change is a global issue, the West can address it by adopting

technologies like Genetically Modified system frameworks to increase food production. However, Africa and other developing countries lack this initiative, highlighting the urgent need to adopt cultural values of communalism when making decisions regarding the development of frameworks to integrate climate change into teaching and learning for pre-service teachers (Ofori et al., 2021; Terblanché-Greeff, 2019; Yamaphat, 2021). The Intergovernmental Panel on Climate Change (IPCC, 2012) supports this assertion and advocates for the integration of environmental education into school curriculums at all levels to tackle climate change. According to the IPCC, African indigenous people have a communal way of adapting and mitigating environmental issues through collective efforts.

In addition, Bishop (2017) argues that harmful human actions in the environment are the root cause of climate change and lead to severe damage. The author suggests that Ubuntu values, which represent humanness, can address the ongoing debate on climate change threatening humanity. These values can inform the formulation of environmental policies from an environmental ethics perspective and serve as a framework to address environmental problems in southern Africa and Africa (Kelbessa, 2014, 2015; Le Grange, 2015). Ubuntu values can provide an alternative paradigm to sustainable education, which primarily focuses on economic development. Stakeholders can also incorporate Ubuntu's essential values when developing climate change adaptation and mitigation frameworks.

Researchers have emphasized the importance of Ubuntu as a tool to address climate change and environmental issues (Saurombe & Shava, 2021). This suggests that addressing climate change in Africa can be context-specific, and the communal strategy of Ubuntu philosophy can be effectively utilized to integrate environmental ethics in teaching and learning. However, a framework promoting the teaching of ethics in schools needs to be developed to enable teachers to effectively teach environmental ethics education, particularly in South Africa (Le Grange, 2015). Teaching environmental ethics education will equip students with the necessary skills to engage with their environment and foster positive ethical behavior towards all stakeholders.

Ubuntu values, rooted in communalism, an African philosophy emphasizing humanity, compassion, respect, collectivity, and tolerance, are essential resources for teachers to integrate environmental ethics education into their teaching practices. Therefore, this paper reviews the literature to determine the extent to which Ubuntu values can be incorporated into the integration of environmental ethics education in teaching and learning. The study aims to answer the following questions: What is the relevance of Ubuntu principles in the integration of environmental ethics in teaching and learning? What is the perspective of teachers on the level of integration of environmental ethics in teaching?

THEORETICAL FRAMEWORK

This study adopted the Ubuntu theory and the ecological citizenship theory as lenses. The Ubuntu theory, as a framework for this study, is unique because its core values focus on people's

allegiance and relation to one another, as well as its humanistic and communal nature (Forster, 2007; Swanson, 2010). These two critical values of Ubuntu offer an understanding of ourselves and how we relate to each other because human beings cannot exist in isolation, and its communal nature. The Ubuntu theory emphasizes interconnectedness, communal well-being, and mutual responsibilities, and it sees human beings as being linked to one another and their immediate environment (Du Toit-Brits et al., 2012). The relevance of this theory is its underlying values of humanness and community that provide a foundation for understanding humanity's relationship with the environment. This theory also provides a framework for integrating environmental ethics into teaching and learning in the classroom.

The ecological citizenship theory was popularized by Dabson (2003) in its work titled 'Citizenship and the Environment.' It suggests a theory of change, a motivating force for sustainable development. It provides an understanding of the role of citizens within the environment and confers three primary responsibilities on individuals: active participation, ecological literacy, and collective action toward finding solutions to environmental problems (Dabson, 2003; Wolf et al., 2009). This theory is relevant to the study because it helps integrate environmental ethics education by promoting interconnectedness, empathy, and collectiveness, creating a responsible ecological citizen with a sustainable moral lifestyle and living standard. Another usefulness of this theory to the study is that it helps develop students capable of taking collective responsibility for environmental stewardship.

LITERATURE REVIEW

Ubuntu Principles in Education

The principle of Ubuntu is entrenched in African cultural practices, which have existed with the indigenous people since inception (Ukpokodu, 2016). Properly harnessing principles like humanness, care, kindness, cooperation, respect, compassion, and so on can help shape the education system and promote student cooperation and communal living (Ngubane & Makua, 2021). However, important as these principles are, it is pertinent to note, as reported by Ngubane & Makua (2021), Sartorius (2022), and Moyo & Moyo (2021), that African institutions continue to function in a Western and Eurocentric manner, thereby neglecting the principles of Ubuntu. The rejection of Ubuntu, an African philosophy, as inferior and full of illegitimate assumptions and beliefs has been responsible for its non-inclusion in the education system across the African continent, specifically in South Africa (Maphalala, 2017). This negative assumption may have influenced the beliefs of educational planners, executors, and students about the importance of Ubuntu in shaping the African educational system.

However, the story is the same in South Africa, as noted by Ngubane and Makua (2021), where students at all levels of education have grown up with wrong information and perceptions about their cultural heritage. Indeed, the embrace of Western civilization may have contributed to the non-inclusion of the values and principles of Ubuntu in the school curriculum at all levels of education (Le Grange, 2011). This unpleasant situation must be addressed to save

African culture from extinction and the dominance of Eurocentric Western civilization. Education stakeholders must wake up to their responsibilities and ensure the integration of traditional African systems like Ubuntu, which have shaped the way of life of indigenous African people from the beginning, into the school curriculum (Mthimkhulu, 2024; Nxumalo & Mncube, 2018). Transformation and decolonization of education can only be achieved by promoting indigenous practices like Ubuntu in our education system (Letseka, 2013; Omodan & Diko, 2021).

The common principle guiding Ubuntu's philosophy is rooted in communalism. Unlike the Eurocentric Western system, the African Ubuntu principle connotes interdependence and interconnectedness among African indigenous people in their communities (Mutwarasibo & Iken, 2019). The uniqueness of this principle can be seen in its emphasis on the entire group and encourages members to see acts of individualism as unacceptable and undesirable. Among the principles of Ubuntu philosophy is the promotion of coexistence as entrenched in the Constitution of the Republic of South Africa (Ngubane & Makua, 2021). This principle is essential because of the need to respect one another and coexist within the community because human beings cannot exist in isolation. Another principle of Ubuntu philosophy, as identified by Ngubane and Makua (2021), is the principle of compassion, which is rooted in the ability to show love and care for one another. The ability to show kindness, share, and demonstrate sympathy for one another are essential values in African cultures. The authors further argue that Ubuntu philosophy that shows respect and dignity are essential values that shape African cultures because they play a vital role in peacebuilding, an essential ingredient for the peaceful coexistence of the people.

Moreover, utilizing these principles by teachers will enhance their pedagogical practices in that it will assist them in promoting good governance and democratic living among learners (Ukpokodu, 2016). The Ubuntu values see learners as one irrespective of their socioeconomic background, racial, educational attainment, and linguistic background as human. Ubuntu teachers see this humanistic nature as crucial, and they see learners as capable of performing well in their studies because of their humanistic nature. Also, Ubuntu teachers can build on learners' prior knowledge to build and develop new knowledge. The contribution of learners to the lesson is essential to create meaningful learning, thereby creating an equal partnership between the teacher and the learners in the classrooms (Ngubane & Makua, 2021).

Environmental education and ethics

Scholars and authors have conceptualized environmental education in various ways. They argue that students and teachers face large-scale problems related to or stemming from the environment, such as human rights, intercultural communication, socio-economic realities, and health (Bulut & Arikan, 2015, p. 13). According to Li (2018), Liu et al. (2019), Monroe et al. (2019), and other scholars, environmental education is a process aimed at clarifying concepts and developing cognitive value to help people acquire the necessary skills and attitudes for a mutually beneficial relationship between humanity, culture, and nature. While efforts to raise

awareness of the interaction between humans and the environment have increased, there is still room for improvement in environmental ethics education (Bonnett, 2019). This work aims to address these gaps and shortcomings in the scholarly literature. Moral judgments play a crucial role in our understanding of the natural world through the lenses of humanities and social sciences, making environmental ethics a more appropriate approach to addressing environmental challenges (Surmeli & Saka, 2013).

Research suggests that individuals should perceive themselves as equal environmental stakeholders. Therefore, education and enlightenment should place greater emphasis on the interaction between humans and the environment (Surmeli & Saka, 2013). Kronlid and Öhman (2013) argue that we should encourage children's curiosity in learning about ethical ideals and their relationship to the environment. The goal of environmental education is to instill environmental ethics values, along with the standards that oppose them. Ecological education refers to the pedagogical activity and interaction between teachers and students that ultimately develops individuals' ecological culture, acceptance of ecological ideals, and increased environmental consciousness. Ecological education incorporates a set of values and guidelines known as eco-ethics, or environmental ethics (Gola, 2017). Researchers emphasize that environmental education should prioritize environmental ethics to promote ecologically conscious behavior (Junges, 2016; Surmeli & Saka, 2013). By considering the natural world as our shared home, we can shift our perspectives and act ethically. Connecting scientific knowledge with ethical understanding is essential, and the ethical implications of environmental education should be emphasized (Junges, 2016). Furthermore, adults believe that these moral principles should be taught in schools, as in education for sustainable development, even if the ideals themselves are ambiguous and subject to debate (Gola, 2017).

Stressing people's obligation to other organisms in ecosystems is a fundamental principle of environmental ethics. To achieve sustainable development, it is crucial for people to recognize the critical importance of environmental ethics and the need to coexist harmoniously with their surroundings (Gola, 2017). Environmental crises such as drought, flooding, landslides, wildfires, and climate change are occurring globally and are reported on a daily basis. South Africa has experienced large-scale flooding in certain areas of Durban and a severe water shortage in the Eastern Cape. These tragedies, along with others, serve as reminders that society must reflect on our ethical responsibilities and reignite our commitment to ecology. It is also important to raise awareness among younger generations about the significance of protecting the environment for sustainable development. Education in environmental ethics is valuable in increasing awareness of sustainable development and providing the knowledge and skills required to address various environmental issues. Moreover, it can enhance people's cognitive, affective, and skill-based behavior, fostering positive attitudes towards their surroundings and equipping them to solve environmental challenges.

Environmental ethics serves as a moral compass for directing human behavior towards the environment (Heruyono et al., 2021; Washington & Maloney, 2020). Anthropocentric ethics

places humans at the center of its framework. In contrast, biocentrism ideology recognizes that nature can be exploited when it is seen merely as a means to fulfill human needs and lacks monetary value. According to biocentrism, the worth of nature takes precedence over human concerns. The intrinsic value of every living organism should be acknowledged and respected. Heruyono et al. (2021) assert that biocentrism is based on the belief that humans are not superior to other animals, that humans are part of the Earth's interconnected community of life, and that all organisms are centers of life with their own objectives.

Ubuntu philosophy and the integration of environmental ethics education in teaching and learning: teacher's perspective

African governments and educational institutions can enhance environmental sustainability and human well-being, despite their increasing disregard for African environmental ethics (Zagonari, 2020). However, it is not a cure-all for all environmental issues today, as it has its limitations and room for improvement. Environmental issues require international collaboration and diverse approaches. According to Filho et al. (2015), African and other interested scholars should study environmental ethics in Africa to identify the positive traits that enable humanity to preserve the environment, its people, and create a sustainable ecosystem. As a result, educators may have opportunities to teach environmental ethics to senior high school students. However, sociocultural, political, or religious concerns may hinder the durability and effectiveness of such a program.

Additionally, many perceptions and practices of environmental ethics education require proof and experimentation, and stigmatization can take various forms. These significant challenges should be anticipated (Opoku & James, 2020). According to Morthy & Akwen (2020), incorporating value-based education into environmental education instruction can help solve environmental issues. Value-based education involves deliberate approaches that impart values to students and guide their interactions with the outside world. However, value-based education has been marginalized due to inadequate professional development for teachers. In geography class, students can learn and integrate the ideals of sharing, respecting everyone's rights, and taking responsibility for the environment (Morthy & Akwen, 2020). Encouraging students to apply these skills in the classroom will enhance their ability to reason and integrate them into everyday interactions with the outside world. By incorporating value-based education into their teaching, educators can further develop and improve students' views on environmental ethics education. It is also important to remember that value-based education can help students effectively discuss how to solve environmental problems by promoting appropriate human behavior and attitudes toward the environment (Morthy & Akwen, 2020).

Teachers who use pedagogies that help students form their own opinions and attitudes about environmental ethics will benefit their students (Preston, 2011). This statement emphasizes the importance of employing appropriate strategies to enhance the teaching of environmental ethics in classrooms. According to Kronid and Ohman (2012), these strategies should focus on ethical concepts such as care, sympathy, compassion, gratitude, and friendship,

which can assist teachers in effectively teaching environmental ethics in the classroom. This viewpoint aligns with that of Mavuso et al. (2022) and Poonawala (2018), who highlight the value of professional teacher development programs as a strategy for addressing South Africa's environmental issues. The authors argue that using effective teaching techniques in the classroom will improve how Natural Sciences teachers teach the ethical component of environmental education.

METHODOLOGY

Design

This study adopted the qualitative research design approach (Creswell, 2009; Lewis, 2015; Maxwell, 2022). Twenty-seven (27) articles published between 2011 and 2023 were analyzed. Most of the articles selected for analysis in this study were indexed in Scopus and published in international journals. The researchers considered selecting the majority of the articles from Scopus-indexed journals because they are of high quality.

Participants/Samples.

A total of 27 articles were selected for review by the researchers. Out of these 27 articles, 16 were indexed in Scopus, representing 59% of the articles selected for review. This indicates that most articles were published in highly-rated, peer-reviewed international journals. The remaining 11 articles are indexed by different institutions, constituting 41%. The 16 Scopus-indexed journals consist of four Quartiles Rank: Q1, Q2, Q3, and Q4. Q1 consists of nine articles (33%), Q2 consists of four articles (15%), Q3 consists of one article (4%), and Q4 consists of two articles (7%). Other institutions such as Google Scholar, EBSCO, Research Gate, SSCI, DOAJ, and ERIC index the remaining articles. The results of the articles selected for review can be seen in Table 1.

Criteria for Inclusion and Exclusion

The selection of articles for this review paper was based on certain criteria. Articles for this review were selected from the EBSCO, Scopus, and ERIC databases. The authors chose articles that were relevant to the paper's title, such as Environmental Ethics Education, Ubuntu Philosophy in Education, and Environmental Education, and thoroughly reviewed them. This process, although time-consuming, allowed the researchers to identify relevant articles for the study. Additionally, only peer-reviewed articles published between 2011 and 2023 were selected for review. However, conference proceedings, books, book chapters, and other contributions were not included in the selection, as the authors focused exclusively on peer-reviewed articles. The initial article selection yielded 244 articles, but after a careful review based on specific criteria, including removing duplicates, the number was reduced to twenty-seven, as shown in the PRISMA flow diagram.

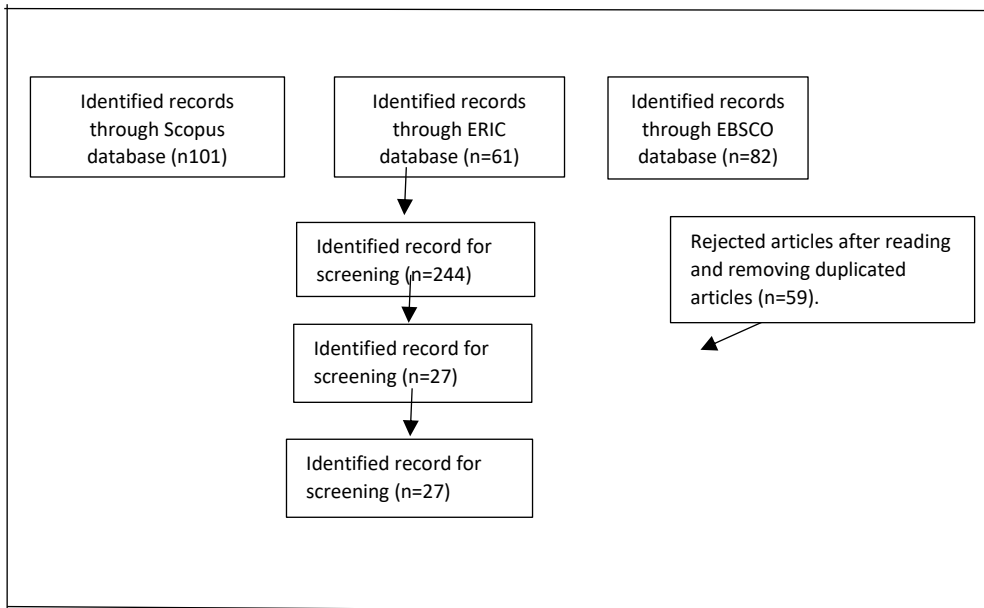
Data Analysis

Data collected for this study were analyzed descriptively. The researchers' initial search results resulted in the selection of 244 articles. The articles were screened by reading the abstract and

other criteria, such as the relevance of the articles to Ubuntu and environmental ethics education. Some rejected articles were relevant to Ubuntu and environmental education but were published before 2011. These articles are also from conference proceedings from non-reputable journals. Only 27 articles deemed suitable for analysis and published in reputable international journals were selected for the study.

Figure 1.

PRISMA Flow chart



FINDINGS/RESULTS

Findings from the study are analyzed under different themes identified by the researchers. These themes include the relevance of environmental ethics in teaching and learning, Ubuntu philosophy and integration of environmental ethics education in teaching and learning, level of integration of environmental ethics education, and awareness of teachers on environmental ethics education. These themes are analyzed in Tables 2, 3, 4, and 5 (see appendixes).

Table 2 shows the importance of ethics in addressing environmental problems. Integrating environmental ethics education into the school curriculum has been hampered by the non-inclusion of appropriate knowledge that creates empathy in the textbooks. Studies also indicate that internalizing ethics as a moral foundation makes humans create awareness and interact ethically with their environment. Additionally, studies have shown that integrating environmental ethics into teaching and learning will help address environmental problems. The distribution of study based on Ubuntu philosophy and integration of environmental ethics can be seen in Table 3.

Based on the analysis in Table 3, the research identified obstacles to integrating Ubuntu into teaching and learning. It recommended that teachers receive continuous professional development. Impediments such as colonial history, societal changes in Africa, and a lack of educational resources affect the integration of Ubuntu in education. However, the study also

found that Ubuntu's philosophy can contribute to decolonizing and improving the education system in Africa. Other studies have examined the effectiveness of Ubuntu values in teaching environmental ethics. Table 4 presents the distribution of the table based on the level of integration of environmental ethics.

Based on the analysis in Table 4, findings show that to support educators in teaching environmental ethics in the classroom, a technique akin to Ubuntu's ideals of compassion, empathy, thankfulness, and camaraderie is required. According to the findings, these strategies can help enhance positive relationships with the environment, create a long-term transformation route to sustainability, expose students to ethical behavior towards their environment, and create a sustainable environment. The distribution of studies on teacher awareness of environmental ethics education can be seen in Table 5.

Based on the analysis in Table 5, the findings reveal a low level of teachers' awareness of environmental ethics. While some studies show some level of teacher awareness, several studies advocate using virtual reality experience learning strategies to enhance, deepen, and promote students' interest in learning environmental ethics in order to improve their awareness level. Studies also indicate different factors such as grade, school location, gender, and school subjects as indicators for increased awareness of students on environmental ethics.

DISCUSSION OF FINDINGS

This study intends to conduct a systematic review on using Ubuntu principles in integrating environmental ethics in teaching and learning to address the environmental problems affecting Africa, South Africa inclusive. The African Ubuntu principle connotes interdependence and interconnectedness among African indigenous people in their communities (Mutwarasibo & Iken, 2019). The uniqueness of this principle can be seen in its emphasis on the entire group and encourages members to see acts of individualism as inappropriate and undesirable. Among the principles of Ubuntu philosophy is the promotion of coexistence, as entrenched in the Constitution of the Republic of South Africa (Ngubane & Makua, 2021). Environmental ethics regulate human behavior toward the environment as moral wisdom (Heruyono et al., 2021; Washington & Maloney, 2020). According to Filho et al. (2015), African and other interested scholars should study environmental ethics in Africa to identify the positive traits enabling humanity to preserve the environment and its people and create a sustainable ecosystem. This finding is in tandem with the Ubuntu theory, the lens adopted for this study. According to the theory, Ubuntu theory offers an understanding of self and how we relate since human beings cannot exist in isolation in a community (Du Toit-Brits et al., 2012). Ubuntu theory emphasizes interconnectedness, communal well-being, and mutual responsibilities and sees human beings linked to one another and their immediate environment.

Findings from Table 2 indicate that knowledge of environmental ethics will help students create awareness about their environment. Studies have shown that the inclusion of environmental ethics in the curriculum has been hampered by the non-inclusion of appropriate

knowledge areas that show empathy in textbooks. This position was corroborated by Alabas (2019), who stated that teachers' inability to incorporate environmental ethics into their instruction was due to a lack of knowledge about environmental ethics education. While environmental education is included in curricula and textbooks, Alabas (2019) pointed out that knowledge areas that foster empathy in students must also be sufficiently included. This statement suggests that understanding environmental ethics education is necessary for addressing environmental issues in South Africa and globally. The findings also revealed that impediments such as colonial history, changes in African society, and a lack of educational resources have hindered the integration of Ubuntu values in teaching and learning. Continuous professional development of teachers has been advocated to address knowledge gaps and ensure the complete integration of Ubuntu into teaching environmental ethics in the classroom. Integrating Ubuntu values into teaching and learning can contribute to the decolonization of education in Africa, particularly in South Africa.

Based on the analysis in Table 3, the findings indicated several impediments to integrating Ubuntu in teaching and learning and recommended continuous professional development for teachers. Colonial history, changes in African society, and a lack of educational resources impede the integration of Ubuntu into the teaching and learning of environmental ethics education. However, the study also shows that Ubuntu's philosophy can assist in decolonizing and developing the education system in Africa. Other studies by Morthy and Akwen (2020) and Ngubane and Makua (2021) have also investigated the effectiveness of Ubuntu values in teaching and learning environmental ethics education. These studies advocate for a value-based education approach to teach environmental ethics and create appropriate awareness. Continuous professional development can assist teachers in integrating environmental ethics and Ubuntu values in the classroom, thereby helping to decolonize the education system in Africa.

Findings from Table 4 indicate that Ubuntu philosophies like sympathy, care, gratitude, and friendship can assist learners in learning environmental ethics, thereby creating positive relationships with the environment. This position aligns with Filho (2015) in that knowledge of environmental ethics and Ubuntu will help identify positive traits that enable humanity to preserve the environment and its people and create a sustainable ecosystem. Table 5 indicates a low level of students' awareness of environmental ethics and advocates for virtual reality experience learning strategies to enhance, deepen, and promote students' interest in learning environmental ethics. The findings also suggest factors like grade, school location, subjects, and gender that can increase students' awareness of environmental ethics. This strategy implies that students advocate for environmental change when they become environmentally friendly due to improved awareness. This position aligns with the ecological citizenship theory popularized by (Dobson, 2003). When the awareness level of students on environmental ethics improves, they become active participants in the environment, ecologically literate, and actively involved in actions toward finding solutions to their environment.

CONCLUSION

The study concludes that teachers and students need to improve their awareness of Ubuntu values and environmental ethics education. This lack of awareness may be responsible for learners' poor attitudes towards the environment. In-service teachers, therefore, are expected to participate in a continuous teacher development program to enhance their skills in teaching environmental ethics in the classroom. The study also suggests that certain strategies, such as virtual reality experiences, can deepen students' understanding of Ubuntu and the environmental ethics of humanness and communalism. Additionally, using Ubuntu's philosophy to integrate environmental ethics in the classroom will aid in the decolonization of education in Africa. Furthermore, the study finds that the inclusion of environmental ethics in the curriculum has been hindered by the absence of appropriate knowledge that promotes empathy in textbooks. Other obstacles, such as colonial history, changes in African society, and a lack of educational resources, have also contributed to the failure to integrate Ubuntu values in teaching and learning.

Suggestion For Further Studies

This study will assist policymakers and other key stakeholders in formulating policies that address environmental issues through the lens of value ethics. However, because this is a review paper, the findings cannot be generalized. This limitation arises because the study only reviews published literature. The authors recommend that future research be based on empirical qualitative or quantitative data for broader generalization.

Conflict Of Interest

We have no known conflict of interest to disclose.

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APPENDIX

Table 1.

List of Journals selected for review.

S/N.	Name of Journal	Total Articles	Year	Index by
1.	Journal of Curriculum and Teaching	1	2021	Scopus Q4
2.	Journal of Humanities and Social Sciences	1	2021	Google Scholar
3.	Social Work Education	1	2023	Scopus Q1
4	Indilinga African Journal of Indigenous Knowledge Systems	1	2018	EBSCO
5.	Studies in philosophy and education	1	2020	Scopus Q1
6.	International Review of Education	1	2016	Scopus Q1

7	Environmental Education Research	1	2013	Scopus Q1
8.	Electronic Library	1	2019	SSCI
9.	Ethics and Education	1	2017	Scopus Q1
10.	Earth and Environmental Science	2	2021	Scopus Q2
11.	Journal of Experiential Education	1	2012	Scopus Q2
12.	Journal of Cleaner Production	1	2016	Scopus Q1
13.	Education Sciences	1	2018	Scopus Q2
14.	International Journal of Educational Methodology	1	2022	Scopus Q4
15.	EURASIA Journal of Mathematics, Science and Technology Education	1	2018	Scopus Q2
16.	Bangladesh Journal of Bioethics	1	2020	
17.	Resources Conservation and Recycling	1	2021	Scopus Q1
18.	Southern African Journal of Environmental Education	1	2022	Mendeley
19.	International Electronic Journal of Environmental Education	3	2017, 2019, 2019	Scopus Q3
20.	American Journal of Humanities and Social Sciences Research.	1	2019	Mendeley
21.	Sustainability	1	2021	Scopus Q1
22.	Science Insights Education Frontiers	1		EBSCO, ERIC.
23.	Asia-Pacific Journal of Teacher Education	1	2011	Scopus Q1
24.	International Journal of Contemporary Educational Research	1	2020	ERIC.
Total		27		

Table 2.

Distribution of the study result based on the relevance of Environmental ethics in teaching and learning.

S/N.	STUDY	RESEARCH APPROACH	SAMPLE/POPULATION	RESULTS
1.	Gola (2017)	Document analysis of textbooks used by science teachers in	Grade 4 teachers.	The significant findings indicate that anthropocentric ethics is dominant in the content of formal environmental education. Findings also indicate less

		the 4 th grade of elementary school.		frequent Biocentric ethics but emphasize holistic ethics and the feature of humans as part of nature.
2.	Heruyono et al (2021)	Document analysis (Qualitative)	Eco-Environment	The research results indicate that the internalization of environmental ethics as a moral foundation has made humans aware of their interactions with the environment.
3.	Liu et al. (2018)	Qualitative	University students in China (Yangtze University, Hubei).	The findings suggest applying proper teaching methods to environmental education for smoother environmental education and effectively cultivating students' environmental ethics and environmental literacy.
4.	Moorthy & Akwen (2020)	Qualitative	Eco-environment and some Literature.	The findings suggest the need to incorporate value-based education in the school curricula, which has been overlooked over time.
5.	Akhtar et al (2021)	Quantitative	7.2 million people in seven selected Towns in Malaysia.	Green attitudes, moral obligation, and environmental ethics influence consumers' buying habits.
6.	Bhurekeni (2022)	Qualitative (Interview)	15 grade 3 students in Zimbabwe.	Children's respect for environmental conservation and sustainability is informed by the significance placed on their Totem. Schools should develop curricula that incorporate serious context-based solutions to environmental problems.

7.	Yalmanci & Gozum (2019)	Quantitative	200 High school students from a science high school and 4 Anatolian schools in Kars.	According to the findings, there is a substantial correlation between ethical and ecological perspectives that influences opinions on environmental, ecofeminist, and theocentric perspectives, but not humanistic perspectives.
8.	Alabas (2019)	Qualitative (Document analysis)	Primary school textbooks for grades 1-6, teacher curriculum including environmental topics.	The findings indicate the integration of environmental education into the Turkish curriculum from the 20 th century. It also suggests incorporating knowledge areas that create students' empathy into the textbooks.
9.	Karakaya & Yilmaz (2017)	Quantitative	One science teacher and one social studies teacher.	The significant findings from the study reveal that social studies teachers criticized the science curriculum for being unable to address all dimensions of social-scientific issues critically.

Table 3.

Ubuntu philosophy and integration of Environmental ethics education in teaching and learning

S/N.	STUDY	RESEARCH APPROACH	SAMPLE/POPULATION	RESULTS
10.	Ngubane & Makua (2021).	Qualitative	Some literature	The findings reveal that Ubuntu's philosophy can reconcile students to their indigenous values, heritage, and culture. Findings also indicate that Ubuntu philosophy can inculcate the Ubuntu values of solidarity, co-

				existence, respect, and cooperation among students.
11.	Mugumbate et al (2023).	Qualitative	Not available	The findings indicate some impediments to the full utilization of Ubuntu, including the colonial history of the profession, changes in African society, and the lack of Ubuntu-inspired educational resources. The findings recommend continuous professional development and the utilization of educational resources created based on Ubuntu principles.
12.	Ngubane & Gumade (2018)	Qualitative	Fifty first-year English second language students.	Ubuntu education through sharing, diligence, respect, dignity, support, caring, and integrity will likely yield better learning outcomes and increase student academic performance.
13.	Waghid (2020)	Qualitative	Some literature	The findings reveal that Ubuntu can be a framework for decolonizing higher education curricula. Ubuntu philosophies can be appropriate for initiating change from Western education to the indigenous system.
14.	Tran and Wall (2019)	Qualitative	Twenty-five vocational education students are in a dual-sector institute, and 50 teachers are in Australia.	The findings suggest three ways Ubuntu can manifest in teaching international students: humanness, interconnectedness, and situatedness.

15.	Mutanga (2022)	Qualitative	Six teachers (focus group discussion)	Teacher education should be premised on Ubuntu philosophy.
16.	Piper (2016)	Qualitative	African students studying in Europe.	The findings show that educational development in the Global South should reflect Ubuntu's philosophy. Donor agencies should consider the expertise and values of countries where the funds and grants are utilized. Local experts are crucial when utilizing grants from Western countries in the Global South.

Table 4

Level of integration of environmental ethics education

S/N	STUDY	RESEARCH APPROACH	SAMPLE/POPULATION	RESULTS
17.	Kronid & Ohman (2013)	Document and Book Analysis	30 Key books and 20 key articles in the field of environmental philosophy	One of the key findings from the study is the need to put in place strategies that can help educators teach environmental education in the classroom.
18.	Goralink et al (2012)	Quantitative (Cross-section observation)	Secondary school students	The findings suggest the integration of emotions in environmental ethics education. According to the study, the implication is that it will enhance positive relationships between people and their environment.
19.	Baran et al (2016)	Book Analysis	Recommended book by WAEC for Hausa Literature.	The findings suggest the need for stakeholders to consider the inclusion of environmental ethics to develop long-term

					transformation routes to sustainability.
20.	Mahat et al (2022)	Quantitative	347 secondary school students.	form four school students.	The result indicates that students who integrate environmental ethics into their day-to-day activities will successfully fulfil their environmental ethics responsibilities.
21.	Purnomo & Kurniawan (2021).	Qualitative	Twenty-three students from different socio-economic backgrounds.		Environmental ethics is the basis for sustaining life on the planet. Students whose living environment was close to sustainable nature had better knowledge of environmental ethics than students who live in city centers.
22.	Preston (2021)	Qualitative	Eight education under certificate or diploma program.	teacher students graduate or diploma	Knowledge of students' teacher pedagogy can enable them to form their views and attitudes about environmental and ethical formation.

Table 5

Awareness of teachers on environmental ethics education

S/N.	STUDY	RESEARCH APPROACH	SAMPLE/POPULATION	RESULTS
23.	Liu et al. (2019)	Quantitative	360 Yangtse University Students, Hubei, China	Immersion in virtual reality can increase students' attention, expand their understanding of the subject, and encourage ethical behavior in the environment, as well as hands-on environmental action.
24.	Ceyhan & Sahin (2018)	Mixed method	239 science and classroom teachers	The study shows that teachers are highly sensitive

				to concerns related to ecological issues and information technology, and they also use the genetic environment, increase students' moral consciousness, and are aware of the environment.
25.	Ndzimbomvu et al (2021)	Quantitative	Five hundred and twelve learners from selected secondary schools in Gauteng province, South Africa.	The findings show the important role played by school subjects such as Geography, Biology, and Life Orientation, while learners less frequently acknowledged others.
26.	Tozdan & Keles (2022)	Quantitative	723 students (349 grade 7 and 374 grade 8)	Findings reveal that factors like grade, school location, and gender influence the level of environmental awareness of grades 7 and 8 students.
27.	Ongon et al. (2021).	Quantitative.	Eighty-nine year-one undergraduate students in the environmental education program.	The outcome demonstrates that undergraduate students with a range of grade point averages who participated in community-based environmental ethics education significantly improved their ecological knowledge, ethics regarding the environment, and awareness of the environment.
