



# Building an ‘Ecosystem’ for transforming higher education teaching and learning for sustainability

Jing Liu<sup>1</sup> · Yuto Kitamura<sup>2</sup> · Tamara Savelyeva<sup>3</sup>

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As an emerging arena of studies, Higher Education for Sustainability (HES) has been gaining increased attention since the adoption of the UN Sustainable Development Goals (SDGs) (UN, 2015). Higher education institutions (HEI) are long considered to be one of the key drivers for resolving global sustainability issues, such as climate change and public health crises (SDSN, 2020; UNCED, 1992). To date, the HEI’s contributions to the SDGs in the structural arenas of Education for Sustainability (EfS), Research, Campus Greening, and Community Outreach (Savelyeva & McKenna, 2011) have been well recorded by educational researchers and international organizations (Liu, 2021; SDSN, 2020). Among these arenas, the EfS is the most dynamic arm of the university’s sustainability that empowers and motivates learners to become active agents of shaping our sustainable future. The EfS rests in the HEI’s educational mission, of which, its crucial role in shaping sustainability was recently stressed at the series of UNESCO international meetings (Hessen & Schmelkes, 2022; UNESCO 2021, 2022). The documents which resulted from these UNESCO meetings, have described the strategic role of the HEI’s in fostering the SDGs by means of ‘reinventing the HE’ and ‘reimagining our future together.’ UNESCO (2022) listed three strategic ways of the HEI’s contributions to the SDGs: (a) achieving universities’ own SDG4-Quality Education targets; (b) contributing to learning quality and inclusion of the whole education system; and (c) fostering the SDGs implementation by deepening their innovative, interdisciplinary, and collaborative teaching, learning, and research approaches. Overall, assigning HEIs with a key role in the SDGs implementation, utilizes instrumentality

of the HEIs education mission and advances the EfS arena of university’s sustainability in order to contribute to the rapidly developing HES research arena. HES inquiries situate the international policy call for transforming HE and contributing to the SDGs within the complexity of the local and regional HE contexts. This requires the application of the ‘system’ (Capra, 2003; Sterling, 2003) and ‘ecological’ approaches (Savelyeva, 2018) to HES research on teaching and learning.

The system approach to HES research treats education systems as a ‘holarchy’ (Sterling, 2003), and views HEI as an integrated whole without reducing its properties to smaller parts. Ecological approach refers to sustainability as a culturally specific concept that deals with human relationship to oneself, others, and nature (Savelyeva, 2018, 2022a). Applying system and ecological approaches together to HES inquiries helps to gain deeper insights to the localized HE ‘ecosystem’ processes that might ensure its constant re-organization, transformation, and change.

With a rapid economic and social change in the Asia–Pacific region, many universities have actively promoted the SDGs. According to the 2022 Times Higher Education (THE) impact ranking (THE, 2022), 534 out of 1410 reported universities were located in the Asia–Pacific region. One third of them were in a top 100 university ranking position. Furthermore, these universities have achieved highly performed engagement in promoting the SDGs. Although a vast amount of research in the Asia–Pacific region covers HE topics, studies unveiling the HEI regional transformation remain dispersed and scarce (Kitamura & Hoshii, 2014; Liu, 2021; Liu & Kitamura, 2019; Savelyeva & Fang, 2022; Savelyeva, 2018, 2022b; Žalėnienė & Pereira, 2021). How have Asia–Pacific HEI responded to challenges outlined in the SDGs? In what ways do Asia–Pacific universities transform their structures and practices of teaching and learning? How have regional HEI addressed demands for sustainability under social, economic, cultural, and environmental pressures?

✉ Jing Liu  
jing.liu.e8@tohoku.ac.jp

<sup>1</sup> Tohoku University, Sendai, Japan

<sup>2</sup> The University of Tokyo, Tokyo, Japan

<sup>3</sup> The Hong Kong Institute of Education for Sustainable Development, Hong Kong, China

This special issue aims at showcasing the regional universities' commitments and engagements to contributing to the SDGs through transforming their teaching and learning processes and practices. Also, it discusses barriers and provides solutions that can foster the transformation of HES teaching and learning in the Asia–Pacific region.

The papers in this special issue are categorized into three overlapping thematic areas— Policy Contexts, Curricular/Pedagogical Changes, and Sustainable Partnerships. These areas describe the localized HE 'ecosystem' for transforming HES teaching and learning in the region (Fig. 1).

1. *Policy Contexts*. This thematic area of the special issue covers four research papers that investigate how regional HEI comprehensively induce SDGs-related policies and implement HES strategies at the global and institutional levels. Park and Savelyeva's (2022) paper critically analyzes the SDGs policy implementation in Hong Kong's public universities. It introduces a concept of sustainability ensoulment and the HE Sustainability Model. The research findings unveiled that Hong Kong public universities have been taking a broad range of responses with government support for the SDGs. While containing potential for authenticity, their SDGs attainments require persistent efforts for generating global citizens with a full ensoulment of the SDGs spirit and values.

The research by Zhu et al. (2022) reviews written artifacts on the Education for Sustainable Development (EfS) in Chinese universities. The paper reports the unclear meaning and limited implementations of the EfS across Chinese HE, which gives more attention to the environmental rather than the social dimension of the common Sustainable

Development framework. Moreover, the results of a case study of Beijing Normal University describe uneven ways of promoting the EfS as a combination of coercive, professional, and cultural approaches.

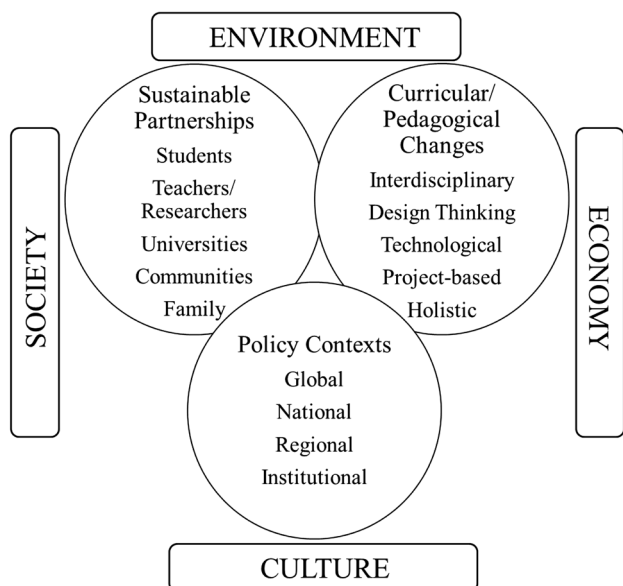
In her HES study, Rukspollmuang (2022) grounds the SDGs in the concept of the Royal *Sufficiency Economy Philosophy* initiative and reports on a case study of Siam University, Thailand. The study utilizes a 'Triangle of Living Learning Lab' model to the systematic investigation of the students' key sustainability competencies, and reports on the SDGs-related transformations in the university's general education program and learning for sustainability.

Zhong et al. (2022), in their paper, adopt the theoretical lens of an Entrepreneurial University to unveil the HES policy implementation experiences in Tsinghua University, China. The conceptual paper argues that building a sustainable university requires not only advancing institutional strategy for sustainability, but also designing and implementing innovative and unified sustainability curricula.

2. *Curricular/Pedagogical Changes*. This thematic arena of the special issue showcases diverse approaches to promoting universities' transformations in the HES areas of teaching and learnings. In their HES study, Liu et al. (2022) investigate the complementary relationship between sustainability and interdisciplinary teaching and learning in a Japanese comprehensive research university. The team of researchers explore how incorporating sustainability issues in the non-environmentally related courses, which do not have specific sustainability learning objectives, could enhance interdisciplinarity. The research findings demonstrate that integrating sustainability issues into the non-environmentally related curricula enhances interdisciplinary teaching and learning in the university.

Taimur et al. (2022) in their study of a Design Thinking (DT) pedagogy and HES transformation investigate students' perspectives on diverse learning experiences in a Field Exercise in a Sustainability Science Course at a university in Japan. The results show how Design Thinking pedagogy can support transformative learning without a need for complex structural changes to HSE, by encouraging disorienting dilemmas, promoting reflection and discourse, fostering relationships, providing context, and offering an engaging experience.

Uematsu-Ervasti and Kawachi's (2022) study in the field of HES teaching and learning investigates HE opportunities and barriers to transforming students' views on gender inequality in Japan. The researchers use quantified data and evaluate students' depth-based learning growth and changes in their gender-related perspectives at the different stages of their learning process. The results show that students participation in the study-abroad programs and globalization-related coursework positively influences their understanding of others and potentially broadens their gender perspectives.



**Fig. 1** 'Ecosystem' for Transforming HES Teaching and Learning in the Asia–Pacific Region

In the following paper, Wooltorton et al. (2022) explore the use of a decolonized approach to local HES adaptation through learning for regenerative cultures in Australia. By synthesizing six case studies in the Indigenous Studies arena of HES teaching, learning and/or research, the researchers argue that learning for regenerative cultures adds wisdom, depth, and experiential-practical knowledge for optimistic, hopeful futures of healing, restoration, and renewal.

Ashida and Ishizaka's (2022) study is on students' mobility and HE internationalization in Japan under the effects of pandemic restriction and the resulted changes in teaching and learning modes. The researchers investigated whether the shift to online education affected learning strategies of graduate students; and whether online courses functioned as an alternative to face-to-face classes. The findings demonstrate that students remain actively engaged in help-seeking in online classes. The results also shed light on the necessity for instructors to ensure sufficient spaces for communication with students.

3. *Sustainable Partnerships*. This thematic area of the special issue includes two papers, which draw attention to the centrality of human relationships, value perceptions, and importance of the HE research focus on students, as they are indispensable partners and the main beneficiaries of HES teaching and learning. The study by Ho et al. (2022) evaluates college students' awareness and action on the SDGs and their effects on HE mobility in Taiwan. The researchers adopt an Importance-Performance Analysis (IPA) grid to assess students' recognition and implementation of each SDG. The results reflect on the current social, political, economic, and environmental scene and provide valuable insights, which can guide future HES curriculum design, HE institutional focus, and related government policies in Taiwan.

In her mix-method study, Savelyeva (2022c) investigates a formation of sustainability values of first year university students in Hong Kong, and the roles of families and an education system in this process. The researcher argues that the research focus on sustainability value formation creates an in-depth understanding of the SDGs-related curricular adjustments in Hong Kong universities. These curricular changes, along with the strong family traditions, influence the growing sustainability mindsets of Hong Kong students in the context of the One Country-Two Systems social system.

The 11 papers in this special issue adopt diverse research designs and analysis methods for providing a comprehensive review and critical discussions regarding HES teaching and learning transformation in the Asia-Pacific region. The collective research findings showcase the HEI efforts and engagements that advance the SDGs at global, regional, national, local, institutional, and individual levels. The studies contribute to the ongoing discussion about the means

of the HE 'new social contract' (UNESCO, 2021), which calls for the universities' collective action in "provid(ing) the knowledge and innovation needed to shape sustainable and peaceful futures for all anchored in social, economic and environmental justice" (p. 7). Clustered around the three overlapping thematic areas—Policy Contexts, Curricular/Pedagogical Changes, and Sustainable Partnerships—the papers describe the complex HE 'ecosystem' for transforming HES teaching and learning in the Asia-Pacific region. Their collective findings enrich conceptualizations of the HE integrated 'holarchy' and understandings of sustainability as a culturally specific concept that advance the SDGs international policy and HES research in unique and systemic ways. It is our hope that this special issue inspires more of the holistic, collective, and interactive ways of inquiry in the education research field and launches a broader international discussion on the HES teaching and learning transformations in the Asia-Pacific region and beyond.

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