



Teachers at the Forefront of SDGs: Awareness and Instructional Readiness of Secondary School Teachers in Ibadan Metropolis

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Abstract

Sustainable development education has gained global prominence, yet there is limited empirical research on teachers' awareness and readiness in the Nigerian secondary school context. Addressing this gap, the present study investigates the extent to which secondary school teachers in Ibadan Metropolis are aware of and prepared to teach sustainable development concepts. A descriptive survey design was employed using the Teachers' Sustainable Development Awareness and Readiness Questionnaire (TSDARQ). Stratified and simple random sampling techniques were applied to select 300 practising teachers across public and private schools. Findings revealed high levels of awareness ($M = 3.40$, $SD = 0.68$) and readiness ($M = 3.54$, $SD = 0.59$), both exceeding the benchmark threshold of 2.50. However, systemic support and instructional resources remain insufficient to fully enable classroom integration. These findings provide initial empirical evidence from an under-researched Nigerian context and underscore the need for sustained professional development, provision of adequate instructional resources, and policy alignment. It is recommended that continuous training, curriculum integration, and adequate instructional resources be prioritised to empower teachers as effective drivers of sustainability education.

Keywords: Education for Sustainable Development (ESD), Sustainability, Sustainable Development Goals (SDGs), Teachers' Awareness of SDGs, Teachers' readiness to teach SDGs

Introduction

The world today faces complex and interrelated challenges, including climate change, environmental degradation, resource depletion, and widening social inequalities. These issues pose a serious threat to the well-being of current and future generations, highlighting the urgent need for sustainable development. Sustainable development emphasises a balanced integration of economic growth, environmental protection, and social equity, built on the understanding that long-term progress depends on the

stability and resilience of the Earth's life-support systems (Bell, 2017). While universally acknowledged, the concept of sustainability is often interpreted differently depending on the context. For instance, entrepreneurs may view it through the lens of resource efficiency and profitability, whereas educators and policymakers may view it as a means of fostering long-term welfare, equity, and justice. Nonetheless, the core principle remains the same: meeting present needs without compromising the ability of future

generations to meet theirs (Browning & Rigolon, 2019; Taylor, 2016).

Recognising the critical role of education in achieving sustainability, the United Nations introduced the 2030 Agenda for Sustainable Development in 2015. This framework outlines 17 Sustainable Development Goals (SDGs), one of which is the promotion of quality education as a means to empower individuals with the skills, values, and knowledge needed for a sustainable future. Central to this is Education for Sustainable Development (ESD), championed by UNESCO, which focuses on integrating sustainability into educational policies, curricula, teacher training, and community initiatives. Teachers, as key facilitators of learning, are instrumental in translating the ideals of sustainability into classroom practice. Their awareness, attitudes, and preparedness significantly influence how learners understand and respond to sustainability challenges (Alkaher & Carmi, 2019; Buchanan & Crawford, 2015; Nation & Feldman, 2021). Scholars agree that education is a vital instrument in addressing global sustainability concerns, as it cultivates critical thinking, responsible citizenship, and lifelong learning (Gough & Scott, 2003; Mensah & Enu-Kwesi, 2018; Thomas, 2015). Teaching sustainability enables students to grasp the interdependence between environmental, economic, and social systems, fostering informed decision-making and ethical responsibility (Kabadayi, 2016; Muthersbaugh & Kern, 2012). However, the successful integration of sustainability into teaching requires teachers to possess a solid understanding of its principles and be confident and prepared to teach them.

Despite the growing emphasis on ESD globally, much of the existing research has focused on pre-service teachers and tertiary-level students (Aydın & Keleş, 2021; Zhukova et al., 2020). However, there is limited empirical data on practising (in-service) teachers, especially within the Nigerian context, where sustainability

education is still emerging and inconsistently implemented. This gap is significant, as in-service teachers serve as the primary agents of curriculum delivery and are directly responsible for embedding sustainability concepts in everyday classroom instruction. This, therefore, made teachers' awareness of the SDGs critical. Teachers' awareness refers to their understanding of sustainable development concepts, such as environmental stewardship, economic viability, social justice, and their recognition of their relevance to teaching (Mensah, 2019; Omisore et al., 2017). Meanwhile, readiness encompasses not only their knowledge and attitudes but also their sense of competence and willingness to implement sustainability education in practice (Fan et al., 2019; Park et al., 2017; Straková, 2015). When teachers are both aware and ready, they are more likely to integrate sustainability meaningfully into their teaching and influence their students' behaviours and mindsets positively.

Ibadan Metropolis was selected as the study area because it is one of the largest and most diverse urban centres in Nigeria (Ikudayisi & Taiwo, 2022), with both public and private secondary schools that reflect the country's educational, cultural, and socio-economic diversity. Ibadan, as an educational hub and a city grappling with rapid urbanisation, environmental challenges, and social inequalities (Oyeranmi, 2023; Varghese, 2024), provides a representative context for examining teachers' awareness and readiness to teach sustainability concepts. Therefore, this study seeks to assess the awareness and readiness of secondary school teachers in Ibadan Metropolis, Nigeria, to teach sustainable development goal concepts. Addressing this gap is essential for informing policy reforms, designing effective teacher training programmes, and developing curricula that align with the goals of sustainable development.

Research Questions

The following research questions were highlighted to guide the focus of the study.

1. What is the level of teachers' awareness of the concepts of Sustainable Development Goals?
2. Are teachers ready to teach the concepts of sustainable development for sustainability?

Methodology

Research Design

The study adopted a descriptive survey design. The target population comprised all secondary school teachers within the metropolis. A stratified random sampling technique was employed to enhance representativeness. First, schools were categorised into public and private strata to ensure proportional inclusion. For each category, a list of schools was compiled, and a random sample was selected using the lottery method. Following the selection of schools, simple random sampling was used to select teachers from the staff lists of the selected schools. This two-stage sampling approach—stratification by school type and random selection of both schools and respondents—was designed to minimise bias and ensure that every teacher had an equal probability of being included in the study, resulting in a total of 300 teachers.

Research Instrument

The research instrument used for this study is the Teachers' Sustainable Development Awareness and Readiness Questionnaire

(TSDARQ). The questionnaire consists of three sections: the first section consists of demographic information of the participants; the second section is an awareness scale of 10 items with 4 Likert responses of Great Extent (GE) (4), Some Extent (SE) (3), Little Extent (LE) (2), and Not At All (NAA) (1); and the third section has 10 items that assess Teachers' Readiness to Teach Sustainable Development Goals on a 4 Likert scale with responses of Not ready at all (1), Not too ready (2), Ready (3), Very much ready (4). The validity of the data collection instrument was established by experts in the field of education, who carefully reviewed the items to ensure they were clear, relevant, and aligned with the study's objectives. To assess the reliability of the instrument, internal consistency analysis was conducted using Cronbach's Alpha. The result yielded a reliability coefficient of 0.90, indicating a high level of reliability and suggesting that the items on the instrument consistently measured the intended construct.

Data Analysis

The data collected were analysed using descriptive statistics of frequency count, mean, and standard deviation.

Results

RQ 1: What is the level of teachers' awareness of the concepts of Sustainable Development Goals?

Table 1 Teachers' Awareness of the Concepts of Sustainable Development Goals.

ITEMS	GE	SE	LE	NAA	X	Std
To what extent are you aware of the concept of sustainable development?	200 66.7	74 24.7	22 7.3	4 1.3	3.57	.688
To what extent are you aware that sustainable development satisfies current needs without jeopardising future generations' ability to meet theirs?	194 64.7	84 28.0	18 6.0	4 1.3	3.56	.669
To what extent are you aware of the United Nations SDGs?	159 53.0	117 39.0	20 6.7	4 1.3	3.56	.654
To what extent are you aware that the implementation of the SDGs started in 2015?	190 63.6	91 30.3	15 5.0	4 1.3	3.56	.654
To what extent are you aware that the implementation of the SDGs will end in 2030?	194 64.7	84 28.0	18 6.0	4 1.3	3.56	.669
To what extent are you aware that the SDGs have a teaching and learning component?	163 54.3	110 37.0	19 6.3	7 2.3	3.43	.717
To what extent are you aware that education for sustainable development has been identified by UNESCO as one of the implementation frameworks to enhance the SDGs?	194 64.7	84 28.0	18 6.0	4 1.3	3.56	.654
To what extent are you aware that the SDGs have three components, which are Economic, Environmental, and Social factors?	164 54.7	110 36.7	19 6.3	7 2.7	3.44	.717
To what extent are you aware that, to achieve sustainable development, everyone in the world must have access to quality education?	194 64.7	84 28.0	18 6.0	4 1.3	3.56	.669
Are you aware that education for sustainable development is meant to be taught to students at all levels of education?	159 53.0	117 39.0	20 6.7	4 1.3	3.44	.679

Weighted average: 3.4

Threshold 2.50

Keys: GE (4) - Great Extent, SE (3) - Some Extent, LE (2) - Little Extent, NAA (1) - Not At All, X - Mean, and Std - Standard deviation

Table 1 revealed a generally high level of teachers' awareness of the Sustainable Development Goals (SDGs), with all mean scores above the 2.50 threshold (range: 3.43–3.57; weighted average = 3.40). Awareness of the general concept of

sustainable development was the highest (M = 3.57, SD = 0.688), showing strong consensus among teachers, while knowledge of the 2015–2030 SDG timeline also ranked high (M = 3.56, SD = 0.654). However, awareness of the SDGs' teaching

and learning component ($M = 3.43$, $SD = 0.717$) and their integration into all levels of education ($M = 3.44$, $SD = 0.679$) was relatively low, with higher variation suggesting less uniformity in pedagogical understanding compared to conceptual knowledge. These results indicate that while teachers possess a solid and consistent grasp of the broader principles and timeline of sustainable development, there is more

variability and uncertainty when linking SDGs to classroom instruction, pointing to a need for targeted professional training in educational applications of sustainability.

RQ 2: Are teachers ready to teach the concepts of sustainable development for sustainability?

Table 2. Teachers' Readiness to Teach Sustainable Development Goals.

ITEMS	4	3	2	1	X	Std
Are you ready to teach your students about sustainable development?	185 61.7	107 35.7	7 2.3	1 0.3	3.59	.557
Do you think you are sufficiently knowledgeable and skilful about sustainable development?	193 64.3	97 23.3	7 2.3	3 1.0	3.60	.590
Are you ready to teach the concept, knowledge, and skills of sustainable development to your students?	183 61.0	101 33.7	7 2.3	9 3.0	3.53	.691
Are you ready to create a well-being atmosphere in school when teaching sustainable development?	188 62.7	100 33.3	5 1.7	7 2.3	3.56	.649
Do you see teaching of sustainable development in schools as a waste of time?	211 70.0	83 27.7	4 1.3	2 0.7	3.68	.535
Are you ready to broaden your knowledge and experience through the teaching of sustainable development?	173 57.7	107 35.7	18 6.0	2 0.7	3.50	.641
Are you ready to teach sustainable development to students, even if the students are not ready to learn it?	170 57.7	120 40.0	8 2.7	2 0.7	3.53	.586
Are you ready to learn new things that can help you learn sustainable development better?	191 63.7	98 32.7	10 3.3	1 1.3	3.60	.573
Do you have the instructional resources required to teach sustainable development to students?	158 52.7	112 37.3	15 5.0	2 0.7	3.51	.626
Are your school management and other stakeholders ready to support and embrace the teaching of education for sustainable development?	157 52.7	112 36.2	14 4.0	2 0.6	3.52	.625

Weighted average: 3.54

Threshold 2.50

Keys: Not ready at all (1), Not too ready (2), Ready (3), Very much ready (4), X - Mean, and Std - Standard deviation

Table 2 revealed that teachers also demonstrated a high level of readiness to teach sustainability concepts, with mean scores ranging from 3.50 to 3.68 and an

overall weighted average of 3.54. The highest readiness was observed in teachers' rejection of the belief that teaching SDGs is a waste of time ($M = 3.68$, $SD = 0.535$), reflecting

strong attitudinal commitment, while many also considered themselves sufficiently knowledgeable ($M = 3.60$, $SD = 0.590$) and open to learning new strategies to improve their teaching ($M = 3.60$, $SD = 0.573$). Meanwhile, comparatively lower scores with greater variation were recorded in areas such as broadening knowledge through teaching ($M = 3.50$, $SD = 0.641$), access to instructional resources ($M = 3.51$, $SD = 0.626$), and school management support ($M = 3.52$, $SD = 0.625$). These patterns suggest that while teachers are highly motivated, confident, and willing to engage with sustainability education, structural factors such as resource availability and institutional support may constrain effective classroom implementation.

Discussion

The findings of this study indicate that secondary school teachers in Ibadan Metropolis possess a high level of awareness regarding sustainable development concepts. The consistently high mean scores across all awareness items, ranging from 3.43 to 3.57, suggest that these educators are not only familiar with the general concept of sustainable development but also aware of its specific frameworks, such as the Sustainable Development Goals (SDGs), the implementation timeline (2015–2030), and the role of education as a vehicle for achieving these goals. This marked improvement compared to earlier studies, such as Omisore et al. (2017), who reported limited awareness among university staff and students in southwestern Nigeria, could be attributed to several contextual factors. In Ibadan, there has been increasing exposure to SDG-related discourse through radio programmes, advocacy campaigns, social media, and teacher training initiatives organised by governmental and non-governmental agencies. Such platforms have likely played a role in popularising sustainability issues, thereby contributing to heightened teacher awareness. It is also possible that teachers' responses reflect an element of social desirability bias, as

sustainability has become widely recognised as a “good” or socially expected stance.

The role of teachers' awareness in fostering effective sustainability education cannot be overstated. Awareness forms the foundation upon which pedagogical approaches are developed, influencing both the content and delivery of instruction. Ogunyemi et al. (2022) emphasised that familiarity with sustainability concepts significantly affects teachers' ability to teach such content effectively. Similarly, Aydın and Keleş (2021) observed that awareness levels among pre-service teachers vary by discipline and recommended the integration of sustainability education across all faculties of education. The present findings, showing strong awareness among in-service teachers, support the argument for reinforcing sustainability knowledge at both pre-service and professional development levels. In addition to awareness, the study revealed a high degree of readiness among teachers to implement sustainable development education in their classrooms. The weighted mean score of 3.54 across readiness items reflects strong positive dispositions toward integrating sustainability into teaching practice. Teachers demonstrated a willingness to expand their knowledge base, utilise available instructional resources, and create inclusive classroom environments conducive to sustainability education. Moreover, the teachers' positive attitudes toward the relevance and importance of teaching sustainability, even in the face of student disinterest, highlight a commendable level of professional commitment.

However, a noteworthy contradiction emerges: while teachers report high readiness overall, the lowest mean scores were observed for items relating to the availability of instructional resources and stakeholder support (≈ 3.51). This indicates a gap between individual readiness and systemic readiness. Teachers appear personally willing and motivated to teach sustainable development; however, institutional structures, such as the provision of teaching materials,

administrative support, and broader policy implementation, are lagging. This mismatch suggests that teachers may struggle to translate their readiness into practice without adequate systemic backing. Addressing this gap requires targeted interventions, including the provision of teaching resources, active involvement of school management, and stronger stakeholder engagement.

These findings also align with those of Vukelić (2022), who reported that participation in ESD training programmes significantly enhances teachers' implementation intentions and self-efficacy. Similarly, Alkahtani (2022) asserted that exposure to sustainability pedagogies improves teacher confidence and preparedness. The responses in this study also reflected the four readiness dimensions identified by Manasia et al. (2019)—professional knowledge, practice, engagement, and self-management—demonstrating that these teachers possess not only content knowledge but also the behavioural and motivational readiness to deliver sustainability instruction effectively. Another key insight from this study is the teachers' openness to continuous professional development, particularly their willingness to acquire new knowledge and skills in teaching sustainable development. This resonates with the work of Yang et al. (2024), who noted that teacher motivation and behaviour are critical components of readiness for sustainability education, while pedagogical knowledge requires ongoing enhancement. Mohamed et al. (2017) also emphasised the importance of curriculum familiarity, pedagogical planning, and instructional strategy in shaping teaching readiness, all of which were positively reflected in the teachers' responses.

The findings suggested a positive trajectory in the integration of sustainability education within the Nigerian secondary school context. The combination of high awareness and strong readiness among practising teachers in Ibadan indicated a conducive environment for implementing

Education for Sustainable Development (ESD). However, the observed resource and support gaps highlight the need for systemic reforms and teacher readiness. Strengthening school-level support, expanding resource availability, and institutionalising ESD training policies will be crucial in ensuring that the promising individual dispositions of teachers translate into sustainable classroom practices.

Conclusion

In conclusion, this study contributes initial empirical evidence from the under-researched Nigerian secondary school context, showing that teachers in Ibadan Metropolis exhibit both high awareness of sustainable development concepts and strong readiness to teach them. While this demonstrates a promising foundation for advancing Education for Sustainable Development (ESD), the findings also reveal a critical gap: teachers' individual motivation and preparedness are not fully matched by systemic support in terms of resources and stakeholder involvement. This mismatch highlights the need for institutional and policy-level interventions to complement teachers' efforts. By situating these results within the broader literature, the study addresses a gap in African-based ESD research and emphasises that achieving sustainability goals requires not only teacher readiness but also robust systemic support.

Recommendations

The paper concludes with the following recommendations:

- **Professional Development:** Regular training and capacity-building programmes on sustainability and ESD pedagogies should be organised for in-service teachers to deepen their conceptual understanding and instructional skills.
- **Curriculum Integration:** Sustainable development concepts should be systematically embedded into secondary school curricula

across subjects to promote interdisciplinary learning and long-term student engagement.

- **Institutional Support:** Schools and educational authorities should provide the necessary resources, such as teaching aids, instructional materials, and supportive policies, to enable effective sustainability teaching.
- **Policy Enforcement:** Educational policymakers should institutionalise ESD as a mandatory component of teacher education and professional development frameworks nationwide.
- **Further Research:** Future studies should explore regional disparities in teacher awareness and readiness and examine the impact of ESD implementation on student outcomes.

References

- Agbedahin, A. V. (2019). Sustainable development, EDUCATION FOR SUSTAINABLE DEVELOPMENT, and the 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT: Emergence, efficacy, eminence, and future. *Sustainable Development*, 27(4), 669–680. <https://doi.org/10.1002/sd.1931>
- Alabi, H. I., & Sulaiman, M. M. (2019). SENIOR SCHOOL SCIENCE TEACHERS' AWARENESS OF SUSTAINABLE DEVELOPMENT GOALS. *Journal of Curriculum and Instruction*, 12(1). <https://jci-ilorin.org.ng/index.php/jci/article/view/80>
- Alkaher, I., & Carmi, N. (2019). Is population growth an environmental problem? Teachers' perceptions and attitudes towards including it in their teaching. *Sustainability*, 11(7), 1994. <https://doi.org/doi:10.3390/su11071994>
- Alkahtani, K.D.F. (2022). Professional Development: Improving Teachers' Knowledge and Self-Efficacy Related to Emotional and Behavioral Disorders. *J. Emot. Behav. Disord.*, 32, 14–23. <https://doi.org/10.1177/10634266221130049>
- Aydın, S., & Keleş, P. U. (2021). Teachers Candidates' Awareness of Sustainable Development. *Shanlax International Journal of Education*, 9(S1-May), 221–227. <https://doi.org/10.34293/education.v9iS1-May.4015>
- Bell, D. V. J. (2017). *Introduction to Sustainable Development*.
- Browning, M., & Rigolon, A. (2019). School green space and its impact on academic performance: A systematic literature review. *International Journal of Environmental Research and Public Health*, 16(3), 429. <https://doi.org/10.3390/ijerph16030429>
- Buchanan, L. B., & Crawford, E. O. (2015). Teaching for sustainability in a social studies methods course: Opportunities and challenges. *Social Studies Research and Practice*, 10(2), 135–158. <https://doi.org/10.1108/SSRP-02-2015-B0012>
- Fan, M.; Leung, L.P.; Hon, S.; Fan, K.L. (2019). Readiness of Hong Kong secondary school teachers for teaching cardiopulmonary resuscitation in schools: A questionnaire survey. *Hong Kong J. Emerg. Med.*, 26 (3) 174–178. <https://doi.org/10.1177/1024907918797532>
- Goller, A., & Rieckmann, M. (2022). What do we know about teacher educators' perceptions of education for sustainable development? A systematic literature review. *Journal*

- of Teacher Education for Sustainability*, 24(1), 19-34.
- Gough, S., & Scott, W. (2003). Sustainable development and learning: Framing the issues. Routledge. <https://doi.org/10.4324/9780203464625>
- Ikudayisi, A. E., & Taiwo, A. A. (2022). Accessibility and inclusive use of public spaces within the city-centre of Ibadan, Nigeria. *Journal of Place Management and Development*, 15(3), 316-335. <https://doi.org/10.1108/JPMD-08-2020-0077>
- Kabadayi, A. (2016). A suggested in-service training model based on Turkish preschool teachers' conceptions for sustainable development. *Journal of Teacher Education for Sustainability*, 18(1), 5-15. <https://doi.org/10.1515/jtes-2016-0001>
- Malik, M. S. K., Qi, Z., Iqbal, M., Zamir, S., & Malik, B. F. (2022). Education for sustainable development: Secondary school teacher's awareness and perception of integration. *Sustainable Development*, 31(3), 1515-1525. <https://doi.org/10.1002/sd.2463>
- Manasia, L., Ianos, M. G., & Chicioreanu, T. D. (2019). Pre-Service Teacher Preparedness for Fostering Education for Sustainable Development: An Empirical Analysis of Central Dimensions of Teaching Readiness. *Sustainability*, 12(1), 166. <https://doi.org/10.3390/su12010166>
- Mensah, J., & Enu-Kwesi, F. (2018). Implication of environmental sanitation management in the catchment area of Benya Lagoon, Ghana. *Journal of Integrative Environmental Sciences*, 16 (1) 23-43 <https://doi.org/10.1080/1943815x.2018.1554591>
- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1), 1653531. <https://doi.org/10.1080/23311886.2019.1653531>
- Mohamed, Z., Valcke, M., & De Wever, B. (2017). Are they ready to teach? Student teachers' readiness for the job with reference to teacher competence frameworks. *Journal of Education for Teaching*, 43(2), 151-170. <https://doi.org/10.1080/02607476.2016.1257509>
- Muthersbaugh, D., & Kern, A. (2012). Pre-service teachers use of images in integrating environmental sustainability lessons. *Journal of Teacher Education for Sustainability*, 14 (1) 67-79. <https://doi.org/10.2478/v10099-012-0006-8>
- Nation, M. T., & Feldman, A. (2021). Environmental education in the secondary science classroom: How teachers' beliefs influence their instruction of climate change. *Journal of Science Teacher Education*, 32(5), 481-499. <https://doi.org/10.1080/1046560X.2020.1854968>
- Ogunyemi, B., Ifegbesan, A., Benedict, H. T., Ogunsanya, A. O., Iyunade, O. T., Olubela, A., Itasanmi, B., & Edewor, K. (2022). Knowledge, Perceptions and Readiness of Nigeria's Beginning Teachers for Sustainability Education. *Journal of Teacher Education for Sustainability*, 24(2), 180-194. <https://doi.org/10.2478/jtes-2022-0024>
- Omisore, A. G., Babarinde, G. M., Bakare, D. P., & Asekun-Olarinmoye, E. O. (2017). Awareness and knowledge of the sustainable development goals in a University Community in

- Southwestern Nigeria. *Ethiopian Journal of Health Sciences*, 27(6), 669.
<https://doi.org/10.4314/ejhs.v27i6.12>
- Oyeranmi, S. (2023). Environmental management and sustainable development of cities: a case study of Ibadan, Nigeria. Ethics International Press.
https://books.google.com.ng/books?hl=en&lr=&id=VRflEAAAQBAJ&oi=fnd&pg=PR8&dq=ibadan+is+an+educational+hub+and+a+city+grappling+with+rapid+urbanisation,+environmental+challenges,+and+social+inequalities,&ots=-CER-odeKS&sig=ot-37Eupcl3xrMlPzbAXeM3D2q4&redir_esc=y#v=onepage&q&f=false
- Öztürk Demirbaş, Çağrı. (2015). "Sustainable Development Awareness Levels of Teachers Pre-Service." *Marmara Coğrafya Dergisi*, no. 31, pp. 300-316.
<https://hdl.handle.net/20.500.12513/2024>
- Park, M.H.; Dimitrov, D.M.; Patterson, L.G.; Park, D.Y. (2017). Early childhood teachers beliefs about readiness for teaching science, technology, engineering, and mathematics. *J. Early Child. Res.*, 15 (3) 275–291.
<https://doi.org/10.1177/1476718X15614040>
- Rodriguez, V., Lynne Solis, S., Mascio, B., Kiely Gouley, K., Jennings, P. A., & Brotman, L. M. (2020). With Awareness Comes Competency: The Five Awarenesses of Teaching as a Framework for Understanding Teacher Social-Emotional Competency and Well-being. *Early Education and Development*, 31(7), 940–972.
<https://doi.org/10.1080/10409289.2020.1794496>
- Straková, Z. (2015). The perception of readiness for teaching profession: A case of pre-service trainees. *J. Lang. Cult. Educ.*, 3(1) 32–42.
- Sundh, S. (2020). Establishing Sustainable Teacher Education with Weekly School Practice: Identifying Teacher Students' Experiences of Didactic Dilemmas in the Swedish Primary School Classroom. *Journal of Teacher Education for Sustainability*, 22(1), 37-48.
- Taylor, S. J. (2016). *A review of sustainable development principles: Centre for environmental studies*. South Africa: University of Pretoria.
- Thomas, C. F. (2015). Naturalizing Sustainability Discourse: Paradigm, Practices and Pedagogy of Thoreau, Leopold, Carson and Wilson: Ph.D Thesis: Arizona State University
- Tjarve, B., & Zemite, I. (2016). The Role of Cultural Activities in Community Development. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 64(6) 2151–2160
<https://doi.org/10.11118/actaun201664062151>
- UNESCO. (2021). Berlin Declaration on Education for Sustainable Development.
<https://en.unesco.org/events/ESDfor2030>
- VARGHESE, T. (2024). NAVIGATING THE PATH OF PROGRES:" A COMPREHESIVE STUDY OF IBADAN'S DEVELOPMENTAL GROWTH AND LIVABILITY" (Doctoral dissertation, St. Teresa's College (Autonomous) Ernakulam).
<http://117.239.78.102:8080/jspui/bitstream/123456789/4723/1/Teena%20Varghese-%20Project-1.pdf>
- Vukelić, N. (2022). Student Teachers' Readiness to Implement Education for Sustainable Development. *Education Sciences*, 12(8), 505.

<https://doi.org/10.3390/educsci12080505>

Yang, W., Chinedu, C. C., Chen, W., Saleem, A., Ogunniran, M. O., Ñacato Estrella, D. R., & Vaca Barahona, B. (2024). Building Capacity for Sustainability Education: An Analysis of Vocational Teachers' Knowledge, Readiness, and Self-

Efficacy. *Sustainability*, 16(9), 3535.
<https://doi.org/10.3390/su16093535>

Zhukova, O., Fjodorova, I., & Iliško, D. (2020). Novice Teachers' Beliefs and Knowledge about Education for Sustainable Development. *Acta Paedagogica Vilnensia*, 44, 34–44.
<https://doi.org/10.15388/ActPaed.44.3>