

Education and Sustainable Development Goals

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1. Introduction

Sustainability and sustainable development have been on the global political agenda since the end of the 1980s. Already before that, environmental crises were increasingly being recognized around the world. In 2015, the United Nations (UN) adopted the 2030 Agenda for Sustainable Development, providing a blueprint for peace and prosperity ‘for people and for the planet’. The agenda includes 17 Sustainable Development Goals (SDGs) and 169 sub-targets, which are all integrated. This development dynamic means that what takes place in one field affects the outcomes in the other. It also implies that local as well as global development must strive towards ecological, social, and economic sustainability. The implementation of the blueprint is equivalent to achieving the 17 SDGs.

One of the most severe sustainability problems facing the world today is climate change. For decades, climate experts and researchers have tried to raise the climate issue on the daily political agenda. Since the 1990s, international conferences have taken place acknowledging how to mitigate climate change politically. However, even if the consequences of climate change are obvious and visible on a daily basis as ecological and social disasters, these political negotiations tend to fail because of strong economic interests hindering any essential progress. In addition, these challenges steadily increase since in both policy discourses and academic research, sustainability concerns not only ecological but also social and economic matters [1].

In this unsustainable situation, education has been appointed the role of facilitator. However, even this instrument is steered by strong economic interests making accountability a cornerstone of contemporary education policy [2]. There is still a lot to do before education becomes fairer and more democratic and broadly promotes global sustainability aims. In this process, education research, policy, as well as practice need improvement. Evidently, the entire Agenda and its goals and sub-targets have significant educational implications. In addition to SDG 4, Quality Education is also recognized as the key to the success of the remaining SDGs [3]. However, even if the important relations between education and the SDGs are widely acknowledged, there remains ambiguity on how education can effectively contribute to the SDGs [4] as well as how education and educational institutions can be transformed to better adapt to the SDGs [5]. Thus, when announcing this Special Issue, we searched for transformative approaches to learning, education, and institutional performance in accordance with the SDGs, global and comparative perspectives on education and the SDGs, but also specific learning and teaching approaches related to the SDGs.

The aim of this Special Issue is to address the role of sustainability in educational contexts. It is based on the theme of the 6th annual conference of the *Sino-Finnish Joint Learning Innovation Institute* (JoLii). The conference was hosted by Tampere University. JoLii, involving more than 20 Chinese and Finnish universities, aims to enhance high-quality Sino-Finnish education cooperation and exchange through joint research, collaborative programs and experience sharing. The institute is also committed to developing innovative solutions for education and learning, as well as policy, in both countries, and it is committed



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to addressing global challenges. The 6th JoLii conference invited education researchers from China and Finland, two countries with unique education systems. China has the largest, while Finland has one of the internationally best-performing education systems in the world. Our interest with this Special Issue was not to exclusively inspire the JoLii conference participants but also many other researchers. We want to stimulate a discussion on the relations between education and sustainable development in a broad sense, as well as on the roles of education and educational institutions in the implementation of the SDGs.

2. Articles

The eleven articles collected in the Special Issue are diverse, and their view of sustainability are far from similar. However, we have grouped their topics into four categories: (1) quality of education, (2) SDG policy and implementation, (3) education and societal development, (4) students' learning and (5) global experience.

2.1. Quality of Education

In their article "Factors impacting the sustainable development of professional learning communities in interdisciplinary subjects in Chinese K-12 schools: A case study" [6], Yiyun Hu, Xiaoli Jing, and Yaqing Yang claim that Chinese schools have made great efforts to improve the teachers' professional development by the establishment of professional learning communities. These authors see the establishment of professional learning communities as one of the most effective approaches for promoting professional teacher development. Their research shows the role of interdisciplinary subjects in K-12 schools' professional learning communities and how interdisciplinarity relates to school structures and policies, school leadership, and teachers' professionalism. In addition, professional learning communities draw attention to three community features: (1) a conflict-inclusive atmosphere, (2) the coexistence of individual and shared visions, and (3) an emotional bonding identity.

The article "A sustainability lens on the paradox of Chinese learners: Four studies on Chinese students' learning concepts under Li's "virtue-mind" framework" [7] is written by ten authors: Ruixiang Gao, Jiayin Zhang, Yirao Liu, Jielin Zeng, Danying Wu, Xiaoxiao Huang, Xiaoqing Liu, Lei Mo, Zehui Zhan, and Huang Zuo. It is based on four empirical studies investigating how Chinese students' learning concepts relate to Jin Li's "virtue-mind" framework. This theoretical framework provides a broad view of the advantages and disadvantages of Chinese education and of how to make it more sustainable. The authors want to make new modifications and enrich Li's theory through this study. By comparisons, they found interesting regional differences. They also proved Li's basic hypothesis that culture has significance for people's fundamental learning beliefs.

2.2. SDG Policy and Implementation

In "The reception of education for sustainable development (ESD) in China: A Historical review" [8], Ronghui (Kevin) Zhou and Nick Lee present a study about the discourse on ESD in China over a period of three decades. The focus in this study is especially on the reception of ESD in Chinese education policies. Their results show that in recent Chinese policies, the 'ecological civilization' concept is replacing traditional definitions of ESD. The authors argue that China's domestic discourse thus weakens the relation between ESD and sustainable development, turning the UNESCO definition of ESD into environmental protection education based on domestic interests.

The article "How urban residents perceive nature education: A survey from eight metropolises in China" [9], by Yu Huang, Rui Shi, Jin Zhou, Zhiqiang Chen, and Peng Liang, investigated how Chinese urban residents' perceptions of "nature education" contributes to the success of specific nature education. In this study, the respondents did not consider the emotional benefits and the development of social and functional skills as essential outcomes of nature education. However, the research shows the positive effects of nature education, and the authors emphasize that the SDGs and other international as well as Chinese

sustainability-related plans provide a solid foundation for promoting nature education and for transforming education and society towards ecological civilization.

2.3. Education and Societal Development

In their article “Sustaining higher education quality by building an educational innovation ecosystem in China: Policies, implementations and effects” [10], Tengpeng Zhuang and Baocun Liu examined quality in higher education from the stakeholders’ perspectives. The stakeholders include not only various actors within higher education but also people from the government and industry sectors. They applied the sustainable entrepreneurial university concept [11] and conducted policy analysis to approach their research inquiry about developing a sustainable higher education sector in China. Their study shows that China has launched a series of policies to build a higher education innovation ecosystem in which multiple stakeholders co-work in a synergistic approach to fueling higher education quality at various levels. However, there is an imbalance and unevenness in implementation, particularly concerning the participation of higher education institutions and enterprises.

Ruichang Ding and Zheng You’s article “Education partnership assistance to promote the balanced and sustainable development of higher education: Lessons from China” [12] investigated the partnership between higher education institutions in economically advanced regions and in less developed areas. Education Partnership Assistance is a national strategy for bridging the development gaps across the country. By conducting a policy analysis, they found that the Education Partnership Assistance program, based on the Communist Party of China’s ideological cornerstones of “common prosperity”, cannot continue indefinitely. They argued that true sustainability is contingent on the capacity building of the recipient higher education institutions rather than the endless assistance from supporting universities.

2.4. Students’ Learning

The three articles on students’ learning do not explicitly address SDGs but provide a solid foundation to further explore education and SDGs with respect to skills and learning.

The article “What characterizes an effective mindset intervention in enhancing students’ learning? A systematic literature review” [13], by Junfeng Zhang, systematically explores the efficacy of mindset interventions for adolescents of school age from the perspective of teaching and learning. She found three pedagogical characteristics that ensure successful interventions: (1) Mutual interaction among the person, the context, and the theory to generate the message; (2) Iterative processes to ensure the message is delivered; (3) A persuasive yet stealthy approach to facilitating its internalization.

In their article “Supporting K-12 students to learn social-emotional and self-management skills for their sustainable growth with the Solution-Focused Kids’ Skills Method” [14], Shuanghong Niu, Hannele Niemi, and Ben Furman explored how Kids’ Skills (KS), a method based on solution-focused psychology, can be used to help students overcome emotional or behavioral problems through learning relevant skills. By analyzing 23 case descriptions from KS practitioners, they identified four key components of the KS method critical for producing desired changes in children. They were: (1) helping students to identify specific social-emotional and/or self-management skills, so they learn to overcome their difficulties; (2) supporting students in learning their identified skills by helping them understand what the skill entails and become aware of their strengths and resources; (3) assisting students in acquiring their identified skills; and (4) reinforcing the learned skills to ensure sustainable effects.

In their article “Higher education to support sustainable development: The influence of information literacy and online learning process on Chinese postgraduates’ innovation performance” [15], Chiyao Sun, Ji’an Liu, Liana Razmerita, Yanru Xu and Jia Qi probed how information literacy affects postgraduates’ innovation performance. Based on Biggs’ Presage–Process–Product model, they developed and verified several hypotheses by ana-

lyzing a survey of 501 Chinese university graduates. Based on their findings, the author argues that improving postgraduates' sustainable-development capabilities in the digital age can foster an inclusive learning environment and high-quality learning outcomes.

2.5. Global Perspective

In the article "Education for sustainable development in higher education rankings: Challenges and opportunities for developing internationally comparable indicators" [16], Anete Veidemane approaches the sustainability issue from a broad international perspective. She discusses the ranking of higher education institutions according to how successful they are in embedding sustainable development principles into their teaching. With this study, she contributes to the discussion on both how to identify criteria for ESD indicators and how to use them in international rankings. She also critically states that it is not enough to simply see these criteria as useful, but potential users of the indicators also need to consider "for what purpose are indicators relevant?" and "for whom are these indicators relevant?" (p. 20).

In their article "Bridging academics' roles in knowledge diffusion in sustainability-driven public-private partnerships: A case study of the SDGs workshop in central Japan" [17], Hoe Chin Goi, Muhammad Mohsin Hakeem, and Frendy offer insight from a case study. This study focuses on the role of academics in knowledge diffusion in a Japanese sustainability-oriented workshop including several stakeholders. Their results highlight the challenge of finding knowledge gaps, fostering effective communication, enabling knowledge extension, and creating shared values. The study reveals the role of academics in collaborative sustainability-related settings and in bringing fundamental knowledge to academic institutions, industry partners, and policymakers. Expectantly, this knowledge can support the development of sustainability-based regional development.

3. Concluding Remarks

This Special Issue contributes to varying aspects of research on education and SDGs by posing new research inquiries, taking stock of current research knowledge and providing fresh empirical findings. In addition, interesting theoretical issues are discussed. Aggregately, the published articles show that education and the SDGs compose a broad research field requiring multidisciplinary approaches and deeper investigations in diverse empirical settings. In our role as the Special Issue's guest editors, we are grateful to all the contributors, and we expect more education scholars and researchers in other related fields to explore this research area. Finally, we acknowledge the support of the Finnish project of the Global Innovation Network for Teaching and Learning (GINTL) for the 6th JoLii conference and the Special Issue.

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References

1. Cai, Y.; Ma, J.; Chen, Q. Higher Education in Innovation Ecosystems. *Sustainability* **2020**, *12*, 4376. [CrossRef]
2. Smith, W.C.; Benavot, A. Improving accountability in education: The importance of structured democratic voice. *Asia Pac. Educ. Rev.* **2019**, *20*, 193–205. [CrossRef]
3. UNESCO. Education for Sustainable Development Goals. In *The Global Education 2030 Agenda*; UNESCO: Paris, France, 2017.
4. Kioupi, V.; Voulvoulis, N. Education for Sustainable Development: A Systemic Framework for Connecting the SDGs to Educational Outcomes. *Sustainability* **2019**, *11*, 6104. [CrossRef]
5. Leal Filho, W.; Shiel, C.; Paço, A.; Mifsud, M.; Ávila, L.V.; Brandli, L.L.; Molthan-Hill, P.; Pace, P.; Azeiteiro, U.M.; Vargas, V.R.; et al. Sustainable Development Goals and sustainability teaching at universities: Falling behind or getting ahead of the pack? *J. Clean. Prod.* **2019**, *232*, 285–294. [CrossRef]
6. Hu, Y.; Jing, X.; Yang, Y. Factors Impacting the Sustainable Development of Professional Learning Communities in Interdisciplinary Subjects in Chinese K-12 Schools: A Case Study. *Sustainability* **2022**, *14*, 13847. [CrossRef]

7. Gao, R.; Zhang, J.; Liu, Y.; Zeng, J.; Wu, D.; Huang, X.; Liu, X.; Mo, L.; Zhan, Z.; Zuo, H. A Sustainability Lens on the Paradox of Chinese Learners: Four Studies on Chinese Students' Learning Concepts under Li's "Virtue–Mind" Framework. *Sustainability* **2022**, *14*, 3334. [[CrossRef](#)]
8. Zhou, R.; Lee, N. The Reception of Education for Sustainable Development (ESD) in China: A Historical Review. *Sustainability* **2022**, *14*, 4333. [[CrossRef](#)]
9. Huang, Y.; Shi, R.; Zhou, J.; Chen, Z.; Liang, P. How Urban Residents Perceive Nature Education: A Survey from Eight Metropolises in China. *Sustainability* **2022**, *14*, 7820. [[CrossRef](#)]
10. Zhuang, T.; Liu, B. Sustaining Higher Education Quality by Building an Educational Innovation Ecosystem in China—Policies, Implementations and Effects. *Sustainability* **2022**, *14*, 7568. [[CrossRef](#)]
11. Cai, Y.; Ahmad, I. From an Entrepreneurial University to a Sustainable Entrepreneurial University: Conceptualization and Evidence in the Contexts of European University Reforms. *High. Educ. Policy* **2021**, 1–33. [[CrossRef](#)]
12. Ding, R.; You, Z. Education Partnership Assistance to Promote the Balanced and Sustainable Development of Higher Education: Lessons from China. *Sustainability* **2022**, *14*, 8366. [[CrossRef](#)]
13. Zhang, J. What Characterises an Effective Mindset Intervention in Enhancing Students' Learning? A Systematic Literature Review. *Sustainability* **2022**, *14*, 3811. [[CrossRef](#)]
14. Niu, S.; Niemi, H.; Furman, B. Supporting K-12 Students to Learn Social-Emotional and Self-Management Skills for Their Sustainable Growth with the Solution-Focused Kids' Skills Method. *Sustainability* **2022**, *14*, 7947. [[CrossRef](#)]
15. Sun, C.; Liu, J.A.; Razmerita, L.; Xu, Y.; Qi, J. Higher Education to Support Sustainable Development: The Influence of Information Literacy and Online Learning Process on Chinese Postgraduates' Innovation Performance. *Sustainability* **2022**, *14*, 7789. [[CrossRef](#)]
16. Veidemane, A. Education for Sustainable Development in Higher Education Rankings: Challenges and Opportunities for Developing Internationally Comparable Indicators. *Sustainability* **2022**, *14*, 5102. [[CrossRef](#)]
17. Goi, H.C.; Hakeem, M.M.; Frendy. Bridging Academics' Roles in Knowledge Diffusion in Sustainability-Driven Public–Private Partnerships: A Case Study of the SDGs Workshop in Central Japan. *Sustainability* **2022**, *14*, 2378. [[CrossRef](#)]

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