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

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> Abstract • The enaction design framework proposed by Gapenne et al. offers a compelling approach to understanding how technology shapes human experience through processes of “relational engineering.” This framework emphasizes the various relations brought about through the use of technologies, identifying four necessary and sufficient relations: supplementing, substituting, instructing, and assisting. In my commentary, I explore whether these distinctions also hold for psychotechnologies, by analyzing various examples, including the wayshaping framework – a behavior-change approach that I am currently developing with collaborators. Additionally, I discuss the potential of enaction design to reveal the feeling of grip as an assistive technology within the wayshaping process. This analysis highlights the potential for further exploration and integration of enaction design principles in the design, development and application of psychotechnologies.

Handling Editor • Alexander Riegler

« 1 » The enaction design framework proposed by Olivier Gapenne, Francois Marès, Claire Littaye, Cléo Collomb and Bruno Bachimont, in their target article, introduces a compelling approach to understanding how technology shapes human experience, conceptualizing the design and development of technologies as processes of “relational engineering.” Their account emphasizes how certain regimes of experience are associated with various relations that are brought about through the use of technologies. To this end, Gapenne et al. distinguish four relations: supplementing, substituting, instructing, and assisting, along with their

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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

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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, Gapenne 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. Firstly, 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 Gapenne 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).” (§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/>

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1 capacities that would be unattainable with-
 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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Substituting

« 7 » Substituting technologies auto-
 mate 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 opera-
 tions effortlessly are, perhaps, examples of a
 psychotechnology that reflect this substitut-
 ing relation, freeing cognitive resources for
 higher-order problem-solving and decision-
 making that would not otherwise be avail-
 able. Here, although the substitution still re-
 quires some activity on behalf 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 technolo-
 gies. Heuristics or rules of thumb might also
 be considered substituting psychotechnolo-
 gies. 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 sub-
 stituting but could not.

« 8 » Within the wayshaping frame-
 work, certain aspects of environmental
 structuring through the distribution of ma-
 terial and symbolic constraints – both en-
 abling and limiting – might be viewed as a
 substituting practice. For instance, by modi-
 fying one's environment to reduce distrac-
 tions 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 modula-
 tions. However, these might be considered
 technologies in the more traditional sense,
 given their materiality. Imagining and con-
 trasting future scenarios whilst feeling for
 a kind of prospective grip, by contrast, ap-
 pears to be a clear example of substituting
 psychotechnologies. This practice allows us
 to explore future possibilities without experi-
 encing them in daily life, thereby planning
 a course of action or avoiding potential pit-
 falls without the need for physical engage-
 ment.

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

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

Instructing

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

Assisting

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

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

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

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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.

Conclusion

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

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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 enaction 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.

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of complexity science and embodied cognition.

Funding: No external funding was received
while writing this manuscript.

Competing interests: The author declares
that they have no competing interests.

RECEIVED: 3 AUGUST 2024

REVISED: 6 AUGUST 2024

ACCEPTED: 8 AUGUST 2024

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