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<CT>**Evolving the future by learning from the future (as it emerges)? Toward an epistemology of change**

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<C-AB>**Abstract:** At the core of Wilson et al.'s paper stands the question of intentional change. We propose to extend this notion by introducing concepts from the domains of innovation and knowledge creation. By going beyond their "acceptance and commitment therapy" approach we present a comprehensive framework for a theory of change culminating in the change strategy of "learning from the future as it emerges."

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Even though Wilson et al. talk about "evolving the future" and the capacity for positive open-ended change and how it can be brought about in various domains, there is no explicit mention of the perspective of *innovation* and *knowledge creation* as one of the

main sources for (intentional) change and bringing forth new realities (except for a short reference to Johnson [2010]).

Wilson et al. pose the question of why positive behavioral and cultural change is sometimes so hard to achieve and why something that seems to be an adaptation occasionally turns out to be inadequate. Our resistance against change seems to have a dilemma that is intrinsic to almost all kinds of radical change or innovation as one of its deeper causes: On the one hand we strive for radical change, we are interested or even fascinated by it; on the other hand we are irritated when confronted with something radically new, because it fits neither into our categories of perception nor into our mental models. The reason for the resistance against such changes seems to lie in this situation of loss of control, which is an unpleasant experience for most humans. So, the original question can be reformulated: How can one produce positive, in the sense of *sustainable*, change that both is *fundamentally new* and *organically fits* into existing structures, or is in continuity with the already existing categories of our cognition (compare Maturana & Varela's [1980] or Luhmann's concept of *Anschlussfähig/connectivity*)?

On the individual level, the authors tackle this problem by proposing a three-step approach having the goal to increase response variability (sect. 3.1): (1) behavior therapy (BT) (adapting and rewiring behavioral responses), (2) cognitive behavior therapy (CBT) (reconceptualizing the problem space in the symbolic realm), and (3) "acceptance and commitment therapy" (ACT). ACT aims at identifying one's most important life goals in a mindful manner and valuing and firmly following them. The questions of what these

goals could be and where they come from on a more general level remain open – finding an answer to these questions is, however, critical for successful sustainable change. What is already a hard question on an individual level becomes even more complex and challenging in the realm of innovation and change on a group/organizational or cultural level. It seems that the processes of increasing variability and selecting according to criteria (where do they come from?) should be complemented by another strategy hinted at by Wilson et al.: mindfulness, attentiveness, or wisdom.

The proposition of this commentary is to extend the above approach to intentional change by introducing concepts from the domains of innovation and knowledge creation. They have their roots in cognitive science, epistemology, innovation studies and organization science (Fagerberg et al. 2006; Fagerberg & Verspagen 2009), and second-order cybernetics (of semantics) (Krippendorff 2006). We propose the following conceptual and epistemological framework differentiating various strategies of change (see also Fig. 1):

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1. *Downloading and reacting*: Existing and successful behavioral patterns from the past are downloaded and applied ($\Rightarrow$ no change occurs).

2. *Single-loop strategy* of change/learning (adapting and restructuring): This circular process is closely related to the evolutionary dynamics by adapting to the environment through generating variation and testing it by behavioral expression. Such a strategy leads to optimizing existing structures; oftentimes, it is referred to as "incremental innovation" (Ettlie et al. 1984) and can be compared to the BT approach.

3. *Double-loop strategy* of change/learning (redesigning and reframing) (Argyris & Schön 1996): Humans are not only capable of simply adapting to the environment, but also able to *reframe* their symbolic/symbotype system by *reflecting* on their assumptions or values and changing them (e.g., a change in premises in our cognitive framework, paradigmatic shift in the realm of science [Kuhn 1970], radical innovation [Corso et al. 2009; Ettlie et al. 1984]). That creates a new space of knowledge opening up an unexplored scope of potential behaviors (compare to the CBT approach). Both the single- and double-loop strategies understand change as adaptation and as "learning from the past."

4. *"Learning from the future as it emerges"* (regenerating): Going one step further, our cognition and symbolic capabilities enable us to intellectually deeply penetrate the environment in order to achieve a profound understanding of the *potentials* that are not yet realized in a particular part of the (internal or external) environment – potentials that are hidden, that need to be discovered, developed, and cultivated in order to emerge in the future. This is a rather different strategy, which we refer to as *Emergent Innovation* (Peschl & Fundneider 2008; in press; Peschl et al. 2010). It is partially based on Scharmer's (2007) Theory-U and does not primarily follow the classical strategy of trial and error, variation, selection, and adaptation in order to bring forth change and innovation, but uses deep knowledge about the core of the object of innovation (OOI) and its potentials in order to "learn from the future as it emerges." In other words, these potentials offer a pointer toward the future possibilities that might emerge. This leads to changes that fit into the environment (because they have their basis in the core of the

OOI) and are at the same time fundamentally new (because they tap yet unrealized potentials of the core of the OOI).

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[COMP: INSERT FIGURE 1 with Fig. 1 Caption HERE]

Although the above framework stresses an epistemological perspective, one can clearly see the similarities to Wilson et al. (sect. 3.1.& 3.2) on a conceptual level. Taking their ACT approach one step further reveals that our fourth change strategy of "learning from the future as it emerges" follows a slightly different procedure, in which the concepts of *identifying* and *cultivating potentials,* as well as *enabling* intentional change, play a central role.

Besides having to employ a whole new set of cognitive and epistemological skills, as well as attitudes complementing the classical variation-and-selection processes (e.g., openness, patience, letting go, coping with loss of control, deep understanding [of the core potentials], etc.), such an approach has far-reaching implications for innovation and creating new knowledge.

<C-Text ends>

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Figure 1.   Strategies and levels for dealing with (open-ended) change (they do not exclude each other).

questions		(cognitive) activities	results
Which solutions do already exist?	**re-acting**	Downloading & applying existing solutions	**reaction**
What are the structures behind the solutions?	**re-structuring**	Adapting & optimizing structures	**optimization**
What are my patterns of perception and thinking?	**re-designing**	Perceiving your own and other perceptions/ knowledge	**redirection of standpoint**
What is the basis of my thinking, what are my deep assumptions?	**re-framing**	Reflecting, reframing, questioning & dialogue & leaving behind deep assumptions	**new structures of thinking & new assumptions & principles**
Existential questions concerning the core and its potentialities	**re-generating**	Opening up to the new in the uncharted space of potentialities; What wants to emerge? | Presencing	**profoundly new knowledge from the perspective of the future possibilities**

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