

REFERENCES

- [1] S. Wu, B. Bates, A. W. Zbigniew Kundzewicz, and J. Palutikof, *Climate Change and Water*. 2008. Accessed: Oct. 09, 2018. [Online]. Available: <http://acikerisim.bahcesehir.edu.tr:8080/xmlui/bitstream/handle/123456789/1056/AE0089.pdf?sequence=1>
- [2] H. M. Füssel and R. J. T. Klein, "Climate change vulnerability assessments: An evolution of conceptual thinking," *Clim. Change*, vol. 75, no. 3, pp. 301–329, 2006, doi: 10.1007/s10584-006-0329-3.
- [3] N. E. Heller and E. S. Zavaleta, "Biodiversity management in the face of climate change: A review of 22 years of recommendations," *Biol. Conserv.*, vol. 142, no. 1, pp. 14–32, 2009, doi: 10.1016/j.biocon.2008.10.006.
- [4] S. Guo, S. Zheng, Y. Hu, J. Hong, X. Wu, and M. Tang, "Embodied energy use in the global construction industry," *Appl. Energy*, vol. 256, no. August, p. 113838, 2019, doi: 10.1016/j.apenergy.2019.113838.
- [5] D. Ivanova, J. Barrett, D. Wiedenhofer, B. Macura, and M. Callaghan, "Quantifying the potential for climate change mitigation of consumption options OPEN ACCESS Quantifying the potential for climate change mitigation of consumption options," 2020.
- [6] O. Balaban and J. A. Puppim de Oliveira, "Sustainable buildings for healthier cities: assessing the co-benefits of green buildings in Japan," *J. Clean. Prod.*, vol. 163, pp. S68–S78, 2017, doi: 10.1016/j.jclepro.2016.01.086.
- [7] F. A. Fard and F. Nasiri, "Applications of Passive Measures for Energy Conservation in Buildings - A Review," no. March, 2018.
- [8] R. Nadimi, "ScienceDirect ScienceDirect Analyzing of Renewable and Non-Renewable Energy consumption via Bayesian Inference Assessing the feasibility of using the heat demand-outdoor temperature function district heat demand forecast," *Energy Procedia*, vol. 142, pp. 2773–2778, 2017, doi: 10.1016/j.egypro.2017.12.224.
- [9] P. Hallinger, "A Bibliometric Review of Research on Higher Education for Sustainable Development , 1998 – 2018," 2019.
- [10] I. R. Abubakar, F. S. Al-shihri, and S. M. Ahmed, "Students ' Assessment of Campus Sustainability at the University of Dammam , Saudi Arabia," 2016, doi: 10.3390/su8010059.
- [11] R. Laurie, Y. Nonoyama-Tarumi, R. Mckeown, and C. Hopkins, "Contributions of Education for Sustainable Development (ESD) to Quality Education: A Synthesis of Research," *J. Educ. Sustain. Dev.*, vol. 10, no. 2, pp. 226–242, 2016, doi: 10.1177/0973408216661442.
- [12] J. J. Stachowicz, J. R. Terwin, R. B. Whitlatch, and R. W. Osman, "Linking climate change and biological invasions: Ocean warming facilitates nonindigenous species invasions.," *Proc. Natl. Acad. Sci. U. S. A.*, vol. 99, no. 24, pp. 15497–500, 2002, doi: 10.1073/pnas.242437499.
- [13] D. Williams Kweku *et al.*, "Greenhouse Effect: Greenhouse Gases and Their Impact on Global Warming," *J. Sci. Res. Reports Turkey. Antipas T. S. Massawe*, vol. 17, no. 62, pp. 1–9, 2017, doi: 10.9734/JSRR/2017/39630.
- [14] M. Meinshausen *et al.*, "Greenhouse-gas emission targets for limiting global warming to 2°C," *Nature*, vol. 458, no. 7242, pp. 1158–1162, 2009, doi: 10.1038/nature08017.
- [15] D. a Lashof and D. R. Ahuja, "Relative Contributions of Greenhouse Gas Emissions to Global Warming," *Nature*, vol. 344, no. 6266, pp. 529–531, 1990, doi: 10.1038/344529a0.
- [16] M. Nuruzzaman, "Urban Heat Island: Causes, Effects and Mitigation Measures - A Review," *Int. J. Environ. Monit. Anal.*, vol. 3, no. 2, p. 67, 2015, doi: 10.11648/j.ijema.20150302.15.
- [17] D. Satterthwaite, "Cities' contribution to global warming: Notes on the allocation of greenhouse gas emissions," *Environ. Urban.*, vol. 20, no. 2, pp. 539–549, 2008, doi: 10.1177/0956247808096127.
- [18] R. S. DeFries, T. Rudel, M. Uriarte, and M. Hansen, "Deforestation driven by urban population

- growth and agricultural trade in the twenty-first century,” *Nat. Geosci.*, vol. 3, no. 3, pp. 178–181, Mar. 2010, doi: 10.1038/ngeo756.
- [19] H. K. Mohajan, “Greenhouse gas emissions increase global warming,” *Management*, no. 6461, 2007, doi: 10.1111/j.1574-0862.2010.00507.x/abstract.
- [20] X. Guan, J. Ma, J. Huang, and R. Huang, “Impact of oceans on climate change in drylands,” 2019.
- [21] E. S. Poloczanska, M. T. Burrows, C. J. Brown, J. G. Molinos, B. S. Halpern, and O. Hoegh-guldberg, “Responses of Marine Organisms to Climate Change across Oceans,” vol. 3, no. May, pp. 1–21, 2016, doi: 10.3389/fmars.2016.00062.
- [22] J. F. Bruno *et al.*, “Climate change threatens the world ’ s marine protected areas,” *Nat. Clim. Chang.*, 2018, doi: 10.1038/s41558-018-0149-2.
- [23] R. Cavicchioli *et al.*, “Statement,” *Nat. Rev. Microbiol.*, vol. 17, no. September, 2019, doi: 10.1038/s41579-019-0222-5.
- [24] L. Cheng, J. Abraham, Z. Hausfather, and K. E. Trenberth, “How fast are the oceans warming?,” 2017.
- [25] O. Hoegh-guldberg, E. S. Poloczanska, W. Skirving, and S. Dove, “Coral Reef Ecosystems under Climate Change and Ocean Acidification,” vol. 4, no. May, 2017, doi: 10.3389/fmars.2017.00158.
- [26] J. Stroeve and D. Notz, “Changing state of Arctic sea ice across all seasons Changing state of Arctic sea ice across all seasons,” 2018.
- [27] M. Wang, Q. Yang, J. E. Overland, and P. Stabeno, “Deep-Sea Research Part II Sea-ice cover timing in the Paci fi c Arctic : The present and projections to mid-century by selected CMIP5 models,” no. xxxx, 2017, doi: 10.1016/j.dsr2.2017.11.017.
- [28] X. Levine, I. Cvijanovic, P. Ortega, and M. Donat, “Assessing the climate response to regional sea ice change across all Arctic regions .,” p. 14616, 2020.
- [29] S. Perkins-kirkpatrick and A. Pitman, “Extreme events in the context of climate change,” vol. 28, no. December, pp. 2–5, 2018.
- [30] S. B. Guerreiro, R. J. Dawson, C. Kilsby, E. Lewis, and A. Ford, “Future heat-waves , droughts and floods in 571 European cities OPEN ACCESS Future heat-waves , droughts and floods in 571 European cities,” 2018.
- [31] S. Sharma and P. Mujumdar, “Increasing frequency and spatial extent of concurrent meteorological droughts and heatwaves in India,” *Sci. Rep.*, no. November, pp. 1–9, 2017, doi: 10.1038/s41598-017-15896-3.
- [32] S. Khoury and D. A. Coomes, “Resilience of Spanish forests to recent droughts and climate change,” no. June, pp. 1–20, 2020, doi: 10.1111/gcb.15268.
- [33] J. E. Bell *et al.*, “Changes in extreme events and the potential impacts on human health,” *J. Air Waste Manage. Assoc.*, vol. 68, no. 4, pp. 265–287, 2018, doi: 10.1080/10962247.2017.1401017.
- [34] A. Dai, T. Zhao, and J. Chen, “Climate Change and Drought : a Precipitation and Evaporation Perspective,” 2018.
- [35] S. Mukherjee, A. Mishra, and K. E. Trenberth, “Climate Change and Drought : a Perspective on Drought Indices,” 2018.
- [36] P. Marcos-Garcia, A. Lopez-Nicolas, and M. Pulido-Velazquez, “Combined use of relative drought indices to analyze climate change impact on meteorological and hydrological droughts in a Mediterranean basin,” *J. Hydrol.*, vol. 554, pp. 292–305, 2017, doi: 10.1016/j.jhydrol.2017.09.028.
- [37] H. Tabari and P. Willems, “Seasonally varying footprint of climate change on precipitation in the Middle East,” *Sci. Rep.*, pp. 2–11, 2018, doi: 10.1038/s41598-018-22795-8.
- [38] G. Konapala, A. K. Mishra, Y. Wada, and M. E. Mann, “Climate change will affect global water availability through compounding changes in seasonal precipitation and evaporation,” *Nat. Commun.*, vol. 11, no. 1, pp. 1–10, 2020, doi: 10.1038/s41467-020-16757-w.
- [39] K. L. Barnett and S. L. Facey, “Grasslands , Invertebrates , and Precipitation : A Review of the Effects of Climate Change,” vol. 7, no. August, pp. 1–8, 2016, doi: 10.3389/fpls.2016.01196.

- [40] I. Didovets, V. Krysanova, G. Bürger, S. Snizhko, V. Balabukh, and A. Bronstert, “Regional Studies Climate change impact on regional floods in the Carpathian region,” *J. Hydrol. Reg. Stud.*, vol. 22, no. February, p. 100590, 2019, doi: 10.1016/j.ejrh.2019.01.002.
- [41] G. Blöschl *et al.*, “European floods,” vol. 590, no. August, pp. 588–590, 2017.
- [42] S. A. Foulds, H. M. Grif, M. G. Macklin, and P. A. Brewer, “Geomorphology Geomorphological records of extreme floods and their relationship to decadal-scale climate change,” vol. 216, pp. 193–207, 2014, doi: 10.1016/j.geomorph.2014.04.003.
- [43] M. Beniston and M. Stoffel, “Rain-on-snow events, floods and climate change in the Alps: Events may increase with warming up to 4 °C and decrease thereafter,” *Sci. Total Environ.*, vol. 571, no. May 1999, pp. 228–236, 2016, doi: 10.1016/j.scitotenv.2016.07.146.
- [44] D. B. Lobell, W. Schlenker, and J. Costa-roberts, “Climate Trends and Global Crop Production Since 1980,” no. May, 2011.
- [45] J. R. Porter, A. J. Challinor, S. M. Howden, and M. M. Iqbal, “7 — Food Security and Food Production Systems,” no. January 2016, 2014.
- [46] A. J. Challinor, “Universities of Leeds, Sheffield and York,” 2014, doi: 10.1038/nclimate2153.
- [47] S. Asseng *et al.*, “Rising temperatures reduce global wheat production,” pp. 1–52, 2015.
- [48] B. M. Campbell *et al.*, “Reducing risks to food security from climate change,” *Glob. Food Sec.*, vol. 11, pp. 34–43, 2016, doi: 10.1016/j.gfs.2016.06.002.
- [49] M. Barange *et al.*, “Impacts of climate change on marine ecosystem production in fisheries-dependent societies,” no. 0, pp. 1–13, 2014.
- [50] K. Brander, “Impacts of climate change on fisheries,” *J. Mar. Syst.*, vol. 79, no. 3–4, pp. 389–402, 2010, doi: 10.1016/j.jmarsys.2008.12.015.
- [51] S. T. Hammond, J. H. Brown, J. R. Burger, and P. Tatiana, “Food Spoilage, Storage, and Transport: Implications for a Sustainable Future,” vol. 65, no. 8, pp. 758–768, 2015, doi: 10.1093/biosci/biv081.
- [52] C. K. Houry, A. D. Bjorkman, H. Dempewolf, J. Ramirez-villegas, and L. Guarino, “Increasing homogeneity in global food supplies and the implications for food security,” 2014, doi: 10.1073/pnas.1313490111.
- [53] J. C. Deb, S. Phinn, N. Butt, and C. A. Mcalpine, “The impact of climate change on the distribution of two threatened Dipterocarp trees,” no. February, pp. 2238–2248, 2017, doi: 10.1002/ece3.2846.
- [54] J. Wilkening, U. States, E. Security, M. C. Base, and C. Pendleton, “Endangered Species Management and Climate Change: When Habitat Conservation Becomes a Moving Target,” pp. 1–10, 2014, doi: 10.1002/wsb.944.
- [55] R. Li, “Protecting rare and endangered species under climate change on the Qinghai Plateau, China,” no. May 2018, pp. 427–436, 2019, doi: 10.1002/ece3.4761.
- [56] C. J. Wang, J. Z. Wan, Z. X. Zhang, and G. M. Zhang, “Identifying appropriate protected areas for endangered fern species under climate change,” *Springerplus*, 2016, doi: 10.1186/s40064-016-2588-4.
- [57] J. H. Thorne, R. M. Boynton, A. J. Holguin, J. A. E. Stewart, and J. Bjorkman, “A climate change vulnerability assessment of California’s terrestrial vegetation,” 2016.
- [58] J. Wang *et al.*, “Spatial relationship between climatic diversity and biodiversity conservation value,” vol. 32, no. 6, pp. 1266–1277, 2018, doi: 10.1111/cobi.13147.
- [59] N. Watts *et al.*, “Health and Climate Change: policy responses to protect public health,” 2015.
- [60] S. I. Seneviratne *et al.*, “The many possible climates from the,” *Nature*, pp. 1–9, 2018, doi: 10.1038/s41586-018-0181-4.
- [61] K. L. Ebi, C. Boyer, K. J. Bowen, H. Frumkin, and J. Hess, “Monitoring and Evaluation Indicators for Climate Change-Related Health Impacts, Risks, Adaptation, and Resilience,” pp. 1–11, 2018, doi: 10.3390/ijerph15091943.
- [62] G. B. Anderson, E. A. Barnes, M. L. Bell, and F. Dominici, “Commentary The Future of Climate

- Epidemiology : Opportunities for Advancing Health Research in the Context of Climate Change,” vol. 188, no. 5, pp. 866–872, 2019, doi: 10.1093/aje/kwz034.
- [63] K. Hayes, G. Blashki, J. Wiseman, S. Burke, and L. Reifels, “Climate change and mental health : risks , impacts and priority actions,” *Int. J. Ment. Health Syst.*, pp. 1–12, 2018, doi: 10.1186/s13033-018-0210-6.
- [64] N. Watts *et al.*, “Review The Lancet Countdown on health and climate change : from 25 years of inaction to a global transformation for public health,” vol. 6736, no. 17, 2017, doi: 10.1016/S0140-6736(17)32464-9.
- [65] S. Tong and K. Ebi, “Preventing and mitigating health risks of climate change,” *Environ. Res.*, vol. 174, no. February, pp. 9–13, 2019, doi: 10.1016/j.envres.2019.04.012.
- [66] E. Frenette and O. Bahn, “Meat , Dairy and Climate Change : Assessing the Long-Term Mitigation Potential of Alternative Agri-Food Consumption Patterns in Canada,” *Environ. Model. Assess.*, 2020, doi: 10.1007/s10666-016-9522-6.
- [67] X. Tian, M. Chang, F. Shi, and H. Tanikawa, “Decoding the effect of socioeconomic transitions on carbon dioxide emissions : Analysis framework and application in megacity Chongqing from inland China,” *J. Clean. Prod.*, vol. 142, pp. 2114–2124, 2017, doi: 10.1016/j.jclepro.2016.11.072.
- [68] D. Wiedenhofer, M. Lenzen, and J. K. Steinberger, “Energy requirements of consumption : Urban form , climatic and socio-economic factors , rebounds and their policy implications,” *Energy Policy*, pp. 1–12, 2013, doi: 10.1016/j.enpol.2013.07.035.
- [69] Z. Wang, C. Cui, and S. Peng, “How do urbanization and consumption patterns affect carbon emissions in China ? A decomposition analysis,” *J. Clean. Prod.*, vol. 211, pp. 1201–1208, 2019, doi: 10.1016/j.jclepro.2018.11.272.
- [70] H. Zhang, M. L. Lahr, and J. Bi, “Challenges of green consumption in China : a household energy use perspective,” vol. 5314, no. June, 2016, doi: 10.1080/09535314.2016.1144563.
- [71] A. Goujon, W. Centre, G. Human, C. Iiasa, V. I. D. Oeaw, and W. Population, “Human Population Growth ☆,” vol. 4, no. March 2018, pp. 1907–1912, 2019, doi: 10.1016/B978-0-12-409548-9.10755-9.
- [72] E. W. F. Peterson, “The Role of Population in Economic Growth,” 2017, doi: 10.1177/2158244017736094.
- [73] I. Khan, F. Hou, and H. Phong, “Science of the Total Environment The impact of natural resources , energy consumption , and population growth on environmental quality : Fresh evidence from the United States of America,” *Sci. Total Environ.*, vol. 754, p. 142222, 2021, doi: 10.1016/j.scitotenv.2020.142222.
- [74] N. Scovronick, M. B. Budolfson, F. Dennig, M. Fleurbaey, A. Siebert, and R. H. Socolow, “Impact of population growth and population ethics on climate change mitigation policy,” 2017, doi: 10.1073/pnas.1618308114.
- [75] I. Motawa and K. Carter, “Sustainable BIM-based Evaluation of Buildings,” *Procedia - Soc. Behav. Sci.*, vol. 74, pp. 419–428, 2013, doi: 10.1016/j.sbspro.2013.03.015.
- [76] C. A. Boyle, “Sustainable buildings,” no. March, pp. 41–48, 2005.
- [77] L. Bragança, S. M. Vieira, and J. B. Andrade, “Early Stage Design Decisions : The Way to Achieve Sustainable Buildings at Lower Costs,” vol. 2014, 2014.
- [78] L. Aditya, T. M. I. Mahlia, B. Rismanchi, H. M. Ng, M. H. Hasan, and H. S. C. Metselaar, “A review on insulation materials for energy conservation in buildings,” no. February 2019, 2017, doi: 10.1016/j.rser.2017.02.034.
- [79] D. A. Chwieduk, “Towards modern options of energy conservation in buildings,” *Renew. Energy*, vol. 101, pp. 1194–1202, 2017, doi: 10.1016/j.renene.2016.09.061.
- [80] D. L. Childers, M. L. Cadenasso, J. Morgan Grove, V. Marshall, B. McGrath, and S. T. A. Pickett, “An ecology for cities: A transformational nexus of design and ecology to advance climate change resilience and urban sustainability,” *Sustain.*, vol. 7, no. 4, pp. 3774–3791, 2015, doi:

- 10.3390/su7043774.
- [81] S. Altomonte, "Climate Change and Architecture: Mitigation and Adaptation Strategies for a Sustainable Development," *J. Sustain. Dev.*, vol. 1, no. 1, pp. 97–112, 2009, doi: 10.5539/jsd.v1n1p97.
- [82] F. Ascione, "Energy conservation and renewable technologies for buildings to face the impact of the climate change and minimize the use of cooling," *Sol. Energy*, vol. 154, pp. 34–100, 2017, doi: 10.1016/j.solener.2017.01.022.
- [83] L. Whitmarsh, "Behavioural responses to climate change: Asymmetry of intentions and impacts," *J. Environ. Psychol.*, vol. 29, no. 1, pp. 13–23, 2009, doi: 10.1016/j.jenvp.2008.05.003.
- [84] S. Alvi, S. M. N. Nawaz, and U. Khayyam, "How does one motivate climate mitigation? Examining energy conservation, climate change, and personal perceptions in Bangladesh and Pakistan," *Energy Res. Soc. Sci.*, vol. 70, no. June, p. 101645, 2020, doi: 10.1016/j.erss.2020.101645.
- [85] G. S. Mishra, S. Zakerinia, S. Yeh, J. Teter, and G. Morrison, "Mitigating climate change: Decomposing the relative roles of energy conservation, technological change, and structural shift," *Energy Econ.*, vol. 44, pp. 448–455, 2014, doi: 10.1016/j.eneco.2014.04.024.
- [86] S. Bilgen and İ. Sarıkaya, "Energy conservation policy and environment for a clean and sustainable energy future," *Energy Sources, Part B Econ. Plan. Policy*, vol. 13, no. 3, pp. 183–189, 2018, doi: 10.1080/15567249.2017.1423412.
- [87] P. Moriarty and D. Honnery, "Energy efficiency or conservation for mitigating climate change?," *Energies*, vol. 12, no. 18, pp. 1–17, 2019, doi: 10.3390/en12183543.
- [88] UN, "United Nations Conference on Environment and Development-AGENDA 21," 1992.
- [89] UN, *Shaping the Future We Want*. 2014.
- [90] T. Shelley, *Learning for the future, United Nations Economic Commission for Europe Strategy for Education for Sustainable Development*, vol. 26, no. 12. 2006. doi: 10.7748/ns.13.4.58.s49.
- [91] F. Annan-Diab and C. Molinari, "Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals," 2017, [Online]. Available: [https://www.oecd.org/dac/accountable-effective-institutions/Governance Notebook 2.6 Smoke.pdf](https://www.oecd.org/dac/accountable-effective-institutions/Governance%20Notebook%202.6%20Smoke.pdf)
- [92] S. Sterling, "A Commentary on Education and Sustainable Development Goals," 2016.
- [93] O. Url and E. Uri, "Vare , Paul ORCID : 0000 - 0003 - 3182 - 9105 and Scott , William (2007) Learning for a Change : Exploring the Relationship Between Education and Sustainable Development . Journal of Education for Sustainable," vol. 1, 2007.
- [94] J. O. Flaherty and M. Liddy, "The impact of development education and education for sustainable development interventions : a synthesis of the research," *Environ. Educ. Res.*, vol. 4622, pp. 1–19, 2018, doi: 10.1080/13504622.2017.1392484.
- [95] R. Lozano, F. J. Lozano, K. Mulder, D. Huisingh, and T. Waas, "Advancing Higher Education for Sustainable Development : international insights and critical re fl ections," vol. 48, pp. 3–9, 2013, doi: 10.1016/j.jclepro.2013.03.034.
- [96] G. Tuncer, "University Students' Perception on Sustainable Development: A Case Study from Turkey," *Int. Res. Geogr. Environ. Educ.*, no. June 2013, pp. 37–41, 2008, doi: 10.1080/10382040802168297.
- [97] P. Molthan-hill, N. Worsfold, G. J. Nagy, W. Leal, and M. Mifsud, "Climate change education for universities : A conceptual framework from an international study," *J. Clean. Prod.*, vol. 226, pp. 1092–1101, 2019, doi: 10.1016/j.jclepro.2019.04.053.
- [98] R. Drayson, E. Bone, J. Agombar, and S. Kemp, "Student attitudes towards and skills for sustainable development," no. November, 2014.
- [99] T. Berglund, N. Gericke, and S. C. Rundgren, "Research in Science & Technological Education The implementation of education for sustainable development in Sweden: investigating the sustainability consciousness among upper secondary students," no. February 2015, pp. 37–41, 2014, doi: 10.1080/02635143.2014.944493.

- [100] T. Holm, T. Holm, K. Sammalisto, T. S. Grindsted, and T. Vuorisalo, "A Model for Enhancing Education for Sustainable Development with Management Systems : Experiences from the Nordic Countries Process framework for identifying sustainability aspects in university curricula and integrating education for sustainable developm,," *J. Clean. Prod.*, vol. 106, no. September, pp. 164–174, 2012, doi: 10.1016/j.jclepro.2015.04.059.
- [101] M. Biasutti, V. Makrakis, E. Concina, and S. Frate, "Educating academic staff to reorient curricula in ESD,," *Int. J. Sustain. High. Educ.*, vol. 19, no. 1, pp. 179–196, 2018, doi: 10.1108/IJSHE-11-2016-0214.
- [102] D. E. Dumitru, "Reorienting higher education pedagogical and professional development curricula toward sustainability – a Romanian perspective,," 2017, doi: 10.1108/IJSHE-03-2016-0046.
- [103] C. S. Hayles and S. E. Holdsworth, "Curriculum Change for Sustainability Curriculum Change for Sustainability,," vol. 4205, no. 2008, 2015, doi: 10.11120/jebe.2008.03010025.
- [104] C. Tasdemir and R. Gazo, "Integrating sustainability into higher education curriculum through a transdisciplinary perspective,," *J. Clean. Prod.*, vol. 265, p. 121759, 2020, doi: 10.1016/j.jclepro.2020.121759.
- [105] W. L. Filho *et al.*, "The role of transformation in learning and education for sustainability,," *J. Clean. Prod.*, vol. 199, pp. 286–295, 2018, doi: 10.1016/j.jclepro.2018.07.017.
- [106] J. Marcus, N. C. Coops, S. Ellis, and J. Robinson, "ScienceDirect Embedding sustainability learning pathways across the university,," *Curr. Opin. Environ. Sustain.*, vol. 16, pp. 7–13, 2015, doi: 10.1016/j.cosust.2015.07.012.
- [107] L. Scherak and M. Rieckmann, "Developing ESD Competences in Higher Education Institutions — Staff Training at the University of Vechta,," 2020.
- [108] M. Izadinia and N. Zealand, "Teacher Educators as Role Models : A Qualitative Examination of Student Teachers ' and Teacher Educators ' Views towards Their Roles,," vol. 17, pp. 1–15, 2012.
- [109] W. F. Heinrich, G. B. Habron, H. L. Johnson, and L. Goralnik, "Critical Thinking Assessment Across Four Sustainability- Related Experiential Learning Settings,," 2015, doi: 10.1177/1053825915592890.
- [110] S. Duf and S. J. Whitty, "ScienceDirect Developing a systemic lessons learned knowledge model for organisational learning through projects,," *JPMA*, vol. 33, no. 2, pp. 311–324, 2015, doi: 10.1016/j.ijproman.2014.07.004.
- [111] M. Grace, D. Humphris, and G. Cebri, "Academic staff engagement in education for sustainable development,," pp. 1–8, 2014, doi: 10.1016/j.jclepro.2014.12.010.
- [112] B. A. Christie, K. K. Miller, R. Cooke, and G. John, "Environmental sustainability in higher education : What do academics think ?,," no. June 2015, pp. 37–41, 2015, doi: 10.1080/13504622.2013.879697.
- [113] Y. J. Wu, "An overview of management education for sustainability in Asia,," vol. 16, no. 3, pp. 341–353, 2015, doi: 10.1108/IJSHE-10-2013-0136.
- [114] A. M. Aleixo, S. Leal, and U. M. Azeiteiro, "Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability: An exploratory study in Portugal,," *J. Clean. Prod.*, 2016, doi: 10.1016/j.jclepro.2016.11.010.
- [115] M. Green and M. Somerville, "Sustainability education : researching practice in primary schools,," vol. 4622, no. October, 2015, doi: 10.1080/13504622.2014.923382.
- [116] L. Sund, "Facing global sustainability issues : teachers ' experiences of their own practices in environmental and sustainability education,," vol. 4622, no. November, 2015, doi: 10.1080/13504622.2015.1110744.
- [117] C. Garrecht and T. Bruckermann, "Students ' Decision-Making in Education for Sustainability-Related Extracurricular Activities — A Systematic Review of Empirical Studies,," 2018, doi: 10.3390/su10113876.
- [118] R. M. Brito, C. Rodríguez, J. L. Aparicio, J. Paolacci, M. L. Sampedro, and J. Beltrán, "Indicators

- of sustainability in educational practice: Perception of teachers and students of UAGro-Mexico,” *Sustain.*, vol. 10, no. 10, 2018, doi: 10.3390/su10103733.
- [119] M. Junyent and A. M. G. De Ciurana, “Education for sustainability in university studies: A model for reorienting the curriculum,” *Br. Educ. Res. J.*, vol. 34, no. 6, pp. 763–782, 2008, doi: 10.1080/01411920802041343.
- [120] A. Lidgren, H. Rodhe, and D. Huisingh, “A systemic approach to incorporate sustainability into university courses and curricula,” *J. Clean. Prod.*, vol. 14, no. 9–11, pp. 797–809, 2006, doi: 10.1016/j.jclepro.2005.12.011.
- [121] R. Lozano and W. Young, “Assessing sustainability in university curricula: Exploring the influence of student numbers and course credits,” *J. Clean. Prod.*, vol. 49, no. October 2017, pp. 134–141, 2013, doi: 10.1016/j.jclepro.2012.07.032.
- [122] M. Ralph and W. Stubbs, “Integrating environmental sustainability into universities,” *High. Educ.*, vol. 67, no. 1, pp. 71–90, 2014, doi: 10.1007/s10734-013-9641-9.
- [123] W. L. Filho, C. Shiel, and A. do Paço, “Integrative approaches to environmental sustainability at universities: an overview of challenges and priorities,” *J. Integr. Environ. Sci.*, vol. 12, no. 1, pp. 1–14, 2015, doi: 10.1080/1943815X.2014.988273.
- [124] D. Tilbury, A. Ryan, M. Mader, J. Dlouhá, C. Mader, and J. Benayas, “Catalysing Change in Higher Education for Sustainable Development initiatives for university educators,” vol. 18, no. 5, pp. 798–820, 2017, doi: 10.1108/IJSHE-03-2017-0043.
- [125] M. Barth and M. Rieckmann, “Academic staff development as a catalyst for curriculum change towards education for sustainable development : an output perspective,” *J. Clean. Prod.*, vol. 26, no. 2012, pp. 28–36, 2014, doi: 10.1016/j.jclepro.2011.12.011.
- [126] M. C. Monroe *et al.*, “Identifying effective climate change education strategies : a systematic review of the research,” *Environ. Educ. Res.*, vol. 4622, no. August, p. 0, 2017, doi: 10.1080/13504622.2017.1360842.
- [127] O. Jegede, “Climate Change Education and Knowledge among Nigerian University Graduates,” pp. 465–473, 2016, doi: 10.1175/WCAS-D-15-0071.1.
- [128] E. Chuvieco, M. Burgui-Burgui, E. V. Da Silva, K. Hussein, and K. Alkaabi, “Factors affecting environmental sustainability habits of university students: Intercomparison analysis in three countries (Spain, Brazil and UAE),” *J. Clean. Prod.*, vol. 198, pp. 1372–1380, 2018, doi: 10.1016/j.jclepro.2018.07.121.
- [129] E. Bakaç, “Engineering Faculty Students’ Perceptions on Climate Change,” *Environ. Ecol. Res.*, vol. 6, no. 4, pp. 240–247, 2018, doi: 10.13189/eer.2018.060404.
- [130] A. R. Bielefeldt, “Incorporating a Sustainability Module into First-Year Courses for Civil and Environmental Engineering Students,” no. April, pp. 78–85, 2011, doi: 10.1061/(ASCE)EI.1943-5541.0000050.
- [131] L. M. Rodríguez-barreiro *et al.*, “Approach to a causal model between attitudes and environmental behaviour . A graduate case study,” *J. Clean. Prod.*, vol. 48, pp. 116–125, 2013, doi: 10.1016/j.jclepro.2012.09.029.
- [132] Z. Aminrad, S. Zarina, B. Sayed, A. S. Hadi, and M. Sakari, “Relationship Between Awareness , Knowledge and Attitudes Towards Environmental Education Among Secondary School Students in Malaysia,” vol. 22, no. 9, pp. 1326–1333, 2013, doi: 10.5829/idosi.wasj.2013.22.09.275.
- [133] G. D. Boca and S. Saraçlı, “Environmental education and student’s perception, for sustainability,” *Sustain.*, vol. 11, no. 6, pp. 1–18, 2019, doi: 10.3390/su11061553.
- [134] A. Uitto, K. Juuti, J. Lavonen, and R. Byman, “Secondary school students ’ interests , attitudes and values concerning school science related to environmental issues in Finland,” *Environ. Educ. Res.*, no. November 2014, pp. 37–41, 2014, doi: 10.1080/13504622.2010.522703.
- [135] C. D. Ives, D. J. Abson, H. von Wehrden, C. Dorninger, K. Klaniecki, and J. Fischer, “Reconnecting with nature for sustainability,” *Sustain. Sci.*, vol. 13, no. 5, pp. 1389–1397, 2018, doi:

10.1007/s11625-018-0542-9.

- [136] R. Knutti, “Commentary Closing the Knowledge-Action Gap in Climate Change,” *One Earth*, vol. 1, no. 1, pp. 21–23, 2019, doi: 10.1016/j.oneear.2019.09.001.
- [137] I. Feygina *et al.*, “Localized Climate Reporting by TV Weathercasters Enhances Public Understanding of Climate Change as a Local Problem,” no. December 2019, pp. 1092–1100, 2019.
- [138] A. A. Anderson, “Effects of Social Media Use on Climate Change Opinion , Knowledge , and Behavior,” no. March 2017, pp. 1–20, 2020.
- [139] A. V. Mavrodieva, O. K. Rachman, V. B. Harahap, and R. Shaw, “Role of Social Media as a Soft Power Tool in Raising Climate Change,” 2019.
- [140] S. Querubín, “The social media life of climate change: Platforms, publics, and future imaginaries,” 2018.
- [141] P. R. Brewer, J. Mcknight, P. R. Brewer, and J. Mcknight, “‘ A Statistically Representative Climate Change Debate ’: Satirical Television News , Scientific Consensus , and Public Perceptions of Global Warming ‘ A Statistically Representative Climate Change Debate ’: Satirical Global Warming,” *Atl. J. Commun.*, vol. 25, no. 3, pp. 166–180, 2017, doi: 10.1080/15456870.2017.1324453.
- [142] G. Revill and K. Hammond, “Voicing climate change ? Television , public engagement and the politics of voice,” no. March, pp. 601–614, 2018, doi: 10.1111/tran.12250.
- [143] M. Poberezhskaya, “Blogging about Climate Change in Russia : Activism , Scepticism and Conspiracies Blogging about Climate Change in Russia : Activism , Scepticism and Conspiracies,” *Environ. Commun.*, vol. 0, no. 0, pp. 1–14, 2017, doi: 10.1080/17524032.2017.1308406.
- [144] M. Carr and F. Lesniewska, “Internet of Things , cybersecurity and governing wicked problems : learning from climate change governance,” 2020, doi: 10.1177/0047117820948247.
- [145] U. M. Azeiteiro, “Role of Conferences on the Environment and Sustainable Development in Combating Climate Change,” no. January, 2019, doi: 10.1007/978-3-319-71063-1.
- [146] C. Uchiyama, L. Anne, and E. Tandoko, “Climate change research in Asia : A knowledge synthesis of Asia-Pacific Network for Global Change Research (2013 – 2018),” *Environ. Res.*, vol. 188, no. May, p. 109635, 2020, doi: 10.1016/j.envres.2020.109635.
- [147] D. Dragan and D. Topolšek, “Introduction to Structural Equation Modeling : Review , Methodology and Practical Applications,” pp. 19–21, 2014.
- [148] M. C. Howard, “A Review of Exploratory Factor Analysis Decisions and Overview of Current Practices : What We Are Doing and How Can We Improve? A Review of Exploratory Factor Analysis Decisions and Overview of Current Practices : What We Are Doing and How Can We Improve,” vol. 7318, no. January, 2016, doi: 10.1080/10447318.2015.1087664.
- [149] R. J. C. Yap, F. Komalasari, and I. Hadiansah, “The Effect of Financial Literacy and Attitude on Financial Management Behavior and Satisfaction The Effect of Financial Literacy and Attitude on Financial Management Behavior and Satisfaction,” vol. 23, no. 3, pp. 3–5, 2018, doi: 10.20476/jbb.v23i3.9175.
- [150] T. Husain, “An Analysis of Modeling Audit Quality Measurement Based on Decision Support Systems (DSS),” *Eur. J. Sci. Explor.*, no. May, 2019.
- [151] D. Shi, T. Lee, and A. Maydeu-Olivares, “Understanding the Model Size Effect on SEM Fit Indices,” *Educ. Psychol. Meas.*, vol. 79, no. 2, pp. 310–334, 2019, doi: 10.1177/0013164418783530.
- [152] E. Eze, “Environmental Education Sociographic analysis of climate change awareness and pro-environmental behaviour of secondary school teachers and students in Nsukka Local Government Area of Enugu State , Nigeria Area of Enugu State , Nigeria,” *Int. Res. Geogr. Environ. Educ.*, vol. 0, no. 0, pp. 1–17, 2019, doi: 10.1080/10382046.2019.1657683.
- [153] M. T. A. Chowdhury, K. J. Ahmed, M. N. Q. Ahmed, and S. M. A. Haq, *How do teachers’ perceptions of climate change vary in terms of importance, causes, impacts and mitigation? A*

- comparative study in Bangladesh*, vol. 1, no. 7. Springer International Publishing, 2021. doi: 10.1007/s43545-021-00194-7.
- [154] H. Rosli, N. Samat, and R. M. Nor, “Integrating Sustainability within University Sustainability Programme-Student’s Perception on Sustainable Cities and Communities Master’s Programme of the School of Humanities, USM,” *World Sustain. Ser.*, pp. 497–514, 2020, doi: 10.1007/978-3-030-15604-6_31.
- [155] T. Shi and C. C. By-nc-sa, “Sustainability Attitudes of College Students as Future Business Leaders,” pp. 1–23, 2017.
- [156] H. J. Boon, “Pre-service teachers and climate change: A stalemate?,” *Aust. J. Teach. Educ.*, vol. 41, no. 4, pp. 39–63, 2016, doi: 10.14221/ajte.2016v41n4.3.
- [157] J. Chitiyo and M. E. May, “Factors predicting sustainability of the schoolwide positive behavior intervention support model,” *Prev. Sch. Fail.*, vol. 62, no. 2, pp. 94–104, 2018, doi: 10.1080/1045988X.2017.1385446.
- [158] K. Sammalisto, A. Sundström, and T. Holm, “Implementation of sustainability in universities as perceived by faculty and staff - A model from a Swedish university Implementation of sustainability in universities as perceived by faculty and staff e a model from a Swedish university,” *J. Clean. Prod.*, vol. 106, no. February 2018, pp. 45–54, 2014, doi: 10.1016/j.jclepro.2014.10.015.
- [159] A. Kilinc and A. Aydin, “Turkish Student Science Teachers’ Conceptions of Sustainable Development: A phenomenography,” *Int. J. Sci. Educ.*, vol. 35, no. 5, pp. 731–752, 2013, doi: 10.1080/09500693.2011.574822.
- [160] C. P. Akpan, “Lecturers’ perception of the Role of ICT in the Management of University Education for Sustainable Development in Nigeria,” *Niger. J. Educ. Adm. Plan.*, vol. 8, no. 1, pp. 113–127, 2008.
- [161] M. Nakayama, I. Taafaki, T. Uakeia, J. Seru, Y. Mckay, and H. Lajar, “Influence of Religion , Culture and Education on Perception of Climate Change , and its Implications,” vol. 14, no. 9, pp. 1297–1302, 2019.
- [162] J. Izagirre-Olaizola, A. Fernández-Sainz, and M. A. Vicente-Molina, “Internal determinants of recycling behaviour by university students: A cross-country comparative analysis,” *Int. J. Consum. Stud.*, vol. 39, no. 1, pp. 25–34, 2015, doi: 10.1111/ijcs.12147.
- [163] R. Gifford and A. Nilsson, “Personal and social factors that influence pro-environmental concern and behaviour: A review,” *Int. J. Psychol.*, vol. 49, no. 3, pp. 141–157, 2014, doi: 10.1002/ijop.12034.
- [164] M. Heyl, E. M. Díaz, and L. Cifuentes, “Environmental attitudes and behaviors of college students: a case study conducted at a chilean university,” *Rev. Latinoam. Psicol.*, vol. 45, no. 3, p. 487, 2014, doi: 10.14349/rlp.v45i3.1489.
- [165] V. Paschalidis *et al.*, “This manuscript was previously submitted to Physical Review Letters and is now being considered for possible publication in Physical Review D as a Rapid Communication . We If publishable , does this meet our criteria for Rapid Communications as the author,” 2013, doi: 10.1016/j.jclepro.2013.05.015.This.
- [166] M. Pothitou, R. F. Hanna, and K. J. Chalvatzis, “Environmental knowledge, pro-environmental behaviour and energy savings in households: An empirical study,” *Appl. Energy*, vol. 184, pp. 1217–1229, 2016, doi: 10.1016/j.apenergy.2016.06.017.
- [167] Á. Zsóka, Z. M. Szerényi, A. Széchy, and T. Kocsis, “Greening due to environmental education? Environmental knowledge, attitudes, consumer behavior and everyday pro-environmental activities of Hungarian high school and university students,” *J. Clean. Prod.*, vol. 48, pp. 126–138, 2013, doi: 10.1016/j.jclepro.2012.11.030.