

1 Can Enaction Design Account 2 for Psychotechnologies? 3 Wayshaping as a Case Study

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13 > **Abstract** • The enaction design frame-
14 work proposed by Gepenne et al. offers a
15 compelling approach to understanding
16 how technology shapes human experi-
17 ence through processes of “relational
18 engineering.” This framework empha-
19 sizes the various relations brought
20 about through the use of technologies,
21 identifying four necessary and suffi-
22 cient relations: supplementing, substi-
23 tuting, instructing, and assisting. In my
24 commentary, I explore whether these
25 distinctions also hold for psychotechno-
26 logies, by analyzing various examples,
27 including the wayshaping framework –
28 a behavior-change approach that I am
29 currently developing with collaborators.
30 Additionally, I discuss the potential of
31 enaction design to reveal the feeling of
32 grip as an assistive technology within
33 the wayshaping process. This analysis
34 highlights the potential for further ex-
35 ploration and integration of enaction
36 design principles in the design, devel-
42 opment and application of psychotechno-
37 logies.

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41 «1» The enaction design framework
42 proposed by Olivier Gepenne, Francois
43 Marès, Claire Littaye, Cléo Collomb and
44 Bruno Bachimont, in their target article,
45 introduces a compelling approach to un-
46 derstanding how technology shapes human
47 experience, conceptualizing the design and
48 development of technologies as processes of
49 “relational engineering.” Their account em-
50 phasizes how certain regimes of experience
51 are associated with various relations that are
52 brought about through the use of technolo-
53 gies. To this end, Gepenne et al. distinguish
54 four relations: supplementing, substituting,
55 instructing, and assisting, along with their

column A

associated phenotechnical regimes: constituting, delegating, elucidating, and regulating. Ultimately, they argue that “these four regimes and their corresponding relations are necessary and sufficient for describing the whole of technically constituted [...] human experience” (§34) and that “any set of entities performing or giving rise to actions linking humans to one another – or (via tools) to environments – can be formalized and modeled in terms of [them]” (§3).

«2» Given this emphasis on relational engineering and the claims about the necessity and sufficiency of the introduced distinctions, in this commentary, I inquire as to whether these distinctions also hold for so-called *psychotechnologies*. To do so, I will analyze some examples of psychotechnologies through said distinctions. Included in these examples, I will also examine the “wayshaping framework,” an approach to behavior change that I and several collaborators are currently developing.¹ Being rooted in an understanding of embodied cognition and sharing many fundamental commitments with enaction design, it may be interesting to explore whether the lens of enaction design can productively supplement its development.

Psychotechnologies

«3» Although not widely used, the term psychotechnologies has been around for some time, even having an entry in the 2024 edition of the Merriam-Webster dictionary. Thomas Roberts (2014) defines psychotechnologies as “ways of using psychological processes for a desired outcome.” However, it is John Vervaeke who has brought the term to a wider audience, and whose definition tends to be the most widely referenced – at least in the popular discourse – and helpful. Vervaeke defines psychotechnologies as “socially generated and standardized methods for formatting, manipulating, and enhancing information processing, readily internalizable into human cognition and applicable across various domains.”² This definition encompasses a

1 | For some precursors to this work – which is not published at the time of writing – see James (2018, 2023).

2 | This definition comes from episode 42 of the video lecture series “Awakening from the

column B

wide array of practices, including language, numeracy, meditation, and metaphor. Setting aside here what might be entailed in the notion of “information processing” in this definition, I ask if considering psychotechnologies in light of the four relations from enaction design, Gepenne et al.’s distinctions continue to hold in such cases, thus expanding the reach of enaction design beyond its initial proposal.

«4» The intuition that this might be a worthwhile inquiry stems from a couple of insights about the continuities between psychotechnologies and technologies more generally, beyond mere nomenclature. First, when understood in relational terms, the whereabouts of the technology is less important than the functional relation of the technology relative to one’s ends or the modulation of those ends, i.e., the ways in which it empowers. Secondly – as Gepenne et al. write – we observe with any technology a period of appropriation and learning in which

“the user becomes less aware of the tool that is used, but more aware of the experience that the tool makes possible. The supplementing relation therefore involves both a fading from consciousness (of the tool) and an awakening in consciousness (of the experience).”³ (§7)

The same holds for psychotechnologies. Developing skills in language, for instance, typically requires a period of learning in which the technology is very apparent, but eventually, the technologies themselves (words, concepts, phrases, narratives, etc.) recede from view and become the frames through which we make sense of ourselves and our lifeworlds (James 2020).

Supplementing

«5» Supplementing technologies constitute human abilities by enabling new

Meaning Crisis” on YouTube, recorded at the University of Toronto in 2019, <https://www.youtube.com/playlist?list=PLND1JCRq8Vuh3f0P5qjrSdb5eC1ZfZwWJ>. While I am unable to locate any mention of psychotechnologies in Vervaeke’s published writings the transcript of episode 42 is available at <https://www.meaningcrisis.co/ep-42-awakening-from-the-meaning-crisis-intelligence-rationality-and-wisdom/>

column C

column A

1 capacities that would be unattainable without 2 out them, thus opening new horizons for 3 thinking, feeling and acting. In the context 4 of psychotechnologies, language can be 5 seen as a prime example of a supplement- 6 ing technology. Language enhances our 7 cognitive capacities in myriad ways that are 8 impossible in its absence. For instance, it 9 enables abstract thinking, complex open- 10 ended communication, and the formation 11 of highly distributed cultural and social 12 bonds. In short, language supplements 13 our ability to receive, process, and convey 14 certain types of meaning, thereby expand- 15 ing our cognitive, behavioral and affective 16 horizons. Likewise, meditation practices, 17 such as mindfulness, also serve as supple- 18 menting psychotechnologies. Practicing 19 mindfulness can lead to capacities of atten- 20 tional control, emotional regulation, and 21 self-awareness that would be very unlikely 22 in its absence, thus providing benefits that 23 supplement one's ability to navigate daily 24 challenges effectively.

25 « 6 » Although it is yet to be verified 26 empirically, one could claim that the way- 27 shaping framework plays a supplementary 28 role as a psychotechnology by enabling in- 29 dividuals to align their actions with their in- 30 tentions more effectively. It does this by sup- 31 plying a set of integrated concepts, methods 32 and metaphors that empower the individual 33 to generate insights that help them see their 34 own potentials for change more clearly and 35 grasp their lifeworlds in ways that reveal 36 the interdependencies between particular 37 behaviors and the conditions that give rise 38 to them. As such, by working with and ap- 39 propriating the wayshaping framework, 40 the user supplements their change-agency, 41 opening horizons of feeling, thinking, and 42 acting that would be difficult or even im- 43 possible to get to otherwise. For instance, 44 in wayshaping, the challenge of address- 45 ing the intention/action gap is reexamined 46 with the understanding that our intentions 47 are not merely internal instructions dictat- 48 ing our actions, which sometimes fail, cre- 49 ating a gap. Instead, intentions are viewed 50 as constraints that can extend into our en- 51 vironments, manifesting as symbolic and 52 material configurations around which we 53 self-organize.

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column A

column B

Substituting

« 7 » Substituting technologies automate tasks, allowing humans to delegate certain processes that would otherwise require their effort. Numeracy skills that automate complex calculations and allow individuals to perform mathematical operations effortlessly are, perhaps, examples of a psychotechnology that reflect this substituting relation, freeing cognitive resources for higher-order problem-solving and decision-making that would not otherwise be available. Here, although the substitution still requires some activity on behalf of the part of the user, it may be seen as akin to the activation process that is described as being typical with more common substituting technologies. Heuristics or rules of thumb might also be considered substituting psychotechnologies. Heuristics tend to be acquired because of their ability to function well-enough across various contexts, becoming habitual after some period of appropriation. Often, it is when they fail to fulfill the substituting role that one must reflect on their use and engage in the work it was assumed to be substituting but could not.

« 8 » Within the wayshaping framework, certain aspects of environmental structuring through the distribution of material and symbolic constraints – both enabling and limiting – might be viewed as a substituting practice. For instance, by modifying one's environment to reduce distractions and promote relaxation, wayshaping helps automate the regulation of focus and attention, thus substituting some of the need to generate this state of mind for oneself in the absence of these environmental modulations. However, these might be considered technologies in the more traditional sense, given their materiality. Imagining and contrasting future scenarios whilst feeling for a kind of prospective grip, by contrast, appears to be a clear example of substituting psychotechnologies. This practice allows us to explore future possibilities without experiencing them in daily life, thereby planning a course of action or avoiding potential pitfalls without the need for physical engagement.

« 9 » Similarly, setting “implementation intentions” where one envisions what one intends to do in some future situation and is thus more likely to do it (Gollwitzer &

column B

column C

Sheeran 2006), can substitute one's need for 1 more mental effort and self-regulation when 2 the situation envisioned comes about.³

Instructing

« 10 » Instructing technologies elucidate by providing guidance and knowledge, 7 helping users to learn and understand new 8 knowledge or acquire new skills, often when 9 engaging with supplementing technologies. 10 Metaphors might be considered examples of 11 instructing psychotechnologies. Metaphors 12 help individuals understand and remember 13 complex or abstract concepts through more 14 familiar terms. For instance, Ben Franklin's 15 well-known metaphor that “time is money” 16 instructs individuals on the value of time 17 and the importance of managing it effective- 18 ly.⁴ In a global sense, the wayshaping frame- 19 work is itself an instructing technology. It 20 provides the scaffolding within which one 21 develops the capacities for self-scaffolding, 22 or, to put it another way, instruction in the 23 process of self-instruction. However, within 24 wayshaping, the instructing psychotech- 25 nologies of metaphors are also common. 26 Indeed, the very framing is metaphorical, 27 choosing to view behavioral change as a 28 process of shaping the paths along which we 29 make our way. Moreover, wayshaping uses 30 many horticultural metaphors such as “seed 31 habits” and “cultivating change,” to clarify 32 aspects involved in the process of change 33 that might otherwise be difficult to grasp.

Assisting

« 11 » Assisting technologies offer im- 37 427 mediate feedback through consultation, 38 helping users regulate their activities, in- 39 cluding the use of other supplementing 40 technologies or psychotechnologies. Im- 41 portantly, not all psychotechnologies are 42 cognitive or abstract. Both Roberts (2014) 43

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3 | Implementation intentions are not unique 45 to the wayshaping framework, but are a general 46 strategy for supporting behavioral change, often 47 formulated in information-theoretic terms. Fu- 48 ture research should be dedicated to understand- 49 ing the success of implementation intentions from 50 the standpoint of embodied cognitive science. 51

4 | See his essay “Advice to a young trades- 52 man,” which first appeared in 1748 as part of a 53 book entitled *The American Instructor: or Young 54 Man's Best Companion. The American Instructor.* 55

column C

column A

1 and Vervaeke (see Footnote 1) highlight
 2 that psychotechnologies can also be more
 3 embodied (e.g., yoga, breathwork) or even
 4 pharmaceutical (e.g., caffeine, psychedel-
 5 ics). Given this, many bodily features might
 6 be understood as assistive psychotechnolo-
 7 gies under certain conditions. For instance,
 8 the rhythm of one's breathing might be
 9 consulted when engaging in a task to as-
 10 sist in regulating tension or relaxation; if
 11 breathing is not smooth, one might assess
 12 that one is too tense and thus self-regulate
 13 to relax more. Likewise, posture, the flow
 14 of bodily movements, heart rate, pain in-
 15 tensity, sweat levels, bodily sensations and
 16 affects can be considered assistive psy-
 17 chotechnologies under favorable condi-
 18 tions.

19 «12» Many of these bodily and expe-
 20 riential processes are used as assistive psy-
 21 chotechnologies at various stages of the way-
 22 shaping process. However, one that features
 23 most prominently is the feeling of "grip."
 24 This concept derives from phenomenology
 25 and embodied cognitive science, suggesting
 26 that we constantly seek an optimal grip on
 27 our situation (Merleau-Ponty 1945; Kiver-
 28 stein, Miller & Rietveld 2019). For example,
 29 someone viewing a painting in a museum
 30 might continually shift their position until
 31 they find what feels like an "optimal" view-
 32 ing point. The insight from phenomenology
 33 is that we are virtually always doing this,
 34 whilst struggling to get a grip is experienced
 35 negatively and something we seek to ne-
 36 gate. Throughout the wayshaping process,
 37 we might emphasize paying attention to the
 38 sense of grip one has relative to the phase
 39 of the process one is in, not progressing fur-
 40 ther in the absence of this sense. Thus, the
 41 sense of grip, as well as being a general end
 42 towards which we tend, becomes an assis-
 43 tive technology consulted throughout the
 44 wayshaping process.

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Conclusion

46 «13» Gappen et al.'s enactment design
 47 framework offers valuable insights into the
 48 relational role of technology in engineering
 49 human experience. By applying its distinc-
 50 tions to psychotechnologies, we can better
 51 understand how they enhance our capaci-
 52 ties and contribute to our well-being. As a
 53 designer and developer of psychotechnolo-
 54 gies, some of the value of these distinctions

column B

is already clear to me. For one, this concep-
 tual analysis has given me a better sense of
 grip on what psychotechnologies, including
 wayshaping, are and the various ways in
 which they shape our experience. Moreover,
 thinking about the feeling of grip as an as-
 sistive technology that might be deployed
 throughout the process of wayshaping is not
 something we had previously considered
 but feels like a non-trivial contribution to
 our framework. Given that wayshaping is
 a process of shaping experience in support
 of behavioral change, and enactment design
 has outlined the "macro-schemas for creat-
 ing current and possible experience" (§4),
 the sense that there are more non-trivial in-
 sights to be harnessed at this intersection is
 readily apparent.

References

Gollwitzer P. M. & Sheeran P. (2006) Imple-
 mentation intentions and goal achievement:
 A meta-analysis of effects and processes.
 Advances in Experimental Social Psychology
 38: 69–119.

James M. M. (2018) Introducing ecobehavioral
 design. [Blog] The side view. Retrieved from
<http://thesideview.co/articles/introducing-ecobehavioraldesign>

James M. M. (2020) Bringing forth within: En-
 habiting at the intersection between enactment
 and ecological psychology. Frontiers in Psy-
 chology 11: 1348. <https://doi.org/10.3389/fpsyg.2020.01348>

James M. M. (2022) Enacting ontological design:
 A vocabulary of change from organisms to
 organisations. In: Secchi D., Gahrn-Ander-
 son R. & Cowley S. J. (eds.) Organizational
 cognition: The theory of social organiz-
 ing. Routledge, New York NY: 259–280.
 ▶ <https://cepa.info/8118>

Kiverstein J., Miller M. & Rietveld E. (2019)
 The feeling of grip: Novelty, error dynam-
 ics, and the predictive brain. *Synthese* 196:
 2847–2869. <https://doi.org/10.1007/s11229-017-1583-9>

Merleau-Ponty M. (1945) Phenomenology of
 perception. Routledge, London.

Roberts T. B. (2014) Surviving and thriving with
 psychotechnologies. In: Doblin R. & Burge
 B. (eds.) Manifesting minds: A review of
 psychedelics in science, medicine, sex and
 spirituality. Evolver Editions, Berkeley CA:
 255–266.

column C

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 in these processes, and how this understanding can
 inform questions around health and disorder. Presently
 Mark's work is centered around the development of
 the wayshaping framework, an approach to non-
 clinical behavioral change rooted in an understanding
 of complexity science and embodied cognition.

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