SUPPLEMENTARY MATERIAL
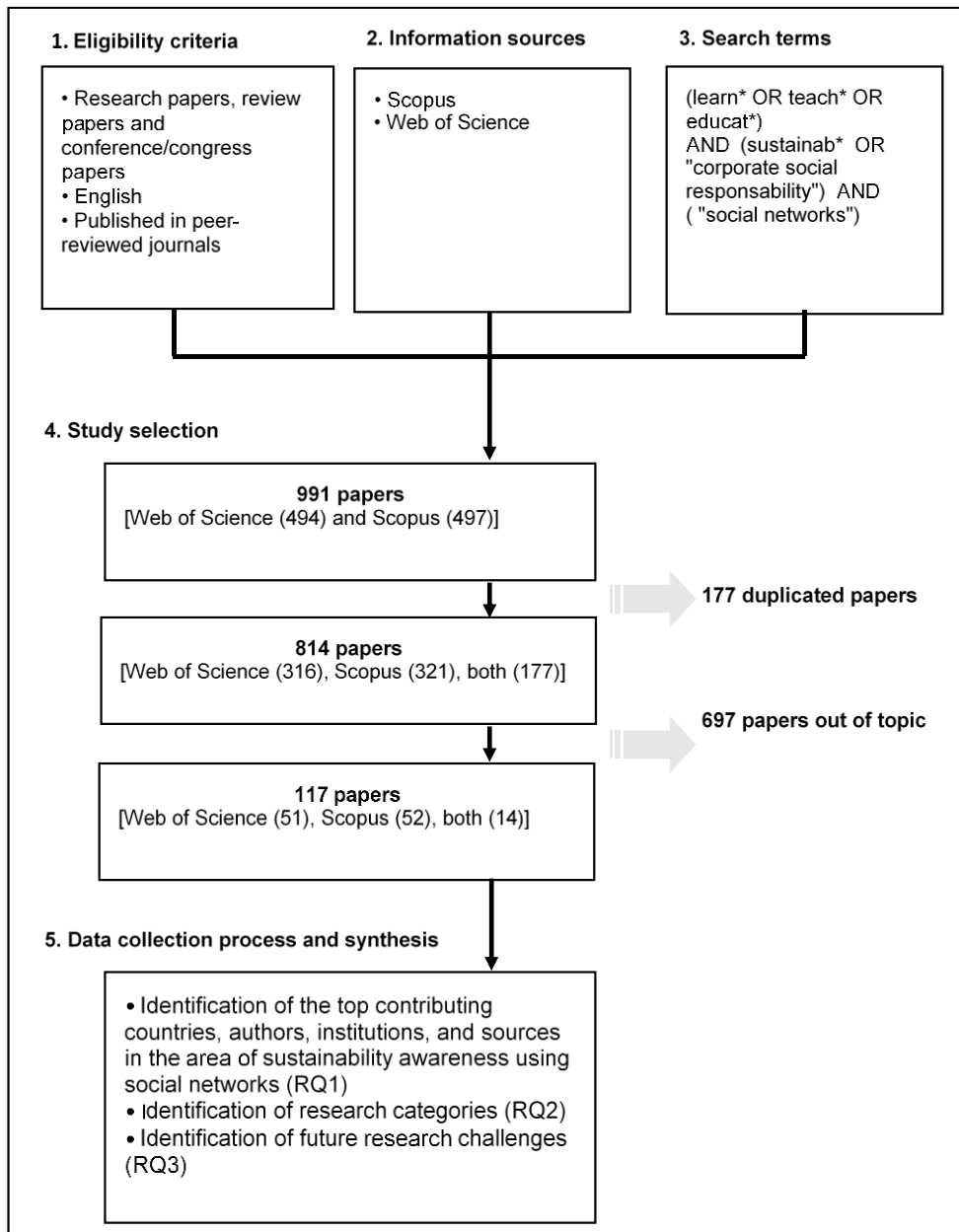
Figure 1. Research methodology steps
Source(s): Author's own, 2023

Author	Nº Docs.
Kolleck, N.	7
Henry, A. D.	2
Shen, L.	2
Tan, Y.	2

Table 1. Top contributing authors
Source(s): Author's own, 2023

Country	Nº Docs.
United States	36
Spain	15
Germany	15
United Kingdom	13
Italy	12
Canada	6
Australia	5
France	4
Netherlands	4
Portugal	4

Table 2. Top 10 contributing countries
Source(s): Author's own, 2023

Institucions	Nº Docs.
Free University of Berlin	4
Universidad Nacional de Educación a Distancia (UNED)	3
Harvard University	2
Northwestern University	2
Universidad de Málaga	2
Universidad Rey Juan Carlos	2
University Hohenheim	2
Arizona State University	2
Universität Leipzig	2
University of Florida	2
University of Saskatchewan	2
Chongqing University	2

Table 3. Top contributing institutions
Source(s): Author's own, 2023

Article Title	Authors	Citations
Adaptive governance of social-ecological systems	Folke, C; Hahn, T; Olsson, P; Norberg, J	197
Networks and the Challenge of Sustainable Development	Henry, AD; Vollan, B	185
The impact of social media on learning behavior for sustainable education: Evidence of students from selected universities in Pakistan	Abbas J., Aman J., Nurunnabi M., Bano S.	153
Developing sustainable leaders through coaching and compassion	Boyatzis, RE; Smith, ML; Blame, N	147
Determinants of Individuals' E-Waste Recycling Decision: A Case Study from Romania	Delcea, C; Craciun, L; Ioanas, C; Ferruzzi, G; Cotfas, LA	115
Perception of small tourism enterprises in Lao PDR regarding social sustainability under the influence of social network	Zhang, LH; Zhang, JY	109
The role of online social networks in university students' environmentally responsible behavior	Rezaei, A; Ahmadi, S; Karimi, H	100
Financial Literacy and Sustainable Consumer Behavior	Munoz-Cespedes, E; Ibar-Alonso, R; Ros, SD	98
Personal networks as a precursor to a green future: a study of green consumer socialization among young millennials from India and China	Muralidharan, S; Xue, F	93
Can evolutionary design of social networks make it easier to be 'green'?	Dickinson, JL; Crain, RL; Reeve, HK; Schuldt, JP	87

Table 4. Top 10 most cited papers
Source(s): Author's own, 2023

Source Title	Nº Docs.	CiteScore	SNIP	SJR
Sustainability	31	5	1.310	0.664
International Journal of Sustainability in Higher Education	6	5.6	1.496	0.857
Journal of Cleaner Production	4	15.8	2.444	1.921
International Journal of Management Education	3	5.5	2.075	0.819
Environmental Education Research	2	6	1.927	1.127
Journal of Environmental Management	2	11.4	1.907	1.481
Human Ecololy Review	2	N/A	N/A	N/A
American Journal of Education	2	2.8	1.414	1.107
Design Journal	2	1.4	1.006	0.328
International Journal of Environmental Research and Public Health	2	N/A	N/A	N/A

Table 5. Sources analysis
Source(s): Author's own, 2023

Author & Year	Subject of the study	Research method	Objective	Findings
Boyatzis et al., 2006	Leaders, Senior managers	Literature Review	To show that leader sustainability is adversely affected by the psychological and physiological effects of chronic power stress associated with the performance of the leadership role	When leaders experience compassion through coaching the development of others, they experience psychophysiological effects that restore the body's natural healing and growth processes, thus enhancing their sustainability
Abbas et al., 2019	University students	Cluster sampling method	To examine 18 constructive and adverse factors that impact on students' minds and how these helped students to share positive and negative sustainable aspects with others.	The usage of online social networks in Pakistan has a negative influence on a student's sustainable behaviour as compared to positive aspects
Delcea et al., 2020	Individual consumers	Descriptive and inferential statistics	To analyze demographic and socio-economic variables, such as age, gender, income, education, number of family members, etc., impact in consumers' pro-recycling behaviour	Demographic and socio-economic variables have a contribution to predicting residents' pro-e-waste recycling behaviour and must be considered in the development of sustainability educational actions
Munoz-Cespedes et al., 2021	Individual consumers	Natural language processing	To prove that financial literacy has a positive influence in a more sustainable consumption of financial products is directly related to	Greater attention must be given to financial literacy, from both private and public sectors, so that it can be used to drive more sustainable behaviour by individual consumers
Rezaei et al., 2022	University students	A pretest-posttest design and a random parallelization control group	To prove that online social networks significantly facilitated the cognitive progress in environmental education	Online social networks have a significant effect on motivating and improving environmentally responsible behaviour and can significantly aid in teaching and learning environmental issues in formal academic settings.
Muralidharan, et al., 2016	Millennials	Hierarchical regressions	To understand factors that motivate Millennials actual purchase of green products.	Peer communication predominantly influence green buying behaviour of millennials from India, while family communication is most important to Chinese millennials.
Dickinson, et al., 2013	OSNS users	Literature review	To review how evolutionary biology, social psychology, social networking, and citizen science disciplines support the design of online social networks to promote collective pro-environmental behaviour.	To support cooperative pro-environmental behaviour is important to provide opportunities for people to advertise their altruism, reward and punish others, and engage in game-like, between-group competitions.
Padilla-Melendez, et al., 2021	Entrepreneurs	Qualitative study (In-depth interviews)	To explain the behaviour of individual entrepreneurs when they exploit business ideas using the networks they have at hand in order to overcome	Entrepreneurs still encounter institutional barriers which exist in universities, in particular regarding building the social capital needed for exploiting their business ideas, and they are not, as expected, well

			institutional barriers in universities.	connected to the existing formal networks but rather to the informal ones.
Di Dio, et al., 2018	University students	Gamification	To analyze the effectiveness of a mobile app game in pursuing commuters to modify their mobility behaviours. The game rewards with tangible prizes the most environmentally sustainable mobility habits, connecting commuters with sponsors and companies operating in the urban context.	Gamification is an effective tool for involving citizens in environmental conscious mobility habits
Huétink et al., 2010	Consumers	An agent-based model	To analyze the effects of different strategies for hydrogen infrastructure development on hydrogen vehicle fleet in user practices and user behaviour largely remains unanswered.	Online social network can have a positive impact in the technological trajectory of hydrogen vehicles, a promising option towards a sustainable transport system, because they can influence in user practices and user behaviour
Zheng, et al., 2020	Households	Empirical research from online questionnaires	To understand the evolutionary process of household solid waste separation behaviour and to provide several suggestions for improving existing policies	Others' advice and perception of the behavioural outcomes has a significant influence on the intention to separate waste.
Knoot, et al., 2011	Private forest managers & landowners	Social network analysis (SNA)	To evaluate the influence of landowners' social networks on forestry management decisions	The larger the landowner social network is the better peer-to-peer learning and private forest management decisions are making
Krätzig et al., 2014	Citizens	Qualitative methods	To examine the potential of social media to support communication about sustainability on a local scale and the prerequisites for its use in the planning process	The use of online social networks to communicate the goals and objectives of sustainable landscape planning increase citizens engagement with local sustainability
Chen, et al., 2014	Travelers	Qualitative methods and simulation	To develop a model of a social network-based attitude diffusion system in the context of activity and travel choice behaviour	The principal mechanisms contributing to attitude formation using OSNS in the context of travel choice behaviour are identified, and mathematical models to capture these processes are developed.
Korkmaz et al., 2012	Architecture, engineering, and construction students	Qualitative and social network analysis	To help architecture, engineering, and construction students to learn how to exchange information and work in teams for effective design and construction of sustainable buildings.	Teamwork in OSNS with a high degree of interaction and leadership provide creative sustainable solutions and better articulation for effective design and construction of sustainable buildings
Shelton et al., 2017	Lay health advisor	In-depth telephone interviews	To advance the understanding of barriers and facilitators to the long-term implementation	Different factors (e.g., community partnerships, site leadership, funding), implementation processes

			and sustainability of Lay health advisor (LHA) programs in community settings to promote health and prevent disease.	(e.g., training), as well as characteristics of the intervention (e.g., perceived need) and lhas (e.g., motivations, burnout) are critical to the learning and sustainability of LHA programs.
Lokonon et al., 2018	Farm households	Inferential statistics	To examine the determinants of farmers' perceptions of climate change and subsequent adoption of sustainable land management practices	The adoption of sustainable land management practices could be encouraged promoting membership in farmers' organizations through ONS
Choi et al., 2021	Mobile short-video platforms users	Structural equation modelling	To analyze users' post-acceptance habit formation by incorporating perceived interactivity and perceived enjoyment into the expectation-confirmation theory of the information system continuance model	Satisfaction and perceived enjoyment are the foremost factor in determining users' habit formation
Hussain et al., 2021	OSN users	Inferential statistics	To investigate the connection between the social networking sites and green entrepreneurship intentions through a mediated-moderated model.	Exists a positive and significant link between social networking sites and green entrepreneurship intentions through the indirect effect of risk propensity and self-efficacy.
Saduak et al., 2019	High school students	Descriptive statistics	To compare the learning achievements and skills in sustainable agricultural practices between students who learned through OSNS and those who learned in the normal classroom.	The results revealed that the students who learned through OSN exhibited significantly higher learning achievements and skills in agricultural practices than those who learned in the normal classroom
Bozkurt et al., 2022	High school students	Text-mining, and social network analysis	To analyze the impact of the coronavirus (COVID-19) to higher education	The study concludes that the survival of higher education depends on the resilience, adaptability, the rise of online distance education, and sustainability skills of higher education institutions.
Cowan et al., 2017	University students	Social network analysis	To describe how the use of the Community of Practice framework engaged a campus-wide network of individuals in adoption of the Quality Matters training, rubric, and review process to advance distance education support and online course development.	Strong cohesion among the members of the network has a positive influence in distance education through OSNS
Boyle et al., 2021	Citizens	Social network analysis	To propose a methodological approach that acts as a tool for active change agents working in community to increase their capacity to engage a wider	A participatory approach in the initial stages of the sustainability educational program has a positive influence in the citizens engagement

			public in sustainable transition to a low-carbon society.	
Redmane t al., 2021	University students	Survey & qualitative content analysis	To gain specific insights into: What motivates students to be Sustainability Change Agents, and How they can maintain their motivation in the face of setbacks	Social networks and intrapersonal skills helped to restore students' motivation overcoming setbacks
Du et al, 2022	Teachers	Social network analysis techniques	To explore teachers' network structure and characteristics, participants' behavioural patterns and how individuals in OSNS connect with each other.	Members of massive teacher informal online learning networks tended to communicate more with others of similar characteristics forming homogeneous communities
Achola et al., 2020	Consumer and citizen	Comparati ve and analytical approach	To analyze consumer education strategies put in place to create awareness and changes in consumer and citizen behaviour	Social network have become a civic mobilization channel for cleaning up garbage in public spaces;
Chou et al., 2021	Citizens	Thematic analysis	To identify practical factors in the development of community capital via farm-to-table and community care, and their implications for a resilient, healthy community.	Environmental education through OSNS promotes community health, well-being, and avoid environmental degradation

Table 6. People studied, research method, paper objective and paper findings of the studies used to identify positive and negative factors of 1

Source(s): Author's own, 2023

References

Abbas, J.; Aman, J.; Nurunnabi, M. and Bano, S. (2019), "The impact of social media on learning behavior for sustainable education: Evidence of students from selected universities in Pakistan", *Sustainability* (Switzerland) 11 6, https://doi.org/10.3390/su11061683.

Achola, G.; Asamoah-Manu; N., Tani; Y.D. and Weiss, A. (2020), "Consumer education can lead to behaviour change", *Field Actions Science Report 2020 Special Issue* 22 ,96-103.

Boyatzis, RE.; Smith, ML. and Blame, N. (2006), "Developing sustainable leaders through coaching and compassion", *Academy Of Management Learning & Education* 5 1 ,8-24,https://doi.org/10.5465/AMLE.2006.20388381

Boyle, E.; Ó Gallachóir, B. and Mullally G. (2021), "Participatory network mapping of an emergent social network for a regional transition to a low-carbon and just society on the Dingle Peninsula", *Local Environment*, https://doi.org/10.1080/13549839.2021.1936472

Bozkurt, A. (2022), "Resilience, Adaptability, and Sustainability of Higher Education: A Systematic Mapping Study on the Impact of the Coronavirus (COVID-19) Pandemic and the Transition to the New Normal", *Journal of Learning for Development* 9 1 ,1-16,

Chen, Y.; Frei, A. and Mahmassani, HS. (2014), "From Personal Attitudes to Public Opinion Information Diffusion in Social Networks Toward Sustainable Transportation", *Transportation Research Record* 2430 ,28-37,https://doi.org/10.3141/2430-04

Choi, Y.; Wen, H.; Chen; M. And Yang F. (2021)," Sustainable determinants influencing habit formation among mobile short-video platform users", *Sustainability* (Switzerland) 13 6 ,-,https://doi.org/10.3390/su13063216

Chou, R.-J. and Huang, F.-T. (2021)," Building community resilience via developing community capital toward sustainability: Experiences from a hakka settlement in Taiwan", *International Journal of Environmental Research and Public Health* 18 17 ,-,https://doi.org/10.3390/ijerph18179012

Cowan, J.; Richter, S.; Miller, T.; Rhode, J.; Click, A. and Underwood, J. (2017),"Building a Sustainable Quality Matters TM Community of Practice Through Social Network Analysis", *American Journal of Distance Education* 31 3 ,160-172,https://doi.org/10.1080/08923647.2017.1316154

Delcea, C.; Craciun, L.; Ioanas, C.; Ferruzzi, G.andCotfas, LA. (2020), "Determinants of Individuals' E-Waste Recycling Decision: A Case Study from Romania", *Sustainability* 12 7 ,-,https://doi.org/10.3390/su12072753

Di Dio, S.; La Gennusa, M.; Peri, G.; Rizzo, G. And Vinci, I. (2018), "Involving people in the building up of smart and sustainable cities: How to influence commuters' behaviors through a mobile app game", *Sustainable Cities And Society* 42 ,325-336,https://doi.org/10.1016/j.scs.2018.07.021

Dickinson, JL; Crain, RL; Reeve, HK and Schuldt, JP. (2013), "Can evolutionary design of social networks make it easier to be 'green'?", *Trends In Ecology & Evolution* 28 9 ,561-569,https://doi.org/10.1016/j.tree.2013.05.011

Du, H.; Xing, W. and Zhu, G. (2022), "Mining Teacher Informal Online Learning Networks: Insights From Massive Educational Chat Tweets", *Journal of Educational Computing Research*, https://doi.org/10.1177/07356331221103764

Huétink, F.J.; der Vooren, A.V. and Alkemade, F. (2010), "Initial infrastructure development strategies for the transition to sustainable mobility", *Technological Forecasting and Social Change* 77 8 ,1270-1281,https://doi.org/10.1016/j.techfore.2010.03.012

Hussain, I.; Nazir, M.; Hashmi, S.B.; Di Vaio, A.; Shaheen, I.; Waseem, M.A.and Arshad A. (2021), "Green and sustainable entrepreneurial intentions: A mediation-moderation perspective", *Sustainability* (Switzerland) 13 15 ,-,https://doi.org/10.3390/su13158627

Knoot, TG. and Rickenbach, M. (2011), "Best management practices and timber harvesting: the role of social networks in shaping landowner decisions", *Scandinavian Journal Of Forest Research* 26 2 ,171-182,https://doi.org/10.1080/02827581.2010.545827

Korkmaz, S.and Singh, A. (2012), "Impact of team characteristics in learning sustainable built environment practices", *Journal of Professional Issues in Engineering Education and Practice* 138 4 ,289-295,https://doi.org/10.1061/(ASCE)EI.1943-5541.0000107

Krätzig, S. and Warren-Kretzschmar, B. (2014), "Using interactive web tools in environmental planning to improve communication about sustainable development", *Sustainability* (Switzerland) 6 1 ,236-250,https://doi.org/10.3390/su6010236

Lokonon, B.O.K. and Mbaye, A.A. (2018), "Climate change and adoption of sustainable land management practices in the Niger basin of Benin" , *Natural Resources Forum* 42 1 ,42-53,https://doi.org/10.1111/1477-8947.12142

Munoz-Cespedes, E.; Ibar-Alonso, R. and Ros, SD. (2021), "Financial Literacy and Sustainable Consumer Behavior", *Sustainability* 13 16 ,-,https://doi.org/10.3390/su13169145

Muralidharan, S. and Xue, F. (2016), "Personal networks as a precursor to a green future: a study of green consumer socialization among young millennials from India and China", *Young Consumers* 17 3 ,226-242,https://doi.org/10.1108/YC-03-2016-00586

Padilla-Melendez, A.; Del Aguila-Obra, AR.; Lockett, N. and Fuster, E.(2020), "Entrepreneurial Universities and Sustainable Development. The Network Bricolage Process of Academic Entrepreneurs", *Sustainability* 12 4 ,- ,https://doi.org/10.3390/su12041403

Rezaei, A.; Ahmadi, S. and Karimi, H. (2022), "The role of online social networks in university students' environmentally responsible behaviour", *International Journal Of Sustainability In Higher Education* 23 5 ,1045-1069,https://doi.org/10.1108/IJSHE-05-2020-0168

Saduak, W.; Poungsuk, P.; Phonpakdee, R. and Deeying, S. (2019), "School agricultural learning center for sustainable agricultural learning", *Journal for the Education of Gifted Young Scientists* 7 3 ,389-407,https://doi.org/10.17478/jegys.582993

Shelton, R.C.; Charles, T.A.; Dunston, S.K.; Jandorf, L. and Erwin, D.O. (2017), "Advancing understanding of the sustainability of lay health advisor (LHA) programs for African-American women in community settings", *Translational Behavioral Medicine* 7 3 ,415-426,https://doi.org/10.1007/s13142-017-0491-3

Zheng, JJ.; Ma, G.; Wei, J.; Wei, WD.; He, YJ.; Jiao, YY and Han, X. (2020) "Evolutionary process of household waste separation behavior based on social networks", *Resources Conservation And Recycling* 161 ,- ,https://doi.org/10.1016/j.resconrec.2020.105009