

Environmental Education as a Catalyst to Teach Students About Their Economy and Politics

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Abstract

This conceptual paper highlights the potential of environmental education to teach students about their economy and politics. It begins by emphasising the significance of environmental education in shaping students' attitudes and behaviours towards environmental issues. The paper explores the link between the environment, economy, and politics and argues that comprehending these connections is essential for students to become informed and engaged citizens. Environmental education can offer a platform for teaching students about the intricacies of the economy and politics, including sustainability, resource allocation, and social justice. The paper draws upon examples from existing environmental education programs and presents strategies for integrating economic and political topics into environmental education curricula. Overall, the paper contends that environmental education can empower students to become informed and active participants in their economy and political systems, contributing to a more sustainable and equitable future.

Keywords: Environmental Education, Economic, Politics, Sustainable Development, Curriculum

INTRODUCTION

Environmental education can be a powerful tool for teaching students about economic and political impacts. By incorporating environmental education content into the curriculum, students can gain a better understanding of how the economy works and the ways in which environmental issues can affect the economy (Gryaznova et al., 2021). Kinzig et al. (2013) asserted that environmental issues are still a classic problem that never goes away. This assertion emphasises a need for scholars to keep proposing solutions to mitigate environmental issues. Husamah (2022) states that studies in the field of environmental education need to be continuously promoted in line with the increasing number of environmental problems. In recent years, environmental education has been incorporated into the school curriculum with the aim of providing a basic understanding of ecological foundations, making the connection between individual actions and the degradation of the environment, and affording credible actions in which individuals can partake to remedy environmental concerns (UNESCO, 2021; Collado-Ruano & Sarmiento, 2022). However, environmental education school content seems to focus more on the environmental part, and little is explored about the promotion of economic and political knowledge, despite both being important aspects discussed in the field (Damoah & Adu, 2020; Guzel et al., 2021; Slimani et al., 2021). The research question that this paper aims to answer is; Does environmental education have a potential to teach students about their economy and politics? What could students benefit from a curriculum that teaches about the economy and politics?

Section 24 of the Constitution sets out the right to an environment that is not harmful to health or wellbeing and calls on the government to take legislative and other actions to prevent pollution and ecological degradation, promote conservation, secure ecologically sustainable development, and use natural resources while promoting justifiable economic and social development (Constitution, 1996). For people to have a right to an environment that is not harmful to their health and wellbeing, it calls for environmentally literate citizens who are aware of the impact of their behaviour, learn the necessary skills to contribute to the country's economic growth, and are more informed about the political power in environmental affairs.

The inclusion of environmental literacy as a fundamental aspect of citizenship not only aligns with the constitutional mandate but also has the potential to drive more responsible and sustainable actions from individuals, fostering a stronger sense of collective responsibility towards the environment. This perspective highlights the importance of education and awareness in cultivating active and informed citizens who can actively participate in shaping environmental policies and decisions. A study of Nada et al. (2021) gives another perspective that environmental education also affects student characters, such as honest, self-confidence, responsibility, discipline, caring for fellow human beings, caring about nature, courage, religion, and creativity. Therefore, the authors study recommends environmental education to be implemented in various schools as an effort to improve the character of school members.

Teaching students about the economic and political impact of environmental education lessons has several advantages, including understanding the interconnectivity of environmental issues (Liu & Luo, 2023). By learning about the economic and political impact of environmental issues, students can develop a deeper understanding of how environmental problems are connected to broader social and economic systems. This can help them see the bigger picture and think critically about the root causes of environmental problems. Environmentally aware and empowered youths are potentially the greatest agent of change for the long-term protection and stewardship of the environment (Erhabora & Don, 2016). The promotion of informed decision-making is another advantage for teaching students about the economic and political impact. By understanding the economic and political factors that influence environmental issues, students can make more informed decisions about their own environmental practices and the policies and practices they support (Slimani et al., 2021). This can help students become more responsible and active citizens. In addition to the points already made by Liu & Luo (2023) and Slimani et al. (2021), learning about the economic and political impact of environmental education also poses opportunities for technology and innovation. With the economic and political knowledge acquired from environmental education, students have the

opportunity to take advantage of it by coming up with business and entrepreneurial ideas that can contribute to economic growth.

Teaching students about the political and economic impact encourages interdisciplinary thinking (Wang, 2019). Environmental issues are complex and multifaceted, and understanding them requires an interdisciplinary approach. Complex real-world issues require a “shift from mono-disciplinary to interdisciplinary and transdisciplinary concepts and methods” (Lawrence, 2010, p. 112). By incorporating economic and political perspectives into environmental education, students can develop their interdisciplinary thinking skills and see the connections between different fields of study (Kirsop-Taylor et al., 2020). Teaching students about the political and economic impact of environmental education prepares them for the workforce. Many environmental issues have economic and political implications and understanding these can be valuable for students who are interested in pursuing careers in fields like environmental policy, sustainability, and renewable energy (Ide et al., 2019). Also, it has the advantage of building environmental literacy. The fundamental understanding of ecological literacy is the knowledge that the actions of humans have consequences far beyond what the average consumer is able to conceive (Burchett, 2015). Environmental literacy includes not just an understanding of the natural world but also the social and economic systems that shape our relationship with it. By incorporating economic and political perspectives into environmental education, students can develop a more comprehensive understanding of environmental issues and become more environmentally literate (Panjaitan et al., 2021).

There are several problems with not teaching students about the economic and political impacts of environmental education lessons. Some of these problems include, but are not limited to, an incomplete understanding of environmental knowledge. Damoah and Adu (2019) in their study mentioned that teachers do not have a complete understanding of environmental knowledge and the teaching of environmental education. An incomplete understanding of environmental knowledge within teachers may be a barrier in equipping students with necessary environmental skills. Without an understanding of the economic and political systems that contribute to environmental issues, students may be limited in their ability to address these issues. They may not know how to advocate for policy changes or take actions that can address the root causes of environmental problems. Missed opportunities for interdisciplinary learning is also a challenge. Environmental issues can provide an opportunity for interdisciplinary learning, where students can apply knowledge from multiple disciplines to understand and address environmental challenges (Butler, 2022). Failing to teach about economic and political impacts can limit the interdisciplinary nature of environmental education.

Another problem would be a lack of preparation for future careers. Many careers in the environmental field require an understanding of economic and political systems, such as environmental policy, sustainable business practices, and environmental law. Montt et al. (2018) argues that economic activity and work cannot be understood independently from the natural environment in which they take place. Failing to teach about these systems can leave students ill-prepared for careers in these fields. The OECD (2022) stated that education needs to do better at helping students develop a sense of self-efficacy, agency, and responsibility. Only in this way can young people unleash their knowledge and energy to build sustainable cities, start sustainable businesses, push the innovation frontier for green technologies, rethink individual styles, support ecologically responsible policymaking, and most importantly, strike the right balance between meeting the needs of the present and safeguarding the ability of future generations to meet their own needs (OECD, 2022). Teaching students about the economic and political impact of environmental education lessons is crucial for providing a comprehensive understanding of environmental issues and preparing them for future careers in environmental fields.

Environmental education is a form of education that aims to promote environmental awareness and responsible behaviour towards the environment (Boyes & Stanisstreet, 2012). In recent years, there has been increasing recognition of the critical role of education for sustainability (ES) (Martins et al., 2006). This literature review will explore the economic and political impact of environmental education content and its role in teaching students about their economy.

DISCUSSION

Importance of Environmental Education

Environmental education is becoming increasingly important in today's world as we face numerous environmental challenges, such as climate change, deforestation, and loss of biodiversity (UNICEF, 2022). It provides individuals with the knowledge and skills necessary to make informed decisions about environmental issues (UNESCO, 1978). One of the significant benefits of environmental education is that it promotes sustainability. Environmental education can help individuals understand the importance of sustainable practices and encourage them to adopt sustainable behaviours (Fang et al., 2023). For instance, a study conducted by Borresen et al. (2022) suggested an increased proportion of students could identify ecosystem services after the education program, with increased knowledge of ecosystem services and their importance being attributed to developing understandings of negative outcomes caused by climate change, human population growth, and land use change

in Tanzania. In addition, environmental education can contribute to the development of critical thinking and problem-solving skills. Environmental problems are complex and require a multifaceted approach to finding solutions. Environmental education can help individuals understand the complexity of environmental problems and develop the critical thinking skills necessary to solve them. For example, a study by Elahi et al. (2014) found that environmental education has an impact on the development of critical thinking skills among students.

Furthermore, environmental education can empower individuals to take action to protect the environment. Environmental education can provide individuals with the knowledge and skills necessary to take action to protect the environment. For example, a study by Schultz (2014) found that environmental education can increase the willingness of individuals to engage in pro-environmental behaviour. In Nigeria, the Nigerian Environmental Study/Action Team (NEST), a non-governmental organisation that has been at the forefront of environmental education and advocacy in Nigeria, describes environmental education as an essential tool for promoting sustainable development and ensuring the well-being of present and future generations (NEST, 2015). In a study conducted by Babalola and Olawuyi (2021), the authors emphasised the importance of environmental education as broadly reflected in legislation, government policies, and development plans in Nigeria. For example, the principal environmental legislation in Nigeria, the National Environmental Standards Regulatory and Enforcement Agency (Establishment) Act of 2007, expressly recognises the importance of EE as a tool for sustainable development (Babalola & Olawuyi, 2021).

Environmental education has the potential to influence social behaviour and behavioural change towards the environment. The South African Department of Environment, Forestry, and Fisheries (DEFF) is mandated to give effect to the right of citizens to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations. In response, they developed a National Environmental Education Strategy, which outlines the importance of educating the public on environmental issues and promoting sustainable practices (Department of Environment, Forestry, and Fisheries, 2021). Environmental education is essential in promoting sustainability, understanding the social, economic, and environmental impacts of our actions, developing critical thinking and problem-solving skills, and empowering individuals to take action to protect the environment. Environmental education can play a crucial role in addressing environmental challenges and creating a sustainable future. While the benefits of environmental education are well-established, the specific aspects of economic and political impacts warrant further exploration.

Role of Environmental Education in Teaching About the Economy

Environmental education holds a significant role in imparting knowledge about the economy. Economic growth is becoming more and more dependent on the natural environment (Wu et al., 2023). Wu et al. (2023) further illustrates that recognising the intertwined nature of environmental and economic concerns is pivotal for fostering a sustainable future. An advantage of environmental education lies in nurturing the skill set crucial for a green economy, one that champions sustainable practices to minimise ecological footprints. By equipping individuals with the necessary knowledge and skills, environmental education can prepare students for careers aligned with the principles of a green economy. A study conducted by Hoffmann and Muttarak (2020) underscores how environmental education contributes to the acquisition of skill sets essential for green jobs.

Environmental education is a pivotal component in economic teachings in South Africa, acknowledging the symbiotic relationship between the economy and the environment pivotal for sustainable progress. The South African Department of Basic Education underscores this by incorporating environmental education within the curriculum. The National Curriculum Statement's objectives include equipping students from diverse backgrounds with skills, knowledge, and values essential for self-fulfilment and meaningful participation in society, while also facilitating their transition from education to environmentally relevant workplaces (Department of Basic Education, 2011).

Multiple studies have affirmed the positive economic impact of environmental education. By promoting sustainable practices within industries, it contributes to enhancing environmental performance, leading to cost savings and increased profitability for firms. Bhuiyan (2010) research indicates that environmental education can drive improvements in firms' environmental practices, subsequently fostering economic gains. Moreover, environmental education spurs the development of environmentally sustainable industries and technologies. Huesemann and Huesemann (2011) show that it can catalyse the creation of industries focusing on alternative energy sources, generating new economic opportunities.

Furthermore, environmental education yields an economic boost by fostering eco-tourism. Bhuiyan (2010) highlights how it augments the demand for eco-friendly tourism experiences, prompting tourists to invest more in sustainable tourism offerings. This translates into heightened revenue for local communities and businesses, while also safeguarding natural resources and habitats. The economic merits of environmental education extend to individuals and society at large, encompassing household savings, corporate profitability, the emergence of new industries and technologies, and augmented eco-tourism revenue (Bhuiyan, 2010).

Policymakers are thus encouraged to invest in environmental education to drive sustainable development and economic growth.

Research additionally emphasises the positive influence of environmental education on economic behaviours. Hoffmann and Muttarak (2020) study illuminate its pivotal role in propelling global sustainable development through education, raising awareness, and encouraging eco-friendly behaviours. Environmental education curricula ought to move beyond information dissemination to underscore individual contributions in mitigating global environmental challenges, boosting self-efficacy. United Nations Educational, Scientific, and Cultural Organisation (UNESCO, 2015) accentuates environmental education's role in endorsing sustainable development. It fosters responsible resource usage and behaviours, central to constructing a sustainable future (UNESCO, 2015).

South Africa's commitment to sustainable development, evident in initiatives like the National Development Plan (NDP), underscores the pivotal role of environmental education. The NDP acknowledges environmental sustainability's importance and integrates environmental education as a cornerstone of its sustainable vision (National Planning Commission, 2011). Environmental education contributes significantly to economic teachings by heightening awareness about the economic impacts of environmental issues, promoting sustainable practices, grasping the societal and political implications of environmental concerns on the economy, and cultivating the skill set requisite for a green economy. Informed decisions regarding environmental matters and the creation of a sustainable future are thus facilitated by environmental education. Wu et al. (2023) in their study asserts that the pressure to improve environmental quality will also promote the economy's endogenous growth through the digital economy's transformation and the accumulation of human capital. Their empirical analysis confirms that environmental education can improve environmental quality through green consumption and pollution control (Wu et al., 2023).

The Political Impact of Environmental Education:

Environmental education can have a significant impact on political decision-making by raising awareness of environmental issues and promoting citizen engagement in environmental policy. A study by Levy and Zint (2013) suggests that environmental education can lead to increased political participation, such as voting, signing petitions, and contacting elected officials. Furthermore, environmental education can promote citizen activism and advocacy for environmental issues, leading to increased pressure on policymakers to take action.

Environmental education can also have a political impact by promoting environmental values and ideologies. A study by Ardoin et al. (2020) mentioned that environmental education

can lead to a greater appreciation of nature and a sense of ecological citizenship. This can lead to a shift in political ideology towards environmentalism and a greater willingness to support environmental policies and initiatives. Environmental education has a potential to influence policy outcomes by providing policymakers with informed and engaged citizens who can provide input and feedback on environmental policies. A study by McCright and Dunlap (2011) found that environmental education can lead to increased public awareness and understanding of environmental issues, which can lead to greater support for environmental policies.

In essence, environmental education can also have a global political impact by promoting international cooperation and collaboration on environmental issues. Tilbury et al. (2002) found that environmental education can promote a sense of global citizenship and an understanding of the interdependence of nations on environmental issues. This can lead to increased cooperation and collaboration on global environmental issues, such as climate change. Lastly, environmental education can have a significant political impact by promoting citizen engagement, advocacy, and activism, influencing political values and ideologies, informing policy outcomes, and promoting international cooperation on environmental issues. Therefore, there is a need for policymakers to invest in environmental education to promote political engagement, environmental policy-making, and global cooperation on environmental issues. Apart from policy advancement, environmental education, SDGs have a crucial role to play to influence our country's economy and politics.

Social Impact: The Synergy Between Environmental Education, SDGs, Economy, and Politics

Environmental education plays a pivotal role in fostering a deeper understanding of the intricate connections between ecological well-being, economic prosperity, and political dynamics. In an era defined by pressing global challenges, the United Nations' Sustainable Development Goals (SDGs) stand as a comprehensive framework to address issues ranging from poverty alleviation to climate action. This section delves into the integration of SDGs within the realm of environmental education, with a particular focus on how this approach can illuminate the intertwined relationship between economy and politics.

The Sustainable Development Goals (SDGs) established by the United Nations provide a comprehensive framework for achieving sustainable development on a global scale (Zhang et al., 2023). Comprising 17 interconnected goals, the SDGs encompass a diverse array of objectives that collectively address the well-being of people, planet, and prosperity (Zhang et al., 2023; van Niekerk, 2020). As students engage with these goals, they gain profound insights into the intricate interplay between environmental considerations, socioeconomic dynamics,

and political factors. This integration highlights the undeniable linkages among these domains, thereby fostering a more holistic and distinction understanding of the complex challenges our world faces.

The below SDGs underscore the inextricable relationship between economic development and sustainable practices.

Goal 1: No Poverty - Exploring Economic Foundations

At the intersection of environmental education, economy, and politics lies Goal 1 of the Sustainable Development Goals (SDGs): No Poverty (UN, 2018). This goal encapsulates not only the aspiration to alleviate poverty but also the recognition of its profound implications on environmental sustainability (Statistics South Africa, 2019). Through an examination of Goal 1, students can discern the intricate ways in which poverty and environmental degradation are mutually reinforcing, highlighting the importance of holistic solutions in achieving sustainable development.

The pursuit of No Poverty goes beyond income levels; it entails addressing the multidimensional nature of poverty, including lack of access to basic resources, education, healthcare, and social opportunities (UN, 2018). Environmental degradation can exacerbate poverty, as marginalised communities often rely directly on natural resources for their livelihoods, leaving them vulnerable to environmental shocks (Duraiappah 1996). Conversely, poverty can contribute to environmental degradation when individuals prioritise short-term survival over long-term environmental stewardship.

By engaging with Goal 1, students delve into the complex relationship between economic policies, opportunities, and their impact on both resource utilisation and ecosystems. Economic systems heavily influence resource distribution, access to opportunities, and the development of sustainable livelihoods (Gonenc et al., 2020). For instance, policies that promote inclusive economic growth and provide access to education and healthcare can empower individuals to break free from the cycle of poverty and reduce their reliance on unsustainable resource extraction.

Moreover, students exploring the link between poverty and environmental sustainability develop a nuanced understanding of the role of politics and governance. Achieving No Poverty requires not only economic measures but also social and political strategies that foster inclusive societies and equitable access to resources (Dugarova, 2015). Goal 1 thus highlights the need for political stability, transparent governance, and policies that ensure equitable distribution of resources and opportunities (UN, 2018).

Understanding the intricate relationship between poverty, resource distribution, and environmental sustainability equips students with the capacity to envision policies that uplift communities while safeguarding natural resources. By identifying synergies between poverty alleviation and sustainable resource management, students become advocates for holistic approaches that address the root causes of environmental and social challenges. Through their exploration of Goal 1, students gain the insight to drive positive change at local and global levels, contributing to a more just and sustainable world.

Goal 8: Decent Work and Economic Growth - Unravelling Political Implications

At the heart of the Sustainable Development Goals (SDGs) stands Goal 8: Decent Work and Economic Growth. This goal not only highlights the imperative of fostering economic advancement but also invites students to embark on a journey to unravel the intricate political dimensions underpinning sustainable development (Santos, 2023). Through an examination of Goal 8, students can engage in critical analysis, exploring how policies geared towards economic growth intersect with the realm of environmental stewardship, shaping the trajectory of sustainable development (International Labour Organisation, 2019).

Goal 8 signifies more than economic prosperity; it emphasises the creation of decent work opportunities, the eradication of forced labour, and the promotion of safe and inclusive working environments (International Labour Organisation, 2019). As students delve into this goal, they are prompted to critically analyse the ways in which economic policies intersect with the broader political landscape, influencing resource allocation, labour rights, and social dynamics. This exploration is a gateway to comprehending the intricate interplay between political decisions, economic growth, and environmental sustainability.

Policies aimed at fostering economic growth can have profound implications for environmental well-being (Fabrizio et al., 2015). Students engaging with Goal 8 recognise that economic activities often intersect with natural resource utilisation, energy consumption, and waste generation. Hence, they gain a perspective on how political choices surrounding economic development can either support or challenge environmental stewardship efforts. This recognition encourages students to advocate for policies that not only drive economic growth but also consider their ecological consequences. Moreover, the pursuit of Decent Work and Economic Growth compels students to consider the allocation of resources as influenced by political decisions (International Labour Organisation, 2019). The policies and regulations that shape the business environment, labour conditions, and social equity are inextricably tied to political dynamics (International Monetary Fund, 1999). Through this lens, students comprehend that achieving sustainable development requires aligning economic aspirations

with equitable distribution of resources and opportunities, a task that hinges on effective governance and policy-making.

By engaging with Goal 8, students gain a deeper understanding of the complexities involved in balancing economic progress and ecological imperatives. They emerge equipped with the critical skills to navigate the intricate web of political considerations, economic drivers, and environmental concerns. As future leaders and change-makers, their insights into the political dimensions of sustainable development empower them to advocate for policies that not only fuel economic growth but also contribute to the long-term well-being of both people and the planet.

Goal 16: Peace, Justice, and Strong Institutions - Bridging the Division

In the tapestry of Sustainable Development Goals (SDGs), Goal 16 emerges as a cornerstone, advocating for Peace, Justice, and Strong Institutions (UN, 2018). Cling et al. (2016) states that, this goal underscores not only the intrinsic value of political stability but also sheds light on its pivotal role in fostering sustainable development. As students embark on an exploration of Goal 16, they become exposed to the detailed relationship between strong governance, environmental protection, and the equitable allocation of resources. Goal 16 emphasises that peace and stability are fundamental for sustainable progress (UN, 2018). Through an examination of this goal, students uncover the profound ways in which political turmoil and conflict can disrupt environmental conservation efforts and exacerbate resource scarcity. They grasp the profound ripple effect that institutional fragility can have, not only on the well-being of societies but also on the health of ecosystems.

Strong governance institutions act as the linchpin that bridges the divide between societal harmony and environmental sustainability (Green et al., 2015). Students delving into Goal 16 recognise that effective institutions are pivotal in upholding environmental regulations, ensuring responsible resource management, and combating activities that harm the planet. This awareness emphasise that political stability is not only a desirable outcome but also a driving force behind safeguarding natural resources for current and future generations. Furthermore, the pursuit of Peace, Justice, and Strong Institutions nurtures an understanding of the intricate interdependence between societal well-being and environmental conservation (Fallah et al., 2022). A just and peaceful society is more likely to allocate resources equitably, promote sustainable livelihoods, and prioritise the preservation of natural habitats (Breuer et al., 2019). This recognition prompts students to advocate for policies that address both human rights and environmental rights, recognising that the two are intertwined in a delicate balance. As students engage with Goal 16, they become equipped to envision a future where political stability is a

catalyst for sustainable development. Their insights extend beyond the confines of political science, merging with environmental consciousness to form a comprehensive understanding of the intricate web connecting societal well-being, environmental integrity, and governance. Through this exploration, students emerge as champions of a world where peace, justice, and strong institutions foster harmony not only among people but also with the planet we call home.

Integrating SDGs into environmental education serves as a conduit for illuminating the intricate interrelationships among economy, politics, and the environment. Through this multidimensional approach, students develop the analytical skills and perspectives necessary to navigate the complex challenges of the modern world. By engaging with the SDGs in the context of environmental education, students not only expand their awareness of global issues but also cultivate the critical thinking and empathy required to envision a sustainable and just future. This holistic perspective equips them to contribute meaningfully to society, fostering a generation of informed and empowered global citizens.

CONCLUSION

In conclusion, the integration of environmental education into the teaching of economics and politics has significant potential to provide students with a more comprehensive understanding of the world around them. By incorporating lessons on sustainability, resource management, and environmental policy, teachers can help students develop critical thinking skills and a deeper appreciation for the interconnectedness of our planet's systems. Furthermore, environmental education can empower students to become active and engaged citizens capable of shaping policy and contributing to a more sustainable future. As such, it is essential that teachers continue to prioritise the inclusion of environmental education in their curricula and embrace it as a catalyst for positive change. Ultimately, this integration can lead to a more informed and environmentally conscious society capable of tackling the complex challenges facing our world today.

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REFERENCES

- Ardoyn, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, 241, 108224. <https://doi.org/10.1016/j.biocon.2019.108224>
- Babalola, A., & Olawuyi, D. S. (2021). Advancing Environmental Education for Sustainable Development in Higher Education in Nigeria: Current Challenges and Future Directions. *Sustainability*, 13, 10808. <https://doi.org/10.3390/su131910808>

- Bhuiyan, A. H. (2010). Ecotourism and Environmental Education: An Opportunity for Bangladesh. *Proceedings of International Conference on Environmental Aspects of Bangladesh* (ICEAB10), Japan.
- Børresen, S. T., Ulimboka, R., Nyahongob, J., Ranke, P. S., Skjaervø, G., & Røskoft, E. (2022). The role of education in biodiversity conservation: Can knowledge and understanding alter locals' views and attitudes towards ecosystem services? *Environmental Education Research*. Informa UK Limited. Taylor & Francis Group.
- Boyes, E., & Stanisstreet, M. (2012). Environmental Education for Behaviour Change: Which actions should be targeted? *International Journal of Science Education*, 34(10), 1591-161. <https://doi.org/10.1080/09500693.2011.584079>
- Breuer, A., Janetschek, H., & Malerba, D. (2019). Translating Sustainable Development Goal (SDG) Interdependencies into Policy Advice. *Sustainability*, 11(7), 2092. <https://doi.org/10.3390/su11072092>
- Burchett, J. H. (2015). Environmental Literacy and its Implications for Effective Public Policy Formation. Baker Scholar Projects. Available at http://trace.tennessee.edu/utk_bakerschol/27
- Butler, M. (2022). Interdisciplinary experiential learning during COVID-19: Lessons learned and reflections for the future. *Journal Environmental Studies and Sciences*, 12, 369–377. <https://doi.org/10.1007/s13412-021-00734-w>
- Cling, J., Razafindrakoto, M. & Roubaud, F. (2016). SDG 16 on Governance and its Measurement: Africa in the Lead. *Afrique contemporaine*, 258, 73-93. <https://www.cairn-int.info/journal--2016-2-page-73.htm>.
- Collado-Ruano, J., & Sarmiento, J. S. (2022). Ecological Economics Foundations to Improve Environmental Education Practices: Designing Regenerative Cultures. *World Futures: The Journal of New Paradigm Research*, 78(90), 1-28. <https://doi.org/10.1080/02604027.2022.2072158>
- Damoah, B., & Adu, E. (2020). Teacher's Awareness of the Integrated Environmental Education Curriculum in South Africa. *Journal of Social Sciences and Humanities Research*, 17(6), 280-295.
- 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 (AJHSSR)*, 10, 157-166.
- Department of Basic Education. (2011). National Curriculum Statement Grades R-12. Available at <https://www.education.gov.za/Portals/0/Documents/Learners/Gr%20R-12%20National%20Curriculum%20Statement%20January%202011.pdf?ver=2016-04-15-150343-000>
- Department of Environment, Forestry and Fisheries. (2021). National Environmental Education Strategy. Available at https://www.environment.gov.za/sites/default/files/docs/nationalee_strategy2021.pdf

- Dugarova, E. (2015). Social inclusion, poverty eradication and the 2030 agenda for sustainable development. UNRISD Working Paper, No. 2015-15, United Nations Research Institute for Social Development (UNRISD), Geneva.
- Duraiappah, A. (1996). Poverty and Environmental Degradation: A Literature Review and Analysis. CREED Working Paper Series No. 8. International Institute for Environment and Development, London & Institute for Environmental Studies, Amsterdam.
- Elahi, R., Shobeiri, S. M., & Larijani, M. (2014). Impact of Environmental Education on Students' Critical Thinking of the Teacher Training Centers (A Case Study: YASUJ city). *Advances in Environmental Biology*, 8(12), 535-542.
- Erhabor, N. I., & Dona, J. U. (2016). Impact of Environmental Education On the Knowledge and Attitude of Students Towards the Environment. *International Journal of Environmental & Science Education*, 11(12), 5367-5375.
- Fabrizio, S., Garcia-Verdu, R., Pattillo, C., Peralta-Alva, A., Presbitero, A., Shang, B., Verdier, G., Camilleri, M.T., Washimi, K., Kolovich, L., Newiak, M., Cihak, M., Otker, I., Zanna, F., & Baker, C. (2015). From Ambition to Execution: Policies in Support of Sustainable Development Goals. IMF Staff Discussion Note, International Monetary Fund.
- Fallah Shayan, N., Mohabbati-Kalejahi, N., Alavi, S., & Zahed, M. A. (2022). Sustainable Development Goals (SDGs) as a Framework for Corporate Social Responsibility (CSR). *Sustainability*, 14(3), 1222. <https://doi.org/10.3390/su14031222>
- Fang, W. T., Hassan, A., & LePage, B. A. (2023). *Introduction to Environmental Education. In The Living Environmental Education*. Sustainable Development Goals Series. Springer, Singapore. https://doi.org/10.1007/978-981-19-4234-1_1
- Gonenc, D., Piselli, D., & Sun, Y. (2020). The global economic system and access and allocation in earth system governance. *International Environmental Agreements: Politics, Law and Economics*, 20, 223–238. <https://doi.org/10.1007/s10784-020-09472-w>
- Green, O. O., Garmestani, A. S., Allen, C. R., Gunderson, L. H., Ruhl, J. B., Arnold, C. A., Graham, N. A. J., Cosens, B., Angeler, D. G., Chaffin, B. C., & Holling, C. S. (2015). Barriers and bridges to the integration of social–ecological resilience and law. Nebraska Cooperative Fish & Wildlife Research Unit -- Staff Publications, 211. <https://digitalcommons.unl.edu/ncfwrustaff/211>
- Gryaznova, E. V., Goncharuk, A. G., Svenlana, V., Pronina, S. V., Borisova, I. I., & Khizhnaya, A. V. (2021). The role of environmental education in sustainable economic development. *The European Proceedings of Social and Behavioural Sciences*. Available from: <https://www.doi.org.10.15405/epsbs.2021.07.90>
- Guzel, A. E., Arslan, U., & Acaravci, A. (2021). The impact of economic, social, and political globalisation and democracy on life expectancy in low-income countries: Are sustainable development goals contradictory? *Environmental Development and Sustainability*, 23, 13508–13525.

- Hoffmann, R., & Muttarak, R. (2020). Greening through schooling: Understanding the link between education and pro-environmental behaviour in the Philippines. *Environmental Research Letters*, 15(1), 014009.
- Huesemann, M. H., & Huesemann, J. A. (2011). *Technofix: Why technology won't save us or the environment*. New Society Publishers.
- Husamah, H., Suwono, H., Nur, H., & Dharmawan, A. (2022). Environmental Education Research in Indonesian Scopus Indexed Journal: A Systematic Literature Review. *Journal of Biological Education Indonesia (Jurnal Pendidikan Biologi Indonesia)*, 8(2), 105-120.
- Ide, T., Fröhlich, C. J., & Donges, J. F. (2019). The Economic, Political, and Social Implications of Environmental Crises. *Bulletin of the American Meteorological Society*. Available from: DOI:10.1175/BAMS-D-19-0257.1
- International Labour Organisation. (2019). Time to Act for SDG 8: Integrating Decent Work, Sustained Growth and Environmental Integrity, GENEVA.
- International Monetary Fund Fiscal Affairs Department. (1999). Should Equity Be a Goal of Economic Policy? International Monetary Fund. January 1999.
- Kinzig, A. P., Ehrlich, P. R., Alston, L. J., Arrow, K., Barrett, S., Buchman, T. G., & Saari, D. (2013). Social Norms and Global Environmental Challenges: The Complex Interaction of Behaviours, Values, and Policy. *Bioscience*, 63(3), 164-175. <https://doi.org/10.1525/bio.2013.63.3.5>
- Kirsop-Taylor, N., Appiah, D., Steadman, A., & Huggett, M. (2020). Reflections on integrating the political into environmental education through problem-based learning and political ecology. *The Journal of Environmental Education*. <https://doi.org/10.1080/00958964.2020.1825919>
- Lawrence, R. J. (2010). Deciphering interdisciplinary and transdisciplinary contributions. *Transdisciplinary Journal of Engineering & Science*, 1(1). <https://doi.org/10.22545/2010/003>
- Levy, B. L. M., & Zint, M. (2013). Toward fostering environmental political participation: Framing an agenda for environmental education research. *Environmental Education Research*, 19(5). <https://doi.org/10.1080/13504622.2012.717218>
- Liu, S., & Luo, L. A. (2023). Study on the Impact of Ideological and Political Education of Ecological Civilization on College Students' Willingness to Act Pro-Environment: Evidence from China. *International Journal of Environmental Research and Public Health*, 20(3), 2608.
- Martins, A. A., Mata, T. M., & Costa, C. A. (2006). Education for sustainability: Challenges and trends. *Clean Technologies and Environmental Policy*, 8(1), 31-37.
- McCright, A. M., & Dunlap, R. E. (2011). Cool dudes: The denial of climate change among conservative white males in the United States. *Global Environmental Change*, 21(4), 1163-1172.

- Montt, G., Fraga, F., & Harsdorff, M. (2018). The future of work in a changing natural environment: Climate change, degradation and sustainability. ILO Research Department and ILO Green Jobs Unit.
- Nada, H. N., Fajarningsih, R. U., & Astirin, O. P. (2021). Environmental education to build school members' character. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 7(1), 43-52. doi: <https://doi.org/10.22219/jpbi.v7i1.14283>
- National Planning Commission. (2011). National Development Plan 2030. Available from: <https://www.gov.za/documents/national-development-plan-2030>
- Nigerian Environmental Study/Action Team (NEST). (2016). Nigeria's Threatened Environment: A National Profile. Available from: www.nestinteractive.org
- OECD. (2022). Are Students Ready to Take on Environmental Challenges? PISA, OECD Publishing, Paris. Available from: <https://doi.org/10.1787/8abe655c-en>
- Panjaitan, M. H., Aznam, N., Pujianto, Erlini, N., Ayu, A., & Illahaqi, D. (2021). Students' Environmental Literacy Understanding in Science Learning: A Preliminary Study. In 6th *International Seminar on Science Education (ISSE 2020)*, 768–744.
- Santos, E. (2023). From Neglect to Progress: Assessing Social Sustainability and Decent Work in the Tourism Sector. *Sustainability*, 15(13), 10329. <https://doi.org/10.3390/su151310329>
- Schultz, P. W. (2014). Strategies for Promoting Pro-environmental Behaviour. *European Psychologist*, 19(2). <https://doi.org/10.1027/1016-9040/a000163>
- Slimani, M., Lange, J., & Håkansson, M. (2021). The political dimension in environmental education curricula: Towards an integrative conceptual and analytical framework. *Environmental Education Research*, 27(3), 354-365.
- Statistics South Africa. (2019). Sustainable Development Goals: Country report 2019. Published by Statistics South Africa. ISBN 978-0-621-47619-X. *SDGs_Country_Report_2019_South_Africa.pdf* (statssa.gov.za)
- The Constitution of the Republic of South Africa. (1996). South African Government. Available at <https://www.justice.gov.za>
- Tilbury, D., Stevenson, R. B., Fien, J., & Schreuder, D. (2002). *Education and sustainability: Responding to the global challenge*. Routledge.
- UNESCO. (2015). Education for Sustainable Development Goals: Learning Objectives. Available at <https://unesdoc.unesco.org/ark:/48223/pf0000232930>
- UNICEF. (2022). A pending task: 5 reasons why we need environmental education: Take advantage of and strengthen the potential of children, adolescents, and young people to face the challenges related to climate change. Available at <https://www.unicef.org/lac/en/stories/a-pending-task-5-reasons-why-we-need-environmental-education> | UNICEF Latin America and Caribbean

United Nations Education Scientific and Cultural Organisation in cooperation with United Nations Environment Programme. (1978). The Tbilisi Declaration. *Connect*, 3(1), 1-8.

United Nations Education Scientific and Cultural Organisation. (2021). Sub-Education Policy Review Report: Education for Sustainable Development (ESD). Available at https://en.unesco.org/sites/default/files/education_for_sustainable_development_final_-_january_2021_1.pdf

United Nations. (2018). The 2030 Agenda and the Sustainable Development Goals: An opportunity for Latin America and the Caribbean (LC/G.2681-P/Rev.3), Santiago.

van Niekerk, A. J. (2020). Inclusive Economic Sustainability: SDGs and Global Inequality. *Sustainability*, 12(13), 5427. <https://doi.org/10.3390/su12135427>

Wu, Y., Wan, J., & Yu, W. (2023). Impact of environmental education on environmental quality under the background of low-carbon economy. *Frontier Public Health*, 11, 1128791. <https://doi.org/10.3389/fpubh.2023.1128791>

Zhang, X., Zhang, L., Bai, L., Liao, J., Chen, B., & Yan, M. (2023). Assessment of Localized Targets of Sustainable Development Goals and Future Development on Hainan Island. *Sustainability*, 15(11), 8551. <https://doi.org/10.3390/su15118551>