

# Transdisciplinary engineering versus transdisciplinary research: differences, similarities, lessons and opportunities

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**Abstract.** Transdisciplinary engineering (TE) emerged in the wake of renewed interest in transdisciplinary practice, rooted in the fields of health and environment research. This paper explores the relationship between transdisciplinary engineering and transdisciplinary research (TR) arguing that there is a good conceptual basis for both terms to exist as they differentiate important practice considerations in the same way science is differentiated from engineering. Using bibliometric methods, I explore the relationship between the two groups of literature, mapping where they interface, and revealing their different conceptual framings. TR is associated with research in the fields of sustainability, and health, and features approaches aligned with scientific research, but also participatory and related social science designs. TE is closely identified with product design, industrial engineering, and education, revealing a stark contrast between the two domains in terms of the implied goals of transdisciplinary practice. Finally, a deeper comparison of approaches, definitions and frameworks between key bodies of research enables an exploration of lessons that might be drawn from one to the other. In particular, the opportunity for TE to incorporate the more strategic societal, environmental and health goals associated with TR and bring TE capacities of design and industrial engineering to TR, generating a paradigm shift in both TR and engineering.

**Keywords.** Transdisciplinary, engineering, research, bibliometric, conceptual frame

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