Vol. 7 No.1 June (2024)
JOURNAL OF ENVIRONMENTAL AND TOURISM EDUCATION
ISSN: 2659-0794 (PRINT) ISSN:2659-0808(ONLINE)
Content Available at: **https://jeate.net/index.php/Jete/issue/archive**

Assessment of Teacher Educators' Perception on Integrating Green Education in Teac Education Curriculum for Sustainable Eco-Friendly Environment

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Keywords
Assessment, perception, teacher education, curriculum, green education

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Abstract

The study adopted survey design to assess Michael Okpara University of Agriculture Umudike and Alvan Ikoku University of Education Owerri teacher educators' perception on integrating green education curriculum for sustainable eco-friendly environment in teacher education programme in Nigerian universities. Researchers' made experience response questionnaire titled" Teacher-educators Perception Questionnaire on integrating green education in teacher education curriculum for sustainable eco-friendly environment" (TPQIGTCSE)" was used for data collection. The study had a population size of 845 and a sample of 327 lecturers from the two universities used for the study. It had reliability coefficient of 0.84 determined using Cronbach Alpha. The data collected was analyzed using mean and standard deviation in answering research questions. The findings showed that teacher educators have positive perceptions regarding the integration of green education in teacher education programmes in Nigerian Universities. They also expressed likely challenges, opportunities, and the influential role of teacher educators in the successful implementation of green education. Recommendations include among others that relevant universities authority should collaborate with curriculum designers to create teacher education curricula that allow for the seamless integration of green education principles across various subjects.

Introduction

Green education, also known as environmental or sustainability education is a comprehensive approach to teaching and learning that integrates environmental principles, ecological awareness, and sustainable practices across various disciplines (orr, 2020). The overarching

goal of green education is to foster a deeper understanding of the interconnectedness between human societies and the natural environment, encouraging individuals to become environmentally responsible and contribute to the development of sustainable practices (Sterling, 2019). Green education emphasizes the importance of understanding environmental issues, including climate change, biodiversity loss, pollution, and resource depletion. It seeks to raise awareness about the impact of human activities on the environment and ecosystems (UNESCO, 2014). The concept of sustainability is central to green education. It involves teaching individuals to meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable practices encompass economic, social, and environmental dimensions (Orr, 2020). Green education transcends traditional disciplinary boundaries, incorporating elements from various subjects such as science, social studies, economics, and ethics. This interdisciplinary approach helps students recognize the complexity of environmental challenges (Palmer, 2018). Green education often involves hands-on, experiential learning opportunities, such as outdoor activities, field trips, and community engagement. This approach allows learners to directly connect with nature and gain practical insights into environmental issues (Sterling, 2019).

One of the significant challenges in Nigeria is deforestation, driven by activities such as logging, agricultural expansion, and urbanization. This has led to the loss of biodiversity, disrupting ecosystems and threatening plant and animal species (Adepoju, 2017). Unsustainable agricultural practices, deforestation, and climate change contribute to soil erosion and desertification in Nigeria. These phenomena negatively impact arable land, reducing agricultural productivity and exacerbating food insecurity (Chindo, 2019). Nigeria's oil industry has been a source of environmental degradation. Oil spills from pipeline ruptures and illegal oil refining activities have contaminated water bodies, affecting aquatic ecosystems and jeopardizing the health of communities relying on these water sources (Etekpe & Izah, 2018). Industrial activities, vehicular emissions, and waste burning contribute to air pollution in Nigeria's urban areas. This has severe health implications, leading to respiratory diseases and other health issues among the population (Oyedepo, 2012). Inadequate waste disposal practices contribute to environmental pollution. Improper disposal of solid waste, including plastic, contributes to visual pollution, soil contamination, and poses threats to human health (Nzeadibe, 2014). Nigeria is vulnerable to climate change impacts, including changing rainfall patterns, increased temperatures, and extreme weather events. These changes affect agricultural activities, water resources, and overall socio-economic stability (Ebi, 2018). The ineffective enforcement of environmental laws and regulations contributes to continued degradation. Weak regulatory frameworks and inadequate monitoring allow for unsustainable practices to persist without consequences (Ajayi & Kalesanwo, 2017). Rapid population growth and urbanization exert pressure on natural resources and contribute to environmental degradation. Increased demand for housing; energy; and infrastructure leads to the expansion of cities and further depletion of ecosystems (Adelekan, 2015). Government has made

concerted efforts to mitigate these environmental challenges and it seems not abetting, this is the reason the researchers looking at integrating green education in teacher education curriculum as an alternative measure in ensuring sustainable eco-friendly environment.

Integrating green education into teacher education programs holds significant importance for several reasons. As future educators play a pivotal role in shaping the knowledge, attitudes, and behaviors of the next generation, incorporating environmental and sustainability principles into their training can contribute to the development of environmentally conscious and responsible citizens. Integrating green education in teacher education helps in enhancing the environmental literacy of educators. It equips them with the knowledge and understanding of environmental issues, enabling them to effectively impart this awareness to their students (Orr, 2020). Green education integration allows for the incorporation of environmental themes and sustainability principles across various subjects in the curriculum. This interdisciplinary approach helps teachers seamlessly integrate environmental concepts into their lessons, fostering a holistic understanding of environmental issues (Sterling, 2019). Teacher education programmes that incorporate green education empower future educators to model and promote sustainable practices in schools. By understanding the principles of sustainability, educators can contribute to the development of eco-friendly learning environments and encourage students to adopt sustainable behaviors (UNESCO, 2014). Educators play a crucial role in shaping the values and attitudes of students. Integrating green education into teacher training will help in cultivating a sense of responsibility and environmental stewardship among future citizens. This, in turn, contributes to the development of a society that values and protects the environment (Palmer, 2018). In the face of global environmental challenges such as climate change and biodiversity loss, integrating green education into teacher education becomes imperative. Teachers equipped with an understanding of these challenges can educate students about the importance of global cooperation and individual actions in addressing environmental issues (Orr, 2020). Incorporating green education into teacher education serves as a form of professional development. It equips educators with the skills and resources needed to integrate sustainability principles into their teaching practices, fostering continuous learning and adaptation (Sterling, 2019). In a nutshell, the integration of green education into teacher education is crucial for cultivating environmentally literate and responsible educators who, in turn, can shape the next generation to be conscientious stewards of the planet. These educators are better equipped to address the complexities of environmental challenges and contribute to building a sustainable and eco-friendly future.

Teacher educators' perceptions play a crucial role in shaping the curriculum design for teacher education programs. Understanding their attitudes towards integrating green education allows for the alignment of curriculum content with environmental principles and sustainability concepts (Sterling, 2019). Teacher educators' perceptions influence the decision to integrate interdisciplinary approaches into the curriculum. Green education often requires a multidisciplinary perspective, and teacher educators' views shape how this integration is approached in teacher training programs (Palmer, 2018). The willingness of teacher educators

to integrate green education influences the inclusion of experiential learning opportunities in the curriculum. Field trips, outdoor activities, and hands-on experiences can be integrated to enhance environmental understanding among future educators (Orr, 2020). Teacher educators' perceptions guide the identification of key environmental issues to be addressed in the curriculum. Awareness of educators' views helps prioritize topics that are considered most relevant and significant for future educators in the context of sustainable eco-friendly environments (Adepoju, 2017). The perceptions of teacher educators significantly influence the development of environmental literacy among future educators. Educators who value and prioritize green education are more likely to instill a sense of environmental responsibility in their students, contributing to a generation of environmentally conscious citizens (Stevenson & Peterson, 2016). Teacher educators serve as role models for future educators. If they are positively inclined towards integrating green education, it increases the likelihood that pre-service teachers will adopt and incorporate sustainable practices in their future classrooms and educational practices (Krasny & Tidball, 2019). Teacher educators' perceptions influence the level of preparation future educators receive as to address complex ecological challenges. An emphasis on green education in teacher training equips educators with the knowledge and skills needed to navigate and address environmental issues in their teaching roles (Zeidler, 2018). Positive perceptions of teacher educators regarding green education can lead to the integration of innovative and effective teaching practices. This, in turn, enhances the quality of environmental education that future educators can provide to their students, fostering a deeper understanding of sustainability principles (Ajayi & Kalesanwo, 2017). In conclusion, teacher educators' perceptions on integrating green education not only impact the design of teacher education curricula but also exert a profound influence on the environmental literacy and teaching practices of future educators. Understanding and addressing these perceptions are essential for creating a curriculum that effectively prepares educators to contribute to a sustainable and eco-friendly environment.

Previous research has explored the integration of green education in teacher education curricula, highlighting its significance and challenges. Studies have examined the impact of environmental education on teacher preparation, the effectiveness of various pedagogical approaches, and the barriers to successful integration. Research has emphasized the importance of incorporating environmental and sustainability principles into teacher education. For instance, studies by Stevenson and Peterson (2016) highlight how green education contributes to the development of environmentally literate individuals who can address complex ecological challenges. Previous research has identified barriers to the integration of green education, including limited resources, time constraints, and a lack of awareness among educators (Zeidler, 2018). These challenges underscore the need for understanding teacher educators' perceptions to address specific hindrances in the Nigerian context. Studies have explored effective pedagogical approaches for integrating green education, such as place-based learning, experiential education, and interdisciplinary methods (Krasny & Tidball, 2019). These

findings provide insights into strategies that could be considered when designing or modifying teacher education programs.

While existing research contributes valuable insights, there is a noticeable gap in understanding the specific perceptions of teacher educators in Nigeria regarding the integration of green education into teacher education curricula. This study seeks to fill this gap by focusing on the context-specific insights into the challenges and opportunities associated with integrating green education into teacher education in Nigeria. This is crucial as educational systems vary, and understanding the local context is essential for effective implementation (Adeyinka & Olatundun, 2020).

Research questions

1. What are the challenges faced by teacher educators in Nigeria as perceived by Michael Okpara University of Agriculture (MOUAU) and Alvan Ikoku University of Education Owerri (AIUE) lecturers regarding the integration of green education into teacher education curricula?
2. How do Michael Okpara University of Agriculture (MOUAU) and Alvan Ikoku University of Education Owerri (AIUE) lecturers view the opportunities and benefits associated with incorporating green education principles into teacher training programs?
3. Do the perceptions of Michael Okpara University of Agriculture (MOUAU) and Alvan Ikoku University of Education Owerri (AIUE) lecturers influence the successful integration of green education principles into teacher training programmes in their various institutions?

Methodology

A descriptive survey design was used for the study. This study sets to find out the perception of teacher-educators on integrating green education in teacher education curriculum for sustainable eco-friendly environment. It will specifically determine if there are differences between lecturers in School of Education Michael Okpara University of Agriculture (MOUAU) and lecturers in Alvan Ikoku University of Education Owerri (AIUE) on integrating green education in teacher education curriculum for sustainable eco-friendly environment. The study was carried out in School of Education, Michael Okpara University of Agriculture (MOUAU) with a population of 136 academic staff and Alvan Ikoku University of Education Owerri (AIUE) with a population of 709 academic staff. The entire academic staff of School of Education MOUAU was used as sample because the population is small while the purposive sampling technique was employed in selecting the second sample, in which the researchers used 191 academic staff in School of General Education AIUE. The total sample was 327 teacher-educators. Instrument for data collection was a questionnaire titled "Teacher-educators Perception Questionnaire on integrating green education in teacher education curriculum for sustainable eco-friendly environment" (TPQ IGTCSE). This is a 15-item questionnaire designed by the researchers and validated by three experts in Department of Environmental

Science Education and Educational Psychology, in Alvan Ikoku University of Education, Owerri. The instrument has part 1, 2; 3 & 4. Part one sought for demographic information of respondents; part two sought information on the perceived challenges faced by teacher educators regarding the integration of green education into teacher education curricula; part three sought information to determine the response of teacher educators on the opportunities and benefits associated with incorporating green education principles into teacher training programs. Part four sought information to determine the influence of lecturers on the successful integration of green education principles into teacher training programmes in their various institutions. The items had four response categories of Strongly agree (SA); Agree (A); Disagree (D) and Strongly disagree (SD) scoring 4, 3, 2 and 1 respectively. The instrument was face validated by four experts in the Department of Environmental Science Education, Alvan Ikoku University of Education, Owerri. Their contributions gave rise to the final instrument used for the study. The instrument was subjected to trial testing using Cronbach Alpha to determine its internal consistency using thirty-six lecturers outside the study population. The reliability of TPQIGTCSE was 0.84. The instrument was administered to the respondents with the help of two trained research assistants which ensured 100% return. Data were analyzed using mean and standard deviation to answer the research questions. The decision rule was that any mean score of 2.50 and above was accepted otherwise it was rejected. The value of 2.50 was considered as a benchmark for decision making.

Presentation of result Table: 1: Prevailing responses of MOUAU and ALVAN lecturers regarding the perceived challenges that will be faced by teacher educators regarding the integration of green education into teacher education curricula

S/N	ITEM STATEMENT	MOUAU			ALVAN LECTURES		
		$\bar{x}$	SD	REM	$\bar{x}$	SD	REM
1	Integrating green education into teacher education curricula will be challenging due to limited financial resources.	3.47	0.65	Accept	3.50	0.68	Accept
2	Time constraints will significantly hinder the successful integration of green education principles into teacher training programs.	2.80	0.56	Accept	2.82	0.54	Accept
3	There is a lack of awareness among educators about the importance and benefits of green education.	2.51	0.41	Accept	2.59	0.40	Accept

4	Insufficient training and professional development opportunities for teacher educators will pose a challenge in incorporating green education into teacher education.	3.41	0.64	Accept	3.43	0.62	Accept
	The current curriculum structure in teacher education programs will not provide sufficient flexibility for the integration of green education in teacher educator curriculum.	3.29	0.54	Accept	3.31	0.52	Accept
Cluster mean		3.16	0.56		3.13	0.55	

Table1. Shows that all the items on the questionnaire were accepted as they had response mean greater than the instrument scale mean of 2.50. Also, the average mean (3.16) for MOUAU and (3.13) for the AIUE are greater than the scale mean. This implies that teacher educators are of the opinions that limited financial resources, time constraints, lack of awareness, insufficient training and current curriculum structure are the perceived challenges that will be faced by teacher educators regarding the integration of green education into teacher education curricula.

Table: 2: Prevailing beliefs responses of MOUAU and ALVAN lecturers regarding the opportunities and benefits associated with incorporating green education principles into teacher training programme

S/N	**ITEM STATEMENT**	**MOUAU**			**ALVAN LECTURES**		
		$\bar{x}$	SD	REM	$\bar{x}$	SD	REM
1	Integrating green education will enhance environmental literacy among future educators.	3.48	0.69	Accept	3.50	0.70	Accept
2	Green education will contribute to the development of environmentally conscious and responsible citizens.	3.58	0.62	Accept	3.56	0.61	Accept
3	Incorporating green education principles will allow for a holistic understanding of environmental issues across various subjects	3.21	0.41	Accept	3.30	0.50	Accept
4	Green education will contribute to the development of environmentally conscious and responsible citizens	3.34	0.67	Accept	3.35	0.66	Accept
5	Integrating green education will enhance environmental literacy among future educators	3.25	0.48	Accept	3.18	0.51	Accept
Cluster mean		3.37	0.57		3.38	0.58	

Table 2. Shows that all the items on the questionnaire were accepted as they had response mean greater than the instrument scale mean of 2.50. Also, the average mean (3.37) for MOUAU and (3.38) for the AIUE are greater than the scale mean. This implies that teacher educators are of the positive perception of the opportunities and benefits associated with incorporating green education principles into teacher training programme.

Table: 3: Prevailing responses of MOUAU and ALVAN lecturers regarding the influence of lecturers for the successful integration of green education principles into teacher training programmes in their various institutions.

S/N	ITEM STATEMENT	MOUAU			ALVAN LECTURES		
		$\bar{x}$	SD	REM	$\bar{x}$	SD	REM
1	Positive attitudes and perceptions of teacher educators positively influence the successful integration of green education principles	3.19	0.45	Accept	3.06	0.42	Accept
2	Teacher educators who prioritize green education are more likely to instill a sense of environmental responsibility in their students.	3.55	0.42	Accept	3.52	0.44	Accept
3	The willingness of teacher educators to integrate green education influences the inclusion of experiential learning opportunities in the curriculum	2.61	0.74	Accept	2.63	0.72	Accept
4	Teacher educators' positive perceptions will significantly impact the level of preparation future educators will receive to address ecological challenges.	3.64	0.77	Accept	3.65	0.73	Accept
5	The inclusion of innovative and effective teaching practices related to green education is influenced by positive perceptions of teacher educators.	3.54	0.68	Accept	3.51	0.62	Accept
Cluster mean		3.31	0.69	Accept	3.45	0.59	Accept

Table 3. Shows that all the items on the questionnaire were accepted as they had response mean greater than the instrument scale mean of 2.50. Also, the average mean (3.31) for MOUAU and (3.45) for the AIUE are greater than the scale mean. This implies that teacher educators are of the opinion that their attitude, willingness and resourcefulness influence the successful integration of green education principles into teacher training programmes in their various institutions.

Discussion of result

Table 1 presents the perceived challenges faced by teacher educators in Nigeria, specifically lecturers from Michael Okpara University of Agriculture (MOUAU) and Alvan Ikoku University of Education Owerri (AIUE), regarding the integration of green education into teacher education curricula. The results indicate that all the items related to challenges were accepted, as their response mean values were greater than the instrument scale mean of 2.50. This suggests that teacher educators recognize and acknowledge certain challenges in integrating green education, including limited financial resources, time constraints, lack of awareness, insufficient training, and the existing curriculum structure. These findings align with the literature, as previous research has identified similar challenges in the integration of green education. For instance, limited resources and time constraints have been recognized as common barriers to the successful implementation of environmental education programs (Zeidler, 2018). The acknowledgment of these challenges by teacher educators is crucial for curriculum designers and policymakers to address these issues effectively. Table 2 focuses on the opportunities and benefits associated with incorporating green education principles into teacher training programs. The results indicate that all the items related to opportunities and benefits were accepted, as their response mean values were greater than the instrument scale mean of 2.50. Teacher educators from both institutions expressed positive perceptions of the potential benefits, such as enhancing environmental literacy, developing environmentally conscious citizens, fostering a holistic understanding of environmental issues, and contributing to responsible citizenship. These positive perceptions align with the literature, which emphasizes the importance of green education in developing environmentally literate individuals who can address complex ecological challenges (Stevenson & Peterson, 2016). The recognition of these opportunities and benefits by teacher educators reinforces the importance of integrating green education into teacher education curricula for the overall development of environmentally responsible citizens. Table 3 examines the influence of teacher educators on the successful integration of green education principles into teacher training programs. The results indicate that all the items related to the influence of teacher educators were accepted, as their response mean values were greater than the instrument scale mean of 2.50. Teacher educators' positive attitudes, willingness to integrate green education, and resourcefulness were perceived to positively impact the successful integration of green education principles. These findings align with the literature, which emphasizes the role of teacher educators as influential figures in shaping the values, attitudes, and practices of future educators (Krasny & Tidball, 2019). The positive perceptions of teacher educators regarding green education contribute to the development of environmentally conscious students and the incorporation of innovative teaching practices.

Recommendations

1. Relevant authorities in Nigerian universities should design and implement professional development programmes for teacher educators to address the identified challenges in integrating green education.

2. Relevant universities authorities should foster collaboration between teacher educators, environmental science education departments, and educational psychology departments.
3. Relevant universities authorities should emphasize the importance of experiential learning, outdoor activities, and hands-on experiences in the teacher education curricula.
4. Relevant universities authority should collaborate with curriculum designers to create teacher education curricula that allow for the seamless integration of green education principles across various subjects.

Conclusion

This study assessed the perceptions of teacher educators at Michael Okpara University of Agriculture (MOUAU) and Alvan Ikoku University of Education Owerri (AIUE) regarding the integration of green education into teacher education curricula for a sustainable and eco-friendly environment in Nigeria. The findings revealed that teacher educators acknowledged challenges such as limited financial resources, time constraints, lack of awareness, insufficient training, and existing curriculum structures. However, they also expressed positive perceptions regarding the opportunities and benefits associated with incorporating green education principles, including enhancing environmental literacy, developing responsible citizens, and fostering a holistic understanding of environmental issues. Additionally, teacher educators recognized their influential role in the successful integration of green education, emphasizing the importance of their attitudes, willingness, and resourcefulness. Overall, the study highlights the importance of addressing challenges and leveraging opportunities to effectively integrate green education into teacher education programs, thereby cultivating environmentally conscious educators for a sustainable future.

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