OCAD UNIVERSITY

OCAD University Open Research Repository

Faculty of Design

2023

Human-Scale Futuring for Planetary Well-being

Matter, Scott and Yu, Samuel

Suggested citation:

Matter, Scott and Yu, Samuel (2023) Human-Scale Futuring for Planetary Well-being. In: Proceedings of Relating Systems Thinking and Design Volume: RSD12, 06-20 Oct 2023. Available at https://openresearch.ocadu.ca/id/eprint/4922/

Open Research is a publicly accessible, curated repository for the preservation and dissemination of scholarly and creative output of the OCAD University community. Material in Open Research is open access and made available via the consent of the author and/or rights holder on a non-exclusive basis.

The OCAD University Library is committed to accessibility as outlined in the Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act (AODA) and is working to improve accessibility of the Open Research Repository collection. If you require an accessible version of a repository item contact us at repository@ocadu.ca.

Relating Systems Thinking and Design
(RSD12) Symposium | October 6–20, 2023

Human-Scale Futuring for Planetary Well-being

Scott Matter and Samuel Yu

Our presentation focuses on work in progress to use human-scale development (H-SD) as a guiding framework for contra-innovation. Our goal is to reorient value in design, innovation, and development toward human and planetary well-being. In the context of a dominant paradigm of design innovation for consumer capitalist growth, we see a hopeful alternative in the explicitly political aspirations of H-SD to nurture community self-reliance, promote collective human flourishing, and rebalance relationships among human and ecological systems. H-SD provides a powerful tool to diagnose current situations, propose preferred futures, proactively assess the potential consequences of innovation, and explain why some interventions produce unintended and unexpected harm.

This presentation will draw on a review of the literature and our practical experiences in teaching to introduce the H-SD approach and explore its potential. We will situate H-SD in relation to critical discourses in design scholarship, such as defuturing, design futuring, autonomous design, ontological design, Transition Design, and pluriversality. Then, we will present insights from our recent experiences teaching with H-SD in under- and post-graduate programs and with design, research, and innovation practitioners.

We will discuss how we've iteratively adapted teaching activities and materials to introduce and enable learners to apply key H-SD concepts, namely the distinctions between and systemic relationships among needs, satisfiers, and economic goods; how specific satisfiers can impede (as destroyers, inhibitors, or pseudo-satisfiers) or promote (as singular or synergic satisfiers) realisation of

fundamental needs; and the complex relationships among needs, satisfiers, capabilities, poverties, and social pathologies.

Finally, we invite and hope to engage in further discussion about the adoption of H-SD in practice, particularly around the pragmatic and political considerations involved in shifting innovation, design, and futuring paradigms.

KEYWORDS: human-scale development, design innovation, design futuring, sustainability transitions, ontological design, planetary well-being, teaching and learning

RSD TOPIC(S): RSD: Learning & Education, RSD: Methods & Methodology

---

Introduction

We work in the TD School at UTS, a pan-university unit leading transdisciplinary education, research, and practice—and forging partnerships of mutual learning to address complex challenges in creative ways. We teach across several programs offered by the school, including the Bachelor of Creative Intelligence and Innovation (BCII), post-graduate programs in Creative Intelligence and Strategic Innovation, and an undergraduate Diploma in Innovation. In July 2023, we collaborated in teaching a two-week intensive second-year class in the BCII called Past, Present, Future of Innovation (PPFI). Our version of PPFI is designed so that students will examine the links between “innovation” and dominant societal values and explore how innovation practices built on alternative values could contribute to diverse preferred futures.

We try to be as clear as possible in our teaching that we approach innovation from a critical perspective. We’re building on work by scholars and practitioners in design, STS, futures studies, anthropology and sociology and drawing connections among design, innovation, and community development. A range of concepts is at least implicit in our teaching and more explicit in our research, including contra-innovation (Perera & Fry, 2022), defuturing and redirection (Fry, 1999, 2008), design futuring (Candy & Potter, 2019; Fry, 2021; Slaughter, 1999; Yelavich & Adams, 2014), ontological design (Willis, 2006), decolonising design (Tunstall, 2023; Abdulla et al., 2019), autonomous design (Escobar, 2018; Mareis & Paim, 2021), and transition design (Irwin, 2015; Irwin et al., 2020a, 2020b; Gaziulusoy & Erdoğan Öztekin, 2019).

One common thread among these is the recognition that the dominant system—of industrial growth, consumerism, and concentration of power—is in need of a paradigm shift. Business-as-usual is quite clearly disastrous and driving a polycrisis—evident in not just the climate emergency but also in ecological degradation and biodiversity decline, as well as turbulence in social systems. One important aspect of business as usual is that innovation is mainly aimed at creating financial value and driving economic growth.

In our teaching, we aim to reorient innovation to integrate a broader, holistic consideration of human and planetary well-being. We're working with the human-scale development approach as a framework because it provides normative, analytical, and practical components that have the potential to support the paradigm shift we need.

Human-scale development

The H-SD proposal emerged through the work of Manfred Max-Neef and colleagues in the 1980s as an alternative to the dominant discourses of state-led and market-led community and international development (Max-Neef, Hevia, & Hopenhayn, 1989). HS-D has been adapted and extended by a growing number of scholars and practitioners since then, mainly in relation to sustainability research and initiatives (Guillen-Royo, 2016; Valenzuela & Barrera, 2023). It's also mentioned in work on Transition Design (Irwin, Tonkinwise, & Kossoff, 2020a, 2020b), and we were first introduced to Max-Neef's work via Cameron Tonkinwise.

Normative claims

In early writings, Max-Neef described the underlying philosophy of H-SD as "humanist eco-anarchism" (Max-Neef, 1992, p. 55). This is evident in the "three pillars" on which H-SD is built: "the satisfaction of fundamental human needs, the generation of growing levels of self-reliance, and the construction of organic articulations of people with nature and technology" (Max-Neef et al., 1989, p. 12).

This normative foundation for H-SD was later elaborated further in a set of five postulates and one fundamental value principle, positioning H-SD in relation to ecological economics. These are:

- Postulate 1: The economy is to serve the people, and not the people to serve the economy.
- Postulate 2: Development is about people and not about objects.
- Postulate 3: Growth is not the same as development, and development does not necessarily require growth.
- Postulate 4: No economy is possible in the absence of eco-system services.
- Postulate 5: The economy is a sub-system of a larger and finite system, the biosphere, hence permanent growth is impossible. Value principle: No economic interest, under any circumstance, can be above the reverence for life

(Max-Neef 2010, pp 203-204)

This normative positioning is important in H-SD because it infuses the analytical framework used in assessing current situations and provides a values orientation from which to imagine and design preferred alternatives. In our teaching, we adapt the second postulate to be "innovation is about people and not about objects," in part to counter technocentric and technological-determinist assumptions about both innovation and futures.

Analytical concepts

The H-SD approach presents a conceptual framework that distinguishes between *needs* and *satisfiers*. These concepts can be expressed through two further postulates: "First: Fundamental human needs are finite, few, and classifiable. Second: Fundamental needs … are the same in all cultures and in all historical periods. What changes, both over time and through cultures, is the way or the means by which the needs are satisfied" (Max-Neef et al., 1989, p. 20).

H-SD identifies a system of nine fundamental needs: Subsistence, Protection, Affection, Understanding, Participation, Idleness, Creation, Identity and Freedom. Contrary to Maslow's theory of motivation in which needs exist in a hierarchical system (Maslow, 1970), in H-SD, needs exist in an interactive and inter-dependent system in which "simultaneities, complementarities and trade-offs are characteristics of the process of needs satisfaction" (Max-Neef et al., 1989, p. 19). Of these nine categories of needs, only satisfaction of a basic level of Subsistence is truly mandatory for human existence. The

satisfaction of all other needs can and does vary over time and between individuals and communities.

H-SD thus becomes a framework through which we can diagnose current levels of well-being in terms of how well fundamental needs are being satisfied. We can also use it prospectively to examine the potential impacts of innovation on the satisfaction of fundamental needs. Further, we can use this framework to assess well-being at different scales. In the original proposal, Max-Neef and colleagues suggest examining satisfaction "with regard to oneself (Eigenwelt), with regard to the social group (Mitwelt), and with regard to the environment (Umwelt)" (Max-Neef et al., 1989, p. 21). Spiering and Barrera suggest that "by adopting a longer-term perspective on needs and sustainability, a fourth context can be added - posterity (Nachwelt)" (Spiering & Barrera, 2021, p. 1442).

Complementing this concept of universal human needs, H-SD proposes to classify everything humans do to "contribute to the actualisation of human needs" under the concept of satisfiers (Max-Neef et al., 1989, pp. 26-27). Satisfiers here are not limited to economic goods—the products or services that can be transacted via markets—but rather include "forms of organisation, political structures, social practices, subjective conditions, values and norms, spaces, contexts, modes, types of behaviour and attitudes, all of which are in a permanent state of tension between consolidation and change" (Max-Neef et al., 1989, p. 27). In future, we intend to connect H-SD with the concept of *social practices*, which offers a robust theoretical and analytical framework to examine the evolution, reproduction, and potential transformation of socio-ecological-technical phenomena (Shove, Pantzar, & Watson, 2012).

The seemingly infinite range of possible satisfiers can be further categorised by existential modes: Being, Having, Doing, or Interacting. Combining the nine axiological categories of needs with the four existential modes in which satisfiers can be manifest produces a matrix that is typically used in H-SD applications. To support use of the matrix, Max-Neef and colleagues sought to clarify the meaning and distinctions between existential modes as follows: Being refers to "attributes, personal or collective, that are expressed as nouns"; Having registers "institutions, norms, mechanisms, tools, laws, etc., that can be expressed in one or more words"; Doing refers to "actions, personal or collective, that can be expressed as verbs"; while Interacting "registers locations and milieus (as times and spaces)" (Max-Neef et al., 1989, p. 33). We find the existential

aspects of the matrix most useful as a heuristic to examine how different satisfiers are constituted in practice. In that sense, when analysing a particular satisfier against the H-SD matrix, we might ask how it manifests in terms of being, having, doing, or interacting while recognising that these do not represent progressive or necessary aspects of complete satisfaction of a need.

A crucial aspect of H-SD is the proposition that poverty is not simply about deprivation or a lack of means to satisfy human needs (Max-Neef et al., 1989, p. 21). From the perspective of H-SD, individual, social, and ecological pathologies arise from *mal*-satisfaction of fundamental needs, not just under-satisfaction. So, while shortages of material wealth and goods can surely contribute to individuals and communities experiencing hardship, some means of satisfying fundamental needs can have paradoxical negative consequences. To clarify and operationalise this premise, H-SD further classifies satisfiers based on how they contribute to either impeding or promoting the actualisation of needs (Max-Neef et al., 1989, pp. 32–37).

H-SD identifies three types of satisfiers that impede the realisation of needs and thus undermine well-being: destroyers, pseudo-satisfiers, and inhibitors. The distinction between these types is imprecise. *Destroyers* are "applied with the intention of satisfying a given need", but they not only "annihilate the possibility of its satisfaction over time, but also, they impair the adequate satisfaction of other needs." *Pseudo-satisfiers* are less aggressively destructive, generating "a false sense of satisfaction of a given need" that undermines its realisation. *Inhibiting satisfiers* are understood to "generally over-satisfy a given need, therefore seriously curtailing the possibility of satisfying other needs" (Max-Neef et al., 1989, pp. 32–34).

On the positive side, H-SD identifies two types of satisfiers that promote the actualisation of needs: singular and synergic. Where *singular satisfiers* address one single need and have a neutral effect on other needs, *synergic satisfiers* address a primary need and "stimulate and contribute to the fulfilment of other needs" (Max-Neef et al., 1989, p. 36). One key attribute differentiating singular from synergic satisfiers in the H-SD approach is that singular satisfiers tend to be exogenous and top-down, while synergic satisfiers tend to be endogenous to a community or context. This reflects the positioning of H-SD as a liberatory methodology for grassroots community development and increasing self-reliance.

The early publications on H-SD provide examples of each type of satisfier and an assessment of which needs they directly and indirectly address. These are not intended as canonical lists, nor are they claimed as universal assessments of how specific satisfiers operate in specific contexts. Further, while the typology of satisfiers and the taxonomy of fundamental needs appear to have been adopted without modification in subsequent work, Max-Neef and colleagues noted that "it must be regarded as an open proposal on which improvements must be made" (Max-Neef et al., 1989, p. 31). While there may be benefit in refining the categories of the H-SD conceptual framework to make it more generally accessible or suitable for a particular context, the purpose of H-SD is not to produce a perfected theory of needs and well-being but rather to provide a mechanism for people to diagnose their current situations, propose alternatives, and to chart pathways to make their preferred futures real.

Building on its basic postulate, pillars, and foundation, H-SD was designed as a participatory methodology and arguably as a form of participatory action research. This likely makes H-SD most feasible in grassroots community development initiatives and in academic projects. Seeing H-SD adopted in more traditionally hierarchical contexts—such as commercial innovation, public sector policy and services design, or strategic planning—may require a political and institutional paradigm shift. We will touch on how our teaching is intended to contribute to that paradigm shift in a later section of this paper. Here, we will briefly summarise how the H-SD approach has been applied and adapted in practice.

Practical application

The original H-SD method involves two multi-phase workshops with up to 50 participants. The first workshop, conducted over two days, is primarily oriented toward diagnosing "the most negative elements affecting that society, community or institution in as much as the actualisation of fundamental human needs is concerned" (Max-Neef et al., 1989, p. 42). A second workshop builds on the diagnostic process, this time focusing on the articulation of a utopian vision and identification of potential bridges between the present and future. As was done for existing satisfiers during the diagnosis workshop, new satisfiers proposed by participants to bring about their preferred future must also be assessed in terms of how they impede or promote satisfaction of needs,

whether they are endogenous or require external support, and how they could be implemented.

This basic structure of assessing the current situation, proposing a preferred future situation, and designing strategic pathways for change is not uncommon. It is similar to both The Futures Workshop approach developed by Jungk and Müllert (1996) and the Three Horizons framework (Curry & Hodgson, 2008; Sharpe, 2014; Sharpe et al., 2016). One difference between Three Horizons and H-SD is that Three Horizons appears to be somewhat value agnostic, enabling anyone to use the method to assess "strategic fit" against present and possible future external conditions. H-SD provides a meta-vision—Max-Neef's "humanist eco-anarchism"—and grounds diagnosis and proposition in assessment against human and ecological flourishing. Notably, both Three Horizons (Sharpe et al., 2016) and H-SD (Guillen-Royo, 2020) have been proposed and implemented as methods for exploring and supporting social transitions toward sustainability.

A number of adaptations of the original methodology have been published, reflecting some level of flexibility when applying H-SD to different situations. Some examples of interest include (in chronological order):

- Ivonne Cruz and colleagues (Cruz, Stahel, & Max-Neef, 2009) added simple numerical scoring and data visualisation methods to enhance the assessment of challenges in the situational analysis and compare options in the propositional analysis phases.
- Monica Guillen-Royo's work across multiple projects (Guillen-Royo, 2010, 2016; Guillen-Royo, Guardiola, and Garcia-Quero, 2017;) to simplify the original methodology into a series of three phases of smaller workshops.
- Catherine Jolibert and colleagues' adaptations of H-SD to include consideration of the needs of non-human actors in environmental impact assessments (Jolibert et al., 2011) and of multiple human stakeholders proposing potentially conflicting satisfiers in regional planning exercises (Jolibert, Paavola, and Rauschmayer, 2014).
- Lina Brand-Correa and colleagues (Brand-Correa & Steinberger, 2017; Brand-Correa, Martin-Ortega, & Steinberger, 2018) use the concept of *energy*

services to connect H-SD analysis with energy systems analysis to understand and advocate for interventions that decouple well-being from energy use.

- Salina Spiering and Maria del Valle Barrera's (Spiering and Barrera, 2020) detailed discussion and facilitator guides based on their experiences applying H-SD in multiple contexts.

Teaching (with) H-SD

So far (in 2023), we used H-SD in three teaching engagements: a Master's unit called Future Value and Impact, the undergraduate subject PPFI already mentioned, and an online tutorial with members of the EPIC community. We iterated our approach each time and will continue to do so in 2024, especially in PPFI. We'll share a bit now about how we use this framework in PPFI.

Past Present Future of Innovation (PPFI) is a second-year subject in our Bachelor of Creative Intelligence and Innovation (BCII) program. It is offered as a two-week intensive in the winter break between semesters. The BCII is a double degree, and students are simultaneously studying one of twenty-six core degrees from Faculties across the university. PPFI is intended to support students to engage critically with innovation and change-making and to reflect on their role as future change-makers. The subject is designed to examine the role of values in driving innovation in particular directions, and support students to explore and propose new solutions to wicked problems by starting from different underlying value positions. A recent external partner in the subject was Regen Sydney, a network aiming to promote transformation towards a regenerative future, inspired in part by Kate Raworth's Doughnut Economics Action Lab model.

In 2023, we introduced students to H-SD alongside futures research methods in connection with practice theory (Shove et al., 2012), critical analysis of innovation under capitalism supported by selections from Vinsel and Russell's (2020) book, *The Innovation Delusion*, and a range of emerging alternative values paradigms. We intended for students to use H-SD to both assess current unsustainable practices and to identify opportunities and possible implications of their proposed interventions.

To introduce H-SD in an engaging and accessible way, we adapted the board game "Less is Max" (Lamadrid & Pereda, 2017) for use in our large classroom context. Inspired by H-SD, the game is designed for 2-5 players to compete by bidding for "situation cards" to

meet their fundamental needs while maintaining the Common Good. The situation cards include a short description of a satisfier on one side and, on the other side, an assessment of how that satisfier impedes or promotes the satisfaction of the nine fundamental needs as well as the common good. The player who wins the card tallies “wings” or “weights” against their list of needs and adds “sun” or “poison” to the Common Good.

We adapted the game so that approximately 190 students in groups of 4 to 6 could play simultaneously by producing modified game pieces for use at each group table and projecting situation cards on screens around the classroom. In addition to being a lot of fun and creating a buzz of activity—cheers and groans when cards were won or lost and the scoring revealed—the game led to some interesting questions from students. Some wondered whose perspective is reflected in the assessment of each satisfier, and we noted that Less Is Max is an opinionated game aligned with H-SD principles.

After playing a round of Less is Max, we shifted into a short lecture on H-SD principles and theory, then asked students to start using a modified H-SD matrix template to examine their group’s present-day practices in terms of needs and satisfiers. We instructed students to use a “services” lens for the template, derived from Brand-Correa, Martin-Ortega, and Steinberger (2018), hoping to reduce the complexity associated with the four existential categories of Being, Having, Doing, Interacting and encouraging students to focus on practices as satisfiers. Our expectation was that students would be able to apply H-SD and social practices to critically assess the present and as a foundation from which to imagine and propose interventions to bring about preferred futures.

Student feedback from the subject mentions that they found playing the game to be fun and that they enjoyed the social aspects of getting to know their classmates through play. Some students also seem to have found H-SD to be conceptually interesting. In their project work, very few individual students and groups appear to have effectively used and referred to H-SD in developing and presenting either critical assessments of current practices or proposals for innovation. We think multiple factors limited student uptake of this approach, including aspects of overall subject design and timelines, such as the number and complexity of theories and frameworks we introduced, student groups struggling to identify and analyse present-day practices, and our insufficient

demonstration of how to apply H-SD as an analytical tool. In addition to refinements to the overall subject design, future improvements to the H-SD module will include a refined H-SD matrix template to guide students in analysing practices as satisfiers and time to explicitly reverse-engineer some of the Less is Max situation cards to help students understand key concepts before turning attention to the focus issues in their group projects.

Open questions

Our experiences teaching with H-SD so far leave us with a few open questions to explore further, and we invite collaboration on these.

Our first question is: How can we effectively integrate non-human perspectives and needs into H-SD practices? While Max-Neef and colleagues have positioned H-SD in terms of ecological economics within a finite biosphere and grounded in reverence for life, we've seen few published examples of how this works in practice. In her comprehensive work with H-SD, Monica Guillen-Royo identifies compatibility between H-SD and sustainability, both due to H-SD's inherent focus on sustainability and in examples of explicit focusing of projects on sustainability or integration of H-SD with other frameworks such as The Natural Step or Theory U (Guillen-Royo, 2016, chap. 5).

One specific example of including non-human perspectives in H-SD practice comes from work by Catherine Jolibert at colleagues in environmental impact assessment and ecosystem management (Jolibert et al., 2011). Attempting to resolve environmental conflict among fisheries and conservationists on the Sado estuary in Portugal, the team identified and included otters as "non-human actants" in the socio-ecological collective. To this end, they included otters as a discrete stakeholder group and mapped existing satisfiers related to the actualisation of their needs alongside the satisfiers related to the needs of human stakeholders, namely fish farmers and reserve managers. As in other work by Jolibert, Paavola, and Rauschmayer (2014), this multi-stakeholder adaptation of H-SD allows for the identification of conflicts and compatibilities in the range of satisfiers used or proposed by different stakeholders and, ideally, for the resolution of those conflicts through collaborative, convergent iteration in participatory workshops.

This example presents an interesting starting point for explicitly including non-human actors and entities in H-SD processes. However, it may be limited to anthropocentric perceptions. If the fundamental needs used to structure the analytical framework of H-SD are entangled with the evolution of the human species, it's not immediately obvious how the fundamental needs of different species, let alone whole landforms or ecosystems, might be addressed.

A second question on our minds is how people—our students in particular—will be able to apply this framework in their careers. While we hope our students gain the competencies, conceptual knowledge, and supportive social networks to work for societal transitions, we acknowledge that many will go on to work for organisations after graduation that are either unaware or openly resistant to the scale of transformation required. This points to the need for multi-scale approaches to transition and contra-innovation. It will not be enough for individuals to approach challenges with ecocentric values. Social practices, institutional values and processes, and political systems will also need to change if we hope to realise human and planetary well-being.

References

1. Abdulla, D., Ansari, A., Canlı, E., Keshavarz, M., Kiem, M., Oliveira, P., Prado, L., and Schultz, T. (2019). "A Manifesto for Decolonising Design." *Journal of Futures Studies* 23 (3). https://doi.org/10.6531/JFS.201903_23(3).0012
2. Brand-Correa, L.I., Martin-Ortega, J., and Steinberger, J.K. (2018). "Human Scale Energy Services: Untangling a 'Golden Thread'." *Energy Research & Social Science* 38 (April): 178–87. https://doi.org/10.1016/j.erss.2018.01.008
3. Brand-Correa, L.I., and Steinberger, J.K., (2017). "A Framework for Decoupling Human Need Satisfaction From Energy Use." *Ecological Economics* 141 (November): 43–52. https://doi.org/10.1016/j.ecolecon.2017.05.019
4. Candy, S., and Potter, C., (Eds.). (2019). *Design and Futures*. Tamkang University Press.
5. Cruz, I., Stahel, A., and Max-Neef, M. (2009). "Towards a Systemic Development Approach: Building on the Human-Scale Development Paradigm." *Ecological Economics*, Methodological Advancements in the Footprint Analysis, 68 (7): 2021–30. https://doi.org/10.1016/j.ecolecon.2009.02.004

6. Curry, A., & Hodgson, A. (2008). “Seeing in Multiple Horizons: Connecting Futures to Strategy.” *Journal of Futures Studies* 13 (1): 1–20.
7. Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. New Ecologies for the Twenty-First Century. Durham: Duke University Press.
8. Fry, T. (1999). *A new design philosophy: an introduction to defuturing*. Sydney: UNSW Press.
9. Fry, T. (2008). *Design Futuring: Sustainability, Ethics and New Practice*. Berg Publishers.
10. Fry, T. (2021). *Writing Design Fiction: Relocating a City in Crisis*. London: Bloomsbury Publishing.
11. Gaziulusoy, İ., and Erdoğan Öztekin, E. (2019). “Design for Sustainability Transitions: Origins, Attitudes and Future Directions.” *Sustainability* 11 (13): 3601. https://doi.org/10.3390/su11133601
12. Guillen-Royo, M. (2010). “Realising the ‘Wellbeing Dividend’: An Exploratory Study Using the Human Scale Development Approach.” *Ecological Economics*, Special Section: Ecological Distribution Conflicts, 70 (2): 384–93. https://doi.org/10.1016/j.ecolecon.2010.09.010
13. Guillen-Royo, M. (2016). *Sustainability and Wellbeing: Human-Scale Development in Practice*. Routledge.
14. Guillen-Royo, M. (2020). “Applying the Fundamental Human Needs Approach to Sustainable Consumption Corridors: Participatory Workshops Involving Information and Communication Technologies.” *Sustainability: Science, Practice and Policy* 16 (1): 114–27. https://doi.org/10.1080/15487733.2020.1787311
15. Guillen-Royo, M., Guardiola, J., and Garcia-Quero, F. (2017). “Sustainable Development in Times of Economic Crisis: A Needs-Based Illustration from Granada (Spain).” *Journal of Cleaner Production* 150 (May): 267–76. https://doi.org/10.1016/j.jclepro.2017.03.008
16. Irwin, T. (2015). “Transition Design: A Proposal for a New Area of Design Practice, Study, and Research.” *Design and Culture* 7 (April): 229–46. https://doi.org/10.1080/17547075.2015.1051829
17. Irwin, T., Tonkinwise, C., & Kossoff, G. (2020a). “Transition Design: The Importance of Everyday Life and Lifestyles as a Leverage Point for Sustainability Transitions.”

Cuadernos Del Centro de Estudios En Diseño y Comunicación. Ensayos, no. 105: 73–106. https://doi.org/10.18682/cdc.vi105.4189

18. Irwin, T., Tonkinwise, C., & Kossoff, G. (2020b). "Transition Design: An Educational Framework for Advancing the Study and Design of Sustainable Transitions." *Cuadernos Del Centro de Estudios En Diseño y Comunicación. Ensayos*, no. 105 (March): 31–72. https://doi.org/10.18682/cdc.vi105.4188
19. Jolibert, C., Max-Neef, M., Rauschmayer, F., and Paavola, J. (2011). "Should We Care About the Needs of Non-Humans? Needs Assessment: A Tool for Environmental Conflict Resolution and Sustainable Organization of Living Beings." *Environmental Policy and Governance* 21 (4): 259–69. https://doi.org/10.1002/eet.578
20. Jolibert, C., Paavola, J., and Rauschmayer, F. (2014). "Addressing Needs in the Search for Sustainable Development: A Proposal for Needs-Based Scenario Building." *Environmental Values* 23 (1): 29–50. https://doi.org/info:doi/10.3197/096327114X13851122269007
21. Jungk, R., and Müllert, N. R. (1996). *Future workshops: how to create desirable futures*. London: Institute for Social Inventions.
22. Lamadrid, C., & Pereda, B. (2017). *Less is Max* [Board Game]. Associacion A Volar.
23. Mareis, C., and Paim, N., (Eds.). (2021). *Design Struggles: Intersecting Histories, Pedagogies, and Perspectives*. BookRxiv. https://doi.org/10.47982/BookRxiv.34
24. Maslow, A.H. (1970). *Motivation and Personality*. 2nd ed.
25. Max-Neef, M. (2010). "The World on a Collision Course and the Need for a New Economy." *AMBIO* 39 (3): 200–210. https://doi.org/10.1007/s13280-010-0028-1
26. Max-Neef, M. (1992). *From the Outside Looking In: Experiences in "Barefoot Economics"*. London and New Jersey: Zed Books.
27. Max-Neef, M., Hevia, A., and Hopenhayn, M. (1989). "Human Scale Development: An Option for the Future." *Development Dialogue* 1 (January): 7–80.
28. Perera, D., and Fry, T. (2022). "Contra-Innovation: Expanding the Innovation Imperative in the Context of Futuring, Defuturing and Fictioning." *Contexts—The Systemic Design Journal*, *Vol 1*. https://doi.org/10.58279/v1002
29. Sharpe, B. (2014). Three Horizons and working with change. *APF Compass*, *January 6–8*.

30. Sharpe, B., Hodgson, A., Leicester, G., Lyon, A., & Fazey, I. (2016). "Three Horizons: A Pathways Practice for Transformation." *Ecology and Society* 21 (2): art47. https://doi.org/10.5751/ES-08388-210247
31. Shove, E., Pantzar, M., and Watson, M. (2012). *The Dynamics of Social Practice: Everyday Life and How It Changes*. SAGE Publications Ltd.
32. Slaughter, R.A. (1999). "Towards Responsible Dissent and the Rise of Transformational Futures." *Futures* 31 (2): 147–54. https://doi.org/10.1016/S0016-3287(98)00124-4
33. Spiering, S., and Barrera, MdV. (2020). "How to?! Practical Knowledge for Transformative Science - Facilitation Guidelines for Two Applications of the Human Scale Development Approach." UFZ Discussion Paper 3/2020. https://econpapers.repec.org/paper/zbwufzdps/32020.htm
34. Spiering, S., and Barrera, MdV. (2021). "Testing the Quality of Transformative Science Methods: The Example of the Human Scale Development Approach." *Sustainability Science* 16 (5): 1439–57. https://doi.org/10.1007/s11625-021-00966-3
35. Tunstall, E. (2023). *Decolonizing Design: A Cultural Justice Guidebook*. The MIT Press.
36. Valenzuela, L., and Barrera, MdV. (Eds.). (2023). *Beyond Ecological Economics and Development: Critical Reflections on the Thought of Manfred Max-Neef*. London: Routledge. https://doi.org/10.4324/9781003381143
37. Vinsel, L., & Russell, A.L. (2020). *The Innovation Delusion: How Our Obsession with the New Has Disrupted the Work That Matters Most*. Currency.
38. Willis, A. (2006). "Ontological Designing." *Design Philosophy Papers* 4 (2): 69–92. https://doi.org/10.2752/144871306X13966268131514
39. Yelavich, S., & Adams, B. (Eds.). (2014). *Design as Future-Making*. United Kingdom: Bloomsbury Publishing Plc. https://doi.org/10.5040/9781474293907

Authors

Scott Matter, Senior Lecturer, TD School UTS, Scott.Matter@uts.edu.au

Samuel Yu, Associate Lecturer, TD School UTS, Samuel.Yu.@uts.edu.au

Acknowledgements

As academic staff at UTS, we acknowledge the Gadigal people of the Eora Nation, the Boorooberongal people of the Dharug Nation, the Bidiagal people and the Gamaygal people, upon whose ancestral lands our university stands. We would also like to pay respect to Elders past and present, acknowledging them as the traditional custodians of knowledge for these lands.