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Intentional Design for Sustainability: Three Case Studies in Transformative Learning

Abstract

This practice-oriented paper examines how transformative learning for sustainability can be structurally embedded in higher education. Analysing three distinct initiatives at the *University of Sustainability Vienna*—intercultural field programmes, virtual exchanges, and project-based consultancy—we demonstrate how "local–global" learning spaces act as catalysts for student transformation. We argue that exposure to diverse contexts alone is insufficient; rather, transformative learning requires pedagogical scaffolding: authentic problem-solving, structured disorienting dilemmas, and guided reflection. Finally, we outline institutional strategies to move these formats from the periphery to the core of sustainability curricula.

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Erkenntnisse aus der Lehre für Nachhaltigkeit durch transformatives Lernen

Zusammenfassung

Dieser praxisorientierte Beitrag untersucht, wie transformatives Lernen für Nachhaltigkeit gezielt in der Hochschulbildung gefördert werden kann. Anhand von drei Initiativen an der neu gegründeten *University of Sustainability Vienna* zeigen wir, wie interkulturelle Exkursionen, virtuelle Austauschformate und projektbasierte Beratung lokale–globale Lernräume eröffneten, die kritische Reflexion, interkulturelle Kompetenz und wertebasiertes Handeln anregten. Wir argumentieren, dass transformatives Lernen durch intentional gestaltete Aufgaben, strukturierte Reflexionsphasen und professionelle Begleitung ermöglicht wird, und diskutieren Implikationen für eine institutionelle Verankerung im Sinne sozial-ökologischer Transformation.

Schlüsselwörter

Transformatives Lernen, Nachhaltigkeitsbildung, Hochschulbildung, interkulturelle Kompetenz, lokal–globales Lernen

1 Introduction and Context

Higher education faces the "epoch-typical key problems" of the twenty-first century – climate change, inequality, and resource depletion (Klafki, 1998; Stoeber & Gaebel, 2025). Addressing these complex, interconnected challenges requires more than technical expertise; it demands citizens capable of systemic thinking and value-driven action (Lehtonen et al., 2019). Consequently, universities must move beyond transmitting disciplinary knowledge to acting as catalysts for social transformation. This shift is central to the discourse on *transformative learning* (TL; Mezirow & Taylor, 2009), which emphasizes reshaping deeply held assumptions through critical reflection.

However, implementing TL requires shifting from abstract goals to concrete pedagogical design. This paper analyses this shift within the *University of Sustainability Vienna* (USV). As a newly founded institution, USV embeds sustainability not as an add-on, but as the core of its curriculum, governance, and campus culture (Holst et al., 2024). In this context, TL is a foundational pedagogical stance rather than an occasional enrichment.

We define TL for sustainability as the capacity to connect abstract global frameworks (e.g., SDGs) with concrete local realities, enabling graduates to navigate volatility, uncertainty, complexity, and ambiguity (Johansen & Euchner, 2013). To achieve this, we argue that informal and non-formal learning spaces are crucial. Experiences outside the traditional classroom – such as community projects and intercultural exchanges – provide the authenticity and "disorienting dilemmas" necessary to spark perspective transformation (Froehlich et al., 2020; Singer-Brodowski, 2023).

This article examines three specific initiatives designed to link local contexts with global debates: intercultural field programmes, virtual exchanges, and project-based consultancy. Rather than presenting these as definitive models, we reflect them as case studies in intentional design, exploring how structured local–global spaces serve as catalysts for transformative sustainability education.

2 Theoretical Framework: Transformative Learning in Glocal Contexts

Transformative learning (TL) has become a cornerstone of adult education since Mezirow (1997) articulated it as a process of critical reflection on taken-for-granted assumptions, often triggered by a "disorienting dilemma". While Mezirow's original focus was rational-cognitive, sustainability scholars have expanded TL to include affective and relational dimensions (O'Sullivan, 2002). In the context of the polycrisis, TL involves not just acquiring new knowledge, but shifting the underlying frames – moral, emotional, and cultural – through which learners interpret the world (Johansen & Euchner, 2013).

This holistic view aligns with *Education for Sustainable Development* (ESD), where competencies such as systems thinking and normative reasoning require learners to question how they know, not just what they know (Rieckmann, 2021). As Chaves and Wals (2018) argue, sustainability-oriented TL necessitates a continuous disruption of socialised routines and entrenched values.

We argue that the local–global dynamic is a uniquely potent catalyst for this disruption. Sustainability challenges are simultaneously universal (e.g., climate change) and deeply contextual. This duality creates opportunities for "glocal" learning (Caniglia et al., 2018), where learners must negotiate the tension between abstract global frameworks (like the SDGs) and messy local realities. When this dynamic includes intercultural engagement, the dissonance increases. Exposure to diverse cultural framings of sustainability can trigger the cognitive and emotional conflict necessary for transformation.

However, such engagement carries risks. Without careful facilitation, intercultural contact can reinforce essentialist stereotypes or uncritically centre Western norms (Holliday, 2020). Therefore, TL for sustainability is not an automatic outcome of mobility or exchange; it is a result of intentional design.

Synthesising these insights, we identify four design principles for the USV initiatives discussed below. Effective learning environments must:

a) Provoke constructive dissonance by contrasting global models with local lived experience;

b) ensure authentic encounters that challenge stable cultural narratives;

c) integrate critical reflection to process the resulting ambiguity; and

d) provide relational support to navigate the emotional discomfort of transformation.

3 Practice-Based Insights: Three Case Studies

The following initiatives, selected from the inaugural teaching years at USV, illustrate how transformative learning can be operationally designed. While distinct in format, ranging from short-term immersion to semester-long collaboration, all three reflections of higher education teachers show a common architecture: these learning cases utilize informal or non-formal spaces to integrate local and global perspectives.

3.1 Case 1: The Intercultural Field Programme (Immersion)

This two-week intensive programme paired Austrian students with peers from the United States to explore "Sustainability Tourism". The design relied heavily on constructive dissonance. By comparing two distinct sites, a rural alpine community and a multicultural urban neighbourhood in Vienna, students were forced to contrast "world-class sustainability" branding with the messy, on-the-ground realities of implementation.

The mixed-nationality teams served as the primary vehicle for authentic encounters. As students collaborated on site-based tasks, they encountered friction not just in the subject matter, but in their working styles. For instance, debates arose over definition disputes (e.g., "sustainable tourism" vs. "sustainability tourism") and the selection

of evidence. Daily facilitated debriefs provided the necessary critical reflection, allowing students to process these conflicts. For many, this structured discomfort acted as a catalyst, moving them from a theoretical understanding of sustainability to a more nuanced view of how cultural narratives shape environmental strategy; for example, students noted that sustainability looked different when they had to justify it to people living with its consequences.

3.2   Case 2: The Virtual Exchange (Digital Collaboration)

This semester-long initiative connected a USV research course with a parallel cohort in Indonesia. Unlike the immersion programme, this format relied on sustained, low-intensity contact to generate micro-disorientations. Through joint online lectures and small-group peer reviews, students compared research methods and sustainability priorities across the European–Southeast Asian divide.

The pedagogical focus here was on relational support within a digital space. Informal "virtual coffee" mixers were embedded into the curriculum to build trust before academic critiques began. This emotional scaffolding allowed students to navigate the inevitable friction of differing academic conventions and communication styles. The result was often a shift in professional identity: students moved from seeing themselves as isolated researchers to members of a "global learning network", reflecting Mezirow's notion of perspective transformation triggered by sustained disorienting encounters.

3.3 Case 3: Project-Based Consultancy (Service Learning)

In this Bachelor-level course, student teams designed a circular economy strategy for an Austrian development NGO working in the Global South. The core "disorienting dilemma" was the failure of technical transferability. Students initially approached the task as a technical challenge, attempting to apply European circular economy models to a different context.

Through iterative feedback from the NGO, teams were forced to confront the social, cultural, and infrastructural limitations of their proposals, and some initially experienced frustration when technical "best practice" solutions failed to translate across contexts. This process highlighted the political nature of context. Students came to recognise that project management in sustainability is not a neutral skill set but an ethical practice. The learning arc required them to reframe their role from "technical advisor" to "mediator between value systems", acknowledging that "best practice" is never culturally agnostic.

4   Discussion and Implications

Synthesising the three case studies, we (anecdotally) identify three core pedagogical drivers that fostered perspective transformation across the different formats.

4.1   Pedagogical drivers

First, effective TL for sustainability relies on constructive dissonance between scales. By deliberately linking specific local contexts to broader global frameworks – whether through field visits (Case 1) or comparative research (Case 2) – students were forced to confront the gap between universal principles (e.g., SDGs) and messy local realities. As Caniglia et al. (2018) suggest, this "glocal" friction prevents abstract moralising and catalyses deeper critical reflection.

Second, transformation is driven by accountability to external stakeholders. In all three cases, students engaged with partners – community members, international peers, or NGOs – whose feedback shaped the learning process. This moves learning beyond the "safe" simulation of the classroom. As noted in service-learning literature (Altenschmidt & Miller, 2016; Froehlich, 2023), real-world consequences heighten motivation and force students to grapple with the ethical and political dimensions of their work.

Third, intercultural encounters served as the primary disorienting dilemma. However, as Holliday (2020) warns, exposure to difference alone can reinforce stereotypes if left unchecked. Our experience confirms Mezirow's and O'Sullivan's argument that dissonance only leads to transformation when coupled with rigorous, structured reflection and relational support. Without the facilitator acting as a mediator to process potential misunderstandings, dissonance can easily turn into disengagement.

4.2 Challenges for Institutional Development

Moving from pilot projects to a coherent institutional strategy requires a structural framework; the following recommendations are offered as design hypotheses derived from early-stage practice rather than evidence-based prescriptions. Based on the insights above, we propose a *Competence Development Framework* (Figure 1) for the USV. This framework distinguishes four interrelated outcome domains:

- Cognitive Transformation (reframing assumptions/systems thinking)

- Normative Orientation (value clarification/ethical reasoning)

- Intercultural Competence (navigating difference)

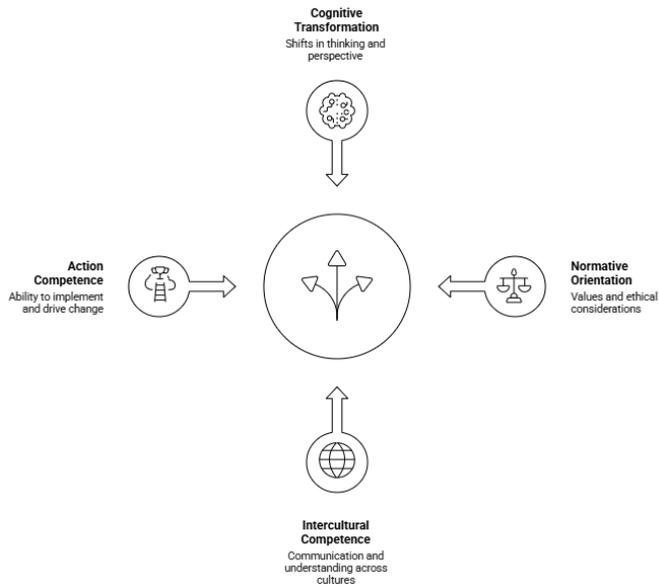- Action and Implementation Competence (agency in real-world contexts)

Figure 1: (Preliminary) Competence Development Framework (own illustration)

To systematically cultivate these competencies, we identify three strategic imperatives for higher education institutions:

First, to ensure Cognitive Transformation and Normative Orientation, "glocal" engagement must move from the periphery to the core. Rather than treating field trips or exchanges as optional enrichments, curricula should embed a "glocal engagement" requirement. This ensures every student encounters the value tensions that arise when applying global goals to local realities. Furthermore, Intercultural Competence must be treated as a learning outcome in its own right, requiring preparatory workshops and assessment tools that help students navigate the "micro-disorientations" of such work.

Second, developing Action and Implementation Competence requires stable, long-term partnerships. As seen in Case 3, ad-hoc cooperation is resource-intensive. Instead, institutions should cultivate "living labs" with mission-aligned NGOs and partners who treat sustainability as a strategic imperative. Co-designing governance routines with these partners creates a high bar for collaboration quality, offering students recurring opportunities to negotiate trade-offs and deliver professional value (Action Competence) while navigating institutional differences (Intercultural Competence).

Third, the success of this framework rests on facilitation quality. The capacity to hold space for discomfort and mediate complex value conflicts is not a standard academic skill. Faculty development must therefore expand beyond subject expertise to include transformative pedagogy and intercultural mediation. This is the prerequisite for the entire framework: without skilled facilitation, the friction necessary for Cognitive and Normative transformation risks becoming counterproductive.

5 Conclusion

The initiatives analysed here demonstrate that *Transformative Learning* (TL) for sustainability does not occur by osmosis; it requires an architecture of intentional design. While our case studies differ in pedagogical formats, they are built on a single premise: students develop the agency needed for the "polycrisis" only when they are forced to negotiate the friction between abstract global frameworks and messy local realities.

For the *University of Sustainability Vienna* (USV), these early experiences confirm that informal and non-formal spaces are not peripheral "add-ons" but essential pedagogical engines. However, moving from isolated pilot projects to a coherent institutional standard as depicted in Figure 1 remains a challenge. As outlined in our competence framework, this requires a shift in resource allocation—investing in long-term partnership infrastructures and faculty facilitation skills as heavily as in disciplinary content.

We acknowledge that the insights presented here are qualitative and context-specific. Future research should complement these practice-based observations with longitudinal data to measure the durability of the competence shifts we observed. Nevertheless, the trajectory suggested by these early experiences is clear: to become drivers of socio-ecological transformation, higher education institutions must embrace the discomfort of the "glocal" and move from teaching about sustainability to facilitating the transformative experience of it.

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