How spaces can support knowledge and innovation work

Why cognition matters for innovation and office design

Markus F. Peschl
University of Vienna
www.univie.ac.at

theLivingCore GmbH, Vienna & Frankfurt
www.theLivingCore.com
Why do we see things that are not there?
Organizations, uncertainty, and the future

"Organizations continually make decisions in relation to a more or less unknown/uncertain outside world..., the disorder of which is to be converted into organizational order. Organizations endeavour to transform ambiguous states into ordered states. Organization is thus a process that is constantly bound to its opposite state, namely ‘disorganization’...

Organizations exist to make decisions about the future. And while naturally one would prefer to predict the future by projecting the ‘present’ to a ‘present future’, a precise scientific definition of ‘future’ would seem impossible. There will always be a difference between ex ante expectations and ex post experiences."

Bakken, T. and E.L. Wiik 2017, p 2
Cognition is at the heart of most knowledge- & innovation work/processes

— Premise: We live in an economy and society that is driven by:
  (i) knowledge and
  (ii) innovation

— Both processes are intrinsically cognitive (and social) processes

— What can we learn from recent findings in cognitive science and neuroscience?
  1. Predictive mind/coding hypothesis about cognition
  2. Situated and extended approach to cognition
  3. How do we create innovations/novelty that are driven by the future rather than by the past?

— Overview:
  — Enabling (future-driven) innovation
  — Enabling Spaces
  — Case study
Learning 1: 
Predictive mind hypothesis

A Visual processing

(c) Kandel et al. 2012

REALITY
Predictive mind hypothesis
(e.g., Clark 2013, 2016, Hohwy 2013, etc.)

— Cognition (and perception) is not a passive process
— Our brain is an „experience-driven prediction machine“
— Cognition is heavily driven by
  — expectations
  — past experiences
  — top-down projections
  — testing already existing hypotheses
  — minimizing error
  — self-fulfilling prophecies

— vs. necessity of being open, receptive, etc. for novelty

Predictive mind is (one of) the biggest obstacle(s) for innovation!
Situated and extended cognition (e.g., Clark 2008, Menary 2010, Walter 2014, etc.)

— How do we think?
— Situated and extended approach to cognition:

„Thinking with the brain, body, and the environment“
“...the actual local operations that realize certain forms of human cognizing include... loops that promiscuously criss-cross the boundaries of brain, body, and world. The local mechanisms of mind... are not all in the head. Cognition leaks out into body and world...

This matters because it drives home the degree to which environmental engineering is also self-engineering. In building our physical and social worlds, we build (or rather, we massively reconfigure) our minds and our capacities of thought and reason.”

Situated and Extended Cognition

— We are thinking with our environment
Cognition and innovation
Innovation as „Learning from the future as it emerges“
Emergent Innovation
Why enabling is pivotal for future-oriented innovation (work and management)
The mechanistic production of (radically) new knowledge, innovations, or profoundly new insights?
Possible Alternatives for a Mechanistic Perspective on Knowledge Creation?

Alternative: Concept of Enabling

— What does „enabling“ mean in the context of generating new knowledge, innovation?

— Leave behind the regime of control, determinism, and making
— Instead: provide a set of constraints or a facilitating framework/affordances supporting (and not determining) the processes of bringing forth new knowledge

— Assumptions

— There is something latent in reality/knowledge which wants to break forth (”potentia”, “actus”, “emerge”)
— It is not “visible” or “obvious” in most cases
— It is highly fragile
— It is too weak to break through/forth by itself in most cases

— Enabling = facilitating the process of breaking forth of (new) latent qualities/potentials & dynamics | facilitating to „give birth”
— „Learning from the future as it emerges“
Implications of the Enabling-Approach for Knowledge Creation

— Enabling is a weak & „poor“ concept, because we have to give up on control
  — It „respects“ and honors reality, its constraints, it potentials, and affordances (cf. Scott & Brown, p389)
  — „Reality does a large part of the job for you“ —> unfolding of a future & emerging reality

— Enabling requires an alternative set of attitudes, values, habitus, and epistemic practices
  — „Epistemological virtues“ of openness, being able to reflect, to let go & to explore
  — Being able to listen & observe closely | follow/„surfing“ flow of reality
  — Being able to wait/patience & to let come & to „epistemologically suffer“
  — Sense of/for potentials for „what is not yet here“, for „what wants to emerge“
  — Have a love for details and for „weak signals“
  — Provide a context of cultivation and facilitation rather than a regime of control and forced change

— Enabling requires some humbleness
Enabling Spaces
Enabling Spaces

“We shape our buildings, and afterwards our buildings shape us”

Winston Churchill, 1943
Enabling Spaces

Research question(s):
— How do we have to design environments and eco-systems which support processes of innovation/design and knowledge creation?
— Which role does an „attitude of enabling“ and affordances play in such spaces?
— How can the approach of enabling be realized in a concrete space?

Concept of Enabling Spaces
— A space supporting and enabling processes of communication, innovation, and knowledge creation
— A space reflecting the need for different environments/contexts for different types of knowledge processes/work
Enabling Spaces | Foundations

— Theoretical foundations
  — extended mind/cognition (e.g., Clark 2008; Clark/Chalmers 1998; Menary 2010) & Cognitive (neuro-)science
  — Concept of affordances (e.g., Gibson 1986, Chemero 2003)
  — Constructivism
  — Theory of enabling (vs. determining behavior) & Enabling Spaces® (Peschl & Fundneider 2014)
  — Emergent Innovation

— Design principles
  — User/learner & knowledge-centeredness
  — Enabling Space as a learning/innovation eco-system
  — “Learning by deep understanding, creating, and doing”
  — “From the head to the heart and from the heart to the hand”
Enabling Space

— Space is understood in a rather broad sense:
  — A space provides enabling structures as well as constraints allowing knowledge processes to flow & to develop their own dynamics („affordances“)
  — Dimensions: physical, social, cognitive, emotional, technological, etc.
— Challenge: it is necessary to integrate and entangle these dimensions into a holistic entity
— Knowledge & innovation processes are the starting point for the design process
— Consistent integration of processes and structures
  — The attitude of enabling is the key driver for this integration
— Design task:
  — Find a good balance and configuration of involved parameters/affordances, dimensions, and functions
  — Need for a dedicated design process which goes far beyond classical analytical or architectural processes
  — This process is specific for each type of knowledge work & environment
Enabling Spaces

- Social Space
- Cognitive & Emotional Space
- Epistemological Space
- Architectural Space
- Technological & Virtual Space
- Organizational & Cultural Space
Conclusions
Enabling: a new Paradigm for Innovation and Knowledge Creation

What is the difference between enabling and managing/making innovation?

<table>
<thead>
<tr>
<th>Managing/Controlling/“Making” attitude</th>
<th>Enabling attitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned, rule oriented, algorithmic, „making“ („facere“)</td>
<td>Enabling, facilitation</td>
</tr>
<tr>
<td>Following rules &amp; „recipes“, execution of routines</td>
<td>Providing supporting environment &amp; enabling constraints</td>
</tr>
<tr>
<td>Trying to keep things under control</td>
<td>Letting things go, follow the flow, emergence</td>
</tr>
<tr>
<td>Problem solving &amp; „puzzle solving“ (T.Kuhn), paradigm accepting</td>
<td>Problem setting &amp; paradigm setting</td>
</tr>
<tr>
<td>Staying within the predetermined problem/ knowledge/search space</td>
<td>Questioning assumptions and methods, open ended</td>
</tr>
<tr>
<td>Analytical, „science like“</td>
<td>Design (-thinking) based / „artistic“</td>
</tr>
<tr>
<td>Starting with already existing solutions, concerned with details</td>
<td>Starting with blank sheet, taking the large perspective</td>
</tr>
</tbody>
</table>
Conclusions

If we want to innovate successfully,
— we have to overcome our „predictive mind“
— we have to learn to „listen to the future as it emerges“
— we have to „think with our environment“, „surfing reality“
— we have to enable rather than manage innovation
— we have to create Enabling Spaces®
— we have to realize whole innovation eco-systems rather than just fancy offices