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HOW TO FACILITATE PRESENCING AS AN EMBODIED TRANSFORMATIVE LEARNING PROCESS: *The Role of Embodied Practices in Future-Oriented Leadership in Innovation Teams*

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Abstract:

In a world characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), traditional leadership and innovation strategies turn out to be insufficient. This paper explores how leaders can develop a future-driven mindset through the Theory U framework and, in particular, the process of presencing. Grounded in recent theoretical frameworks from cognitive science (4E/enactive cognition), we understand presencing as an *embodied* transformative learning process. We examine how embodied practices and social interactions foster the ability to sense and act upon emerging future potentials during presencing. Drawing from longitudinal empirical research in higher education settings, we analyze the role of leaders as facilitators for supporting individual process of presencing and, crucially, how to collectivize these experiences of individual transformations as a team in order to create sustainable innovations. Furthermore, we derive concrete embodied practices that enable individual and collective sense-making, key leadership skills, and mindsets that enable organizations to co-create a sustainable future.

Key words: Presencing, Theory U, transformational leadership, 4E cognition, transformative learning, innovation and knowledge creation, ontological and process ontology approaches, fourth-generation coaching/leadership

I. Introduction

I.1 Goals and Structure of the Paper

The goal of this paper is to develop and explore an alternative understanding and vision of what it means to be a(n innovation) leader who is *inherently future-driven* and who is practicing and engaged in Theory U and presencing to deal with a VUCA world and shape it in a purposeful manner.

Concretely, we will address the following questions: (i) What role do bodily/embodied and enacted practices as well as the physical and social environment play in the process of presencing? (ii) What are theoretical foundations for these concepts? (iii) As presencing always implies some kind of personal transformation, in which way should it be considered a transformative learning process on an individual and collective level? (iv) And, based on this understanding, what kind of leadership skills, practices, and mindsets are required to facilitate the presencing process for shaping a purposeful and thriving future?

The paper is structured as follows: The first part deals with the *theoretical* foundations necessary to develop such a vision of a future-oriented (innovation) leader. It draws on findings from recent approaches in cognitive science, such as *embodied, extended, embedded, and enactive cognition* (more generally, *4E cognition*), as well as on the theory of *transformative learning*. The second part is concerned with refocusing on key stages of the presencing process. We will reframe them in the light of the theoretical insights from part one and the empirical findings from our research in this field. On the basis of our empirical research findings, we will focus on the stages of letting go (including "creating collective sense organs"), presencing, and letting come (including crystallizing) (Scharmer, 2016). Finally, we will derive and discuss implications as well concrete embodied practices, routines, and mindsets for developing the *leadership* skills required to facilitate the above-mentioned processes.

I.2. Presencing as a Framework for Leadership in Uncertain Times

The world we currently live in is evolving and changing rapidly on a societal, technological, and economic level, while, at the same time, facing increasingly complex (global) challenges, such as climate change, pandemics, inflation, geopolitical changes, etc. In other words, we are living in a "*VUCA*" world (Baran & Woznyj, 2020; Bennett & Lemoine, 2014; Johansen & Euchner, 2013): a world that is highly Volatile, Uncertain, Complex, and Ambiguous. Today, VUCA has become the "new normal". Yet, findings from cognitive science and neuroscience indicate that humans do in fact have difficulty dealing with novelty, uncertainty, or unpredictability, as is shown, for instance, by the predictive mind hypothesis (Clark, 2016; Hohwy, 2013, 2020). In general, humans have a strong

tendency to make use of problem-solving strategies based on *past experiences* to predict or shape their future. Such strategies do, however, no longer suffice when facing the dynamics of a VUCA environment, because past problems and their solutions can neither adequately capture current circumstances, nor serve as a basis for anticipating or solving future challenges (Peschl, Roetzer, et al., 2019).

In this context, Theory U and presencing (Scharmer, 2016) do not only provide a framework for overcoming these limitations but also for enabling individuals and organizations to cope with and navigate the complexities of a VUCA world more sovereignly. This is achieved by emphasizing the importance of shifting from habitual, past-driven patterns of thinking and acting to a deeper, more embodied process of awareness, reflection, reframing, and future-oriented co-creation and co-becoming, i.e. a transformative learning process (both within the team and in cooperation with an emerging world). For future-oriented innovation leaders, this implies that they will not only have to acquire, radically different skills and mindsets than those taught in traditional business education, but also *enact* them.

Our claim is that (i) we need to base them on alternative *theoretical foundations* (such as 4E approaches from cognitive science and transformative learning) and (ii) that we have to *(re-)focus on the key stages in the process of presencing* (Scharmer, 2016):

1. *Letting-go*: *We propose to approach this phase as an entry point encouraging and enabling a process of personal transformation.* By reflecting, questioning, and eventually abandoning patterns of perception, thinking, and sometimes whole worldviews, the creative agent is not only transformed, but also readied for the subsequent steps in the presencing process. We will show how this personal transformation can be achieved by confronting an individual both with the world and other team members in engaging them in observation, dialogical, and reframing settings. Ultimately, this phase aims to bring the mind into a state in which it reduces or abandons epistemic control and opens itself to an emerging future.
2. *Presencing*: Engaging with future potentials is the core of presencing; this is the moment in which true novelty emerges by reconnecting and co-becoming with an unfolding world and the Self. As Ingold (2013) suggests, we are no longer inter-acting with the world, but enter into a relationship of *correspondence* with the world (in the sense of an "*engaged epistemology*"; De Jaegher 2021). Besides radical openness, this requires the development and use of alternative skills, mindsets, and embodied practices resulting in fragile knowledge about future potentials.
3. *Letting come & crystallizing*: In this phase we face two major challenges: (i) how can we provide space for *cultivating* these fragile potentials and bringing them into the world, and (ii) how can

we *collectivize* individual insights from the phase of presencing? In this context, insights from 4E cognition and related approaches turn out to be crucial; among others, we will explore the following concepts: embodied practices and participatory sense-making (De Jaegher & Di Paolo, 2007), emotional engagement (Brinck & Reddy, 2020), and and prototyping as collaborative effort of creating and learning from artifacts (in the sense of "understanding by making" (Ingold, 2013)) and Material Engagement Theory (Malafouris, 2013; 2014)). They help us to not only understand innovation and transformation as socio-epistemic processes that are driven by unfolding future potentials in the environment, but also how we can shape them.

We will complement these conceptual approaches with empirical findings stemming from our long-term research on innovation and knowledge creation processes from a higher education context (e.g. Hartner-Tiefenthaler et al., 2018; Peschl, Roetzer, et al., 2019).

I.3. Challenges (and opportunities) in today's world

In the current global situation, it has become evident that we are undergoing significant changes, crises, and transformations, such as political and climate crises, a war in Europe, the experiences of a global pandemic, crises of democratic systems, and fast-paced developments in the area of ubiquitous digital technologies and artificial intelligence, that transform our society, including the political, educational, and economic system. Almost every domain of our lives is affected; established values, mindsets, behaviors, routines, worldviews, and strategies are breaking down and are being disrupted. Consequently, we are confronted with an unprecedented increase in complexity, speed, and uncertainty and we need to learn how to deal with them to develop strategies for co-creating a sustainable future.. In VUCA environments, neither the problem space nor the solution space are usually known in advance; both are constantly changing and the classic strategy of "problem solving" no longer works, as we are mostly confronted with wicked problems and with having difficulties understanding what the actual problems are in the first place (Rittel and Webber, 1973; Camillus, 2008; Buchanan, 1992; Coyne, 2005). While these dynamics have been around ever since the world has existed, the intensity and impact on our daily lives has increased exponentially with the advent of modern (digital and cognitive) technologies. However, neither our cognitive capacities nor our educational systems have prepared us well for these challenges (see our discussion on 21st century illiteracies; Peschl, Roetzer, et al., 2019). Numerous authors have addressed these issues in various domains, including Miller (2015), Ehlers (2020), Harari (2018), Rifkin (2022), Schoemaker et al. (2018), Teece et al. (2016). This applies even more to the field of leadership (e.g., Laszlo, 2018; Nonaka & Takeuchi, 2019; Scharmer, 2016; Schoemaker et al., 2018) so that we "both

individually and collectively can learn how to have change happen through us, not to us! But we must find out how to look, listen, and learn – to really see and hear and understand the underlying patterns of change so that we can distinguish between those dynamics that are destabilizing and those that forward the thrivable futures of protopia.“ (Laszlo, 2018, p 385).

Apart from the VUCA-properties of volatility, uncertainty, complexity, and ambiguity, we can identify the following challenges that are relevant for the context of *organizations,* and are central for *leadership*:

- Our inability to deal with *discontinuity* in a world that is characterized by disruptions and unpredictability. As we are trained and biologically hardwired to make predictions that are based on our past experiences, we have to *acknowledge* that discontinuity means that our future is inherently uncertain and *unknowable*.
- We have to learn to see this uncertainty as an *opportunity* rather than a threat (e.g., Scharmer, 2016; Conn & McLean, 2020; Sarasvathy et al., 2003).
- If we are confronted with such a VUCA environment, we have to accept that our *learning* starts with *not knowing* (and not with the intent to test pre-existing hypotheses, to predict, or to solve known problems with existing solutions).
- We need approaches that are oriented *toward and driven by the future* and the opportunities and *potentials* it offers.

In other words, it takes leaders with radically future-oriented skills and mindsets that can be summarized by the term *futures literacies* (e.g., Miller, 2015; 2018; OECD, 2018; Poli, 2021; UNESCO, 2021; Peschl, 2022; Peschl & Fundneider, 2023).A crucial ability that is lacking in most of today's organizations and leaders is the *capacity of anticipating what does not yet exist*. Our human cognition is very good at perceiving and understanding what already exists in the world. Insights from cognitive science and neuroscience show that whenever we are dealing with future-issues, predicting the future, planning for future events or behaviors, dealing with surprise or the unexpected, etc., our cognition heavily relies on knowledge from past experiences. This dynamics is referred to as the *predictive mind* (hypothesis) which states that our brain works like a "prediction machine" by making use of past experiences to deal with (novel) states of the world; for further details see Hohwy (2013; 2020), A. Clark (2013; 2016), or Grisold & Peschl (2017a; 2017b) (for implications on the organizational level). As long as the world follows more or less "linear" dynamics, this strategy works fine for predicting the cognitive system's future (and its environment). As soon as disruptive, unexpected and exponential (VUCA) dynamics enter the scene, this strategy of relying on past experiences, does not only become ineffective, but sometimes even dangerous, as it can lull us into a sense of certainty we do not have. In order to overcome this, an organization and/or a leader has to

go beyond the realm of already existing "actuals" and develop a sense of what is "not here yet", of what wants to emerge, or what "wants" to come into being (e.g. Bloch, 1975; Scharmer, 2016; Peschl, 2020; Poli, 2010; 2017) and not remain only in the realm of (predicting by extrapolating) already existing "actuals".

Leaders assume a high level of responsibility for the outcomes of their organization and, even more importantly, for the humans they are guiding through today's VUCA dynamics. In this paper, we will demonstrate that acquiring a new set of cognitive abilities, practices as well as epistemological attitudes and mindsets is essential especially in the field of leadership.

I.4. Theory U: Going beyond a regime of (organizational and epistemic) control for shaping a sustainable future

As we will show in this paper, we have to seek alternative styles of leadership that are more sensitive with respect to the goals, purposes, and means of changing and transforming our environment and as well as leading our organizations in a meaningful and sustainable manner.

We emphasize understanding the VUCA world as an *opportunity* rather than a menace (e.g., Laszlo, 2018; Johansen & Euchner, 2013). In this context, an approach of being responsive to an unfolding future, of learning from future potentials, as well as of co-becoming and correspondence with reality (e.g., Scharmer, 2016; Ingold, 2013; Malafouris, 2014; De Jaegher, 2021; Peschl, 2019; UNESCO, 2021) proves pivotal.

To achieve this, novel skills, attitudes, and mindsets, practices as well as alternative strategies for leadership are necessary. This is especially true for organizational contexts, as their activities and operations are frequently at the root of many of the problems mentioned above. Future-oriented leaders will have to overcome their innovation illiteracies (Peschl, Roetzer, et al., 2019) and have to acquire what is referred to as futures literacies (e.g., Miller, 2015; 2018; Peschl, 2022; Poli, 2021).

In this context, *Theory U*, particularly, the process of *presencing* and "*learning from the future*" (Scharmer, 2016) play a prominent role; they provide a powerful and proven conceptual framework for engaging in a truly future-oriented and thriving transformation (process) going beyond the purely cognitive domain. It has turned out that these processes, when combined with *enactive* and *bodily practices*, have a much greater impact on personal/individual and collective *transformative* processes.

Despite existing research and practical experiences related to presencing (e.g., Gunnlaugson & Brendel, 2019; 2020; Peschl & Fundneider, 2013; Peschl, 2020; or the Journal of Awareness-Based Systems Change (JASC)), there remains a need for further clarification of the foundations and processes involved. "Presencing", in particular, often remains somewhat "mysterious" as it is difficult to capture this process in words and it heavily depends on personally, bodily, and

existentially experiencing it. We will try to shed some more light on presencing and how to design/facilitate this experience as a key capacity of future leaders in order to support them "...to let go, to lean into the unknown – and take the leap…" (Scharmer & Kaufer, 2013, p.162) and afterwards to "re-connect" with the world by engaging in a process of purposefully co-creating and co-becoming with it (UNESCO, 2021).

II. Theoretical Foundations: Embodiment, 4E Cognition, and Embodied Transformative Learning

To enhance and perhaps reframe both our understanding as well as practices of presencing, it is necessary to take a look at some of its possibly not-so-familiar theoretical foundations and recent findings that underpin this way of conducting future-oriented transformation processes.

II.1. Recent findings in cognitive science: Thinking with the body and thinking with the unfolding environment by enacting the world

Classic approaches to cognition, such as *cognitivism*, take a primarily *representational* perspective to cognition: the idea is that cognition "represents" or "is about" the world (in knowledge structures) and operates on these (abstract) representations (e.g., by applying rules to propositional knowledge) (Bermudez, 2020; Friedenberg & Silverman, 2016; Newell & Simon, 1976). While this perspective is closely related to a rational, logic-based, and problem-solving approach to cognition, this leads to rather classic forms of managing, leading, or transformation. This is in contrast to the Theory U framework calling for an alternative approach that accommodates and focuses more on the role of the *body* and the *interaction* with the environment in cognitive processes.

For this reason, we propose to abandon the cognitivist perspective and instead adopt the "*4E approach to cognition*" in cognitive science. Being a a more recent development in the field, this approach suggests that cognition can be characterized as being *embodied, embedded, extended, and enactive* (more generally, "*4E" cognition*; e.g., e.g., Newen et al., 2018; A. Clark, 1999; 2008; Menary, 2010; Rowlands, 2010; Gallagher, 2023; Chemero, 2013; Varela et al., 2016s). Cognition always involves the body and is not limited to the functions of the brain only ("*embodied*"). This implies that our perception, thinking, and actions are not merely the product of internal (neural) cognitive processes, but rather, are influenced, shaped, enabled, and limited by the physical properties, capabilities as well as constraints of the body (Chemero, 2013; A. Clark, 1997; Shapiro, 2014).

Furthermore, every cognitive system is – through its body – always *embedded* in its environment. This environment comprises both the material world (e.g., natural objects or artifacts) and other cognitive systems (social dimension). The environment is the source for a cognitive system's perception and the field of its actions (i.e., the cognitive system experiences and transforms

the environmental structures through its bodily (inter-)actions). However, the environment does not only play a rather passive role, as cognition itself *extends* to this environment; this means that cognitive processes themselves extend beyond the boundaries of the individual organism into the external world. "…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" (A. Clark, 2008, p xxviii). This view recognizes that cognitive processes often "extend" into the world trough the involvement of tools, technologies, and other resources in the social and physical environment, that are essential for completing a cognitive task. In this sense, the external environment is – temporarily – part of and *constitutive* of cognitive processes.

Finally, cognitive systems do not only interact with their environments via their cognitive/neural processes and bodies; rather they actively engage with and co-create both their environments and themselves qua living organisms in a closed feedback loop. Hence, they shape their (internal and external) environment; i.e., by shaping their environment, their cognition and experiences are shaped by it (and vice versa) in being closely coupled with it. In other words, "*enactive"* means that cognitive systems actively and mutually co-shape and co-create both their environments and themselves by establishing a stable coupling and forming a joint system. The 4E approach, and in particular the enactivist perspective, takes a radically *action- and interaction-oriented* position. The purpose of cognition is to generate meaningful behavior, to act in the world and by producing "things" and (social) practices producing themselves.

Focusing on action and interaction with the world as well as including the social dimension make the 4E approach to cognition a valuable contribution both as a theoretical foundation and practical guideline for the framework of Theory U and, as we will show below, to the process of presencing in particular. Presencing calls for sensing future potentials and making sense of them, not only cognitively, but also through the use of (individual and collective) bodily practices and/or art-based approaches (Scharmer, 2016; Gunnlaugson & Brendel, 2019; 2020. Among many other skills, presencing requires a strong capability of *being present in the moment* and of being aware of the current situation, of *being bodily connected to the world*, of listening and being open to what exists in the world as well as to what wants to emerge (Scharmer, 2016), i.e. to *sense future potentials* An important prerequisite for this is to engage in a profound process of learning and *personal transformation*, as it is

not only about knowledge or skills, but also concerns attitudes, mindsets and worldviews (see section on transformative learning below).

II.2. Embodiment As Integrated Part of the 4E Approach to Cognition: Implications for Designing and Intervening in Presencing Settings

Embodiment in cognitive science—in those versions that give an interesting twist to or oppose the traditional picture of cognitivism—is the view that cognition in its broadest sense, i.e., our thoughts, affects/emotions and volitions, not just a product of our brains, but is shaped by the physical processes and states of our bodies (Gallagher, 2023). In other words, the forms, contents, or qualities of our cognitive acts such as attending, sensing, perceiving, imagining, remembering, etc., are not independent of our bodies' current structures, functions and states. Moreover, the postures, movements, facial gestures, etc., of another person's body within our perceptuion affect our own behavior and experience *directly*, i.e., without any inference (cf. "direct cognition", Gallagher, 2005).. Understanding the body as constitutive of cognition motivates new considerations on how to promote deeper explorations of our mental lives. A prominent way to use the body as a source for learning and knowledge is, for instance, via mindfulness-based bodily practices to bring awareness to subtle physical sensations (e.g., when moving one's body, adopting certain postures, being watched, touched, or held by others) and consciously engage with them (e.g., Eddy, 2016).

An example of such a mindfulness-based approach in Theory U and presencing is exemplified by the well-established Social Presencing Theater (SPT) methodology (Hayashi, 2021). The SPT is an embodied practice developed by Arawana Hayashi that uses the body and its emotional responses to reveal hidden dynamics within the social field for the purpose of fostering deeper connections and the exploration of emerging future possibilities (Hayashi, 2021). At the heart of the various practices within the SPT is a moment-to-moment, non-judgmental awareness of bodily sensations and experiences arising from the movement of one's body and attunement to the bodies of others (Hayashi, 2021). SPT participants thus engage in close and intimate physical encounters with themselves and others. Such practices can be interpreted as *embodied forms of transformative learning* (see, e.g., Briciu, 2024 and following chapter).

While the SPT methodology is a prototypical example of implicitly utilizing insights from embodied cognition through mindfulness, we aim to redirect attention to lesser-discussed aspects of embodiment that can play a significant role in Theory U and presencing. These aspects become particularly evident when embodiment is considered in the broader context of the 4E approach to cognition. The central insight of embodied and enactive cognition is that bodily movement through the world is not merely necessary for perception, but that an agent's *interaction* with the world plays a constitutive role in the very emergence of the world, i.e., how the world is perceived and made sense

of (Varela et al., 2016). This sense-making of the world is not a passive reception of external stimuli, but a dynamic and bi-directional process shaped by the agent's engagement and active entanglement with its environment. As such, enactive, embedded, and extended cognition gives rise to the understanding of an agent and its environment as an interconnected, complex dynamical system (Chemero, 2009; Hutto & Myin, 2017). An agent's environment encompasses both material elements, including natural and cultural/artificial components, as well as social elements, such as other agents and their behaviors and practices.

From the perspective of creating settings for presencing, the components of the cognitive agent-environment system can be understood as design elements aiming at fostering cognitive states conducive to presencing. Moreover, facilitators can intervene in presencing settings by deliberately modifying the agent-environment relationships, whether between participants, between participants and the material environment, or between participants and facilitators, to enable and encourage desired attitudes.

The following analogy aims to make these abstract ideas more tangible: Imagine a group of people on a guided nature walk with a nonspeaking tour guide. The guide is unable to offer verbal instructions but instead relies on bodily expressions and the natural surroundings to guide the experience. For example, the guide might lead the group down a winding, secluded path to encourage reflection, or stop at a clearing to foster conversation and interaction among the participants. In a similar way, a facilitator in a presencing session may use the environment (including the participants' bodies) to shape the experience by adjusting spatial and temporal dynamics to influence participants' attitudes. By thoughtfully selecting where to stop, how much time to spend at each location, and how participants are positioned relative to one another and the environment, the facilitator can help them to engage more deeply with the present moment and with each other. A walk through a quiet forest might invite contemplation and introspection, while sitting in an open field could promote openness and shared reflection. In presencing, the facilitator intentionally shapes the environment—including their own and the participants' bodily presence—to evoke specific states of mind and foster transformation.

II.3. Embodied Transformative Learning in Presencing

Like Briciu (2024), we propose to understand the kind of profound learning and change associated with Theory U and, particularly, presencing, as a process of *transformative learning* (TL). In contrast to other forms of learning, TL entails some kind of *personal change* or *transformation* that is often triggered by inevitable—sometimes even crisis-like—situations, which cannot be successfully overcome without reshaping one's sense of self (Illeris, 2018, p. 7). TL results in significant and often irreversible changes in how an individual experiences, understands, and interacts with the

world (Hoggan, 2016). In other words, a person's felt experience, worldview, and actions change in tightly integrated ways at the same point in time.

Our main interest is to understand TL as an essential learning process involved in presencing. The original theory of TL (Mezirow, 1978; 1991; 2000; 2006; 2009) highlights the importance of critically reflecting on our existing "meaning perspectives" or "frames of reference". These internal frames are the lenses through which we interpret ourselves and the world, shaped over time by our background, experiences, beliefs, and emotions (e.g., Mezirow, 2000). The original theory posits that transformation is triggered when a challenging experience compels us to examine and revise these often-unconscious assumptions and biases. The aim, in this view, is to move towards meaning perspectives that are considered more rational and appropriate with respect to the new situation, primarily through critical self-reflection and reasoned discourse. This traditional approach largely focuses on rational and discursive processes involved in restructuring our understanding.

However, drawing upon the 4E framework, a more complex understanding of TL emerges. The 4E perspective suggests that transformation is not primarily a rational or intellectual endeavor. Instead, as argued by Maiese (2017), transformative learning is deeply embedded in our *habituated bodily-affective patterns*. In this view, cognition is seen as fully embodied and deeply entangled with our feelings and emotions. Our physical and emotional states are not separate from our thinking, but an integral part of it; they are grounding, and partially even constituting, our reflection and reasoning (Maiese, 2017). In other words, TL is essentially embodied. Moreover, building on the understanding of embodiment as a constitutive element of cognition within the 4E framework, the physical and social environment is constitutive of TL as well. TL emerges from concrete bodily interactions between agents and their environment.

The 4E understanding of TL as an essential learning process involved in presencing has immediate practical consequences. By highlighting the bodily and environmental entanglement of TL within a dynamical agent-environment system, new means of facilitating the learning process—and thus presencing—can be applied, adapted, or developed. In line with Briciu (2024), we consider the liminal experience in *precencing as an embodied transformative learning* process. However, within the 4E approach to cognition, the *environment serves as an equal partner to the body in constituting learning*. The intertwined bodily and environmental aspects of TL require special attention and skills from future-driven leaders to prepare and conduct successful presencing sessions.

III. Empirical Insights and Implications for Future-Driven Leadership

> "The essence of leadership is about connecting, stepping into, and acting from the field of the future that wants to emerge. The question is, how do we do it?" (Scharmer & Kaufer, 2013, p.114)

To effectively steer organizations towards sustainable and thriving success in a VUCA world, leaders have to go beyond classic leadership skills and mindsets, such as decision-making, goal-setting and monitoring, controlling, or strategic planning. They have to embrace approaches that empower them to tap into the transformative potential of the future. Theory U provides a highly effective framework for achieving such a form of transformation that is driven by the future. It implies both a personal transformation and profound changes on the organizational level, as well as in the context of leadership.

In order to illustrate the theoretical concepts having been discussed above, we will first present empirical insights from a longitudinal study of innovation and knowledge creation processes in which the Theory U framework was applied; although these processes took place in a higher education setting, we will show that the role and interventions of the instructors can be translated to the context of leadership. In a second step, we will derive implications for future-driven leadership and discuss concrete practices, routines, and mindsets in the final section.

III.1. Research Setting and Methodology

Our data stems from a longitudinal research project that began in 2014. In a mixed methods research setting that applies action research methods, we investigate innovation and knowledge creation processes in a higher education setting (for details on the research setting, see e.g. Peschl, Bottaro, Hartner-Tiefenthaler, et al. 2014; Peschl, Bottaro, Roetzer, et al., 2014, Hartner-Tiefenthaler et al., 2018). In the observed university courses, students work in groups of 3 to 8 people who go through an innovation process that is based on Theory U and results in the creation of a prototype. We refer to these groups as "Knowledge Creation Teams" (KCTs). With the exception of presencing, where participants work individually, they go through the entire process as a KCT.

The collected data comprises qualitative instructor observations, group interviews with the KCTs, individual diary entries from both students and instructors, as well as quantitative survey questions, expert ratings of the prototypes by the instructors, and socio-demographic data. The diary entities, which we refer to as "learning journals", contain subjective reflections and reports on the course. They are collected at seven points in time per course. The current article is based on the analyses of qualitative data collected in the winter terms of 2014/15, 2015/16, 2018/19, and

2020/21.

We employ a constructivist grounded theory methodology for both data collection and analysis. Through a systematic, multi-step coding and diagramming/mapping process of data, the theory is built; it is thereby "grounded" in the data. The inductively developed codes and concepts are critically "tested" through continuous data analysis of (newly) collected and coded data, that is compared to each other on different levels of abstraction ('constant comparative method', cf. Glaser, 1978; Charmaz, 2006; Thornberg & Charmaz, 2014).

This process comprises three (iterative) phases: (i) initial, (ii) focussed, and (iii) theoretical coding (for details, see Charmaz, 2006). In the first two phases, the "building blocks" of the theory are built through inductive coding. Previous publications have reported on findings from focussed coding: the phenomenon of emergent collective knowledge creation and the collectivisation of presensing experiences (Peschl, Roetzer, et al., 2019), the role of uncertainty (Hartner-Tiefenthaler et al., 2018) and enabling attitudes (Peschl, Roetzer, et al., 2019; Bottaro et al., 2021) in and for innovation projects, how to facilitate innovation in online teaching/learning (Bottaro et al., 2021), as well as the importance of collective prototyping as learning and understanding by making (Peschl, Roetzer, et al., 2019; Bottaro et al., 2021).

In the third coding phase (theoretical coding), theoretical codes are created to integrate the results from focussed coding into a coherent theory. The result of this process of theoretical coding is reported in the present paper.

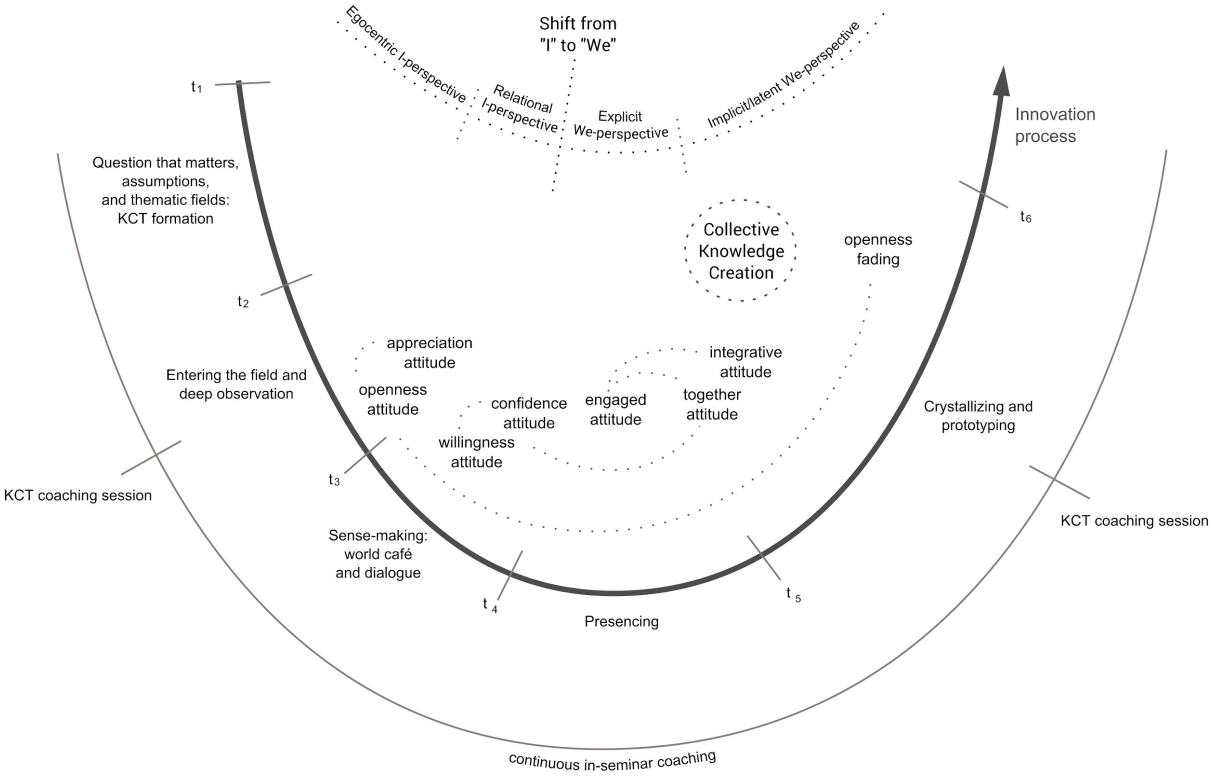

Figure 1: Visualization of results from previous work (Peschl, Roetzer, et al. 2019) on the shift from I-to-We and enabling/beneficial attitudes and their occurrence in relation to collective knowledge creation

Our previous work was focused on exploring and investigating the teams' processes of knowledge creation through the phases of Theory U from the participants perspective (see Figure 1). For the present paper, we "interrogated" our data anew to further our understanding of the *role of instructors and the environment*. I.e., we focused on the perspective of the instructors in their *leadership role* as facilitators and coaches of the innovation teams. We then systematically contrasted our findings with current theories on cognition (4E), innovation, and leadership through theoretical coding (using ATLAS.ti, v.22 and v.23). Additionally, we complemented the constructivist grounded theory approach – which is particularly suited to analyze (social) processes and interaction (Charmaz, 2006) – with Situational Analysis (SA, Clarke et al., 2018; Clarke et al., 2015). In SA, relational and positional mappings and diagramming allows to flesh out relations on a situational basis. In particular, we focussed on the relations and embodied interactions between humans and the environment, including non-human elements in it. SA assumes that human and non-human entities, including their interactions and engagements, co-constitute each other (see our theoretical discussion on 4E approaches in cognitive science above). Pertinent non-human elements structurally condition the interactions in a given situation through their specific (material) properties and

through engagements with them (Clarke et al., 2015; Clarke et al., 2018; Roetzer, 2022). This allowed us to better grasp the individual phases of letting go, presencing, and letting come with regard to the non-human (environmental) elements and their role.

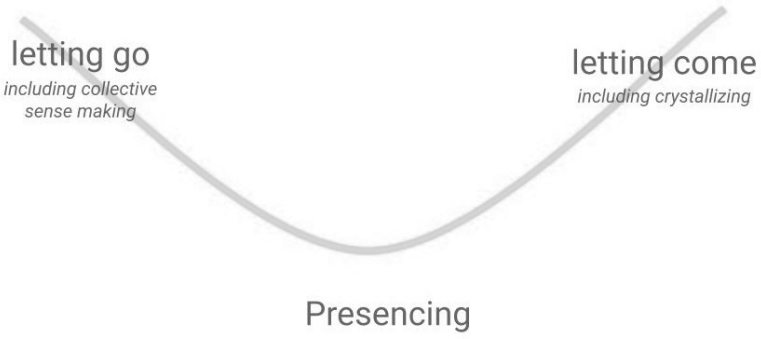

Figure 2: The bottom of the U: letting go (including collective sense making), Presencing, and letting come (including crystallizing)

III.2. Empirical Findings and Discussion

In general, throughout the process of Theory U, we have to consider two intertwined dimensions along which (novel) knowledge is created: the *epistemological* dimension and the *social* dimension. Our findings indicate that instructors in their role as leaders have to be aware and focus their interventions on both dimensions simultaneously when facilitating embodied practices, especially at the bottom of the U.

However, there are some situations that require increased attention, interventions, and coaching. The first one is related to the *epistemological* dimension of the innovation process, particularly before and during presencing. Here, the instructors need to act as *role-models* and coach students with regard to beneficial attitudes and mindsets. If KCTs or their members have not yet adopted an attitude of openness and a *willingness to accept a decrease in epistemic control*, they appear to be less likely to have positive experiences and insights during presencing, to integrate their individual presencing experiences only partially (or not at all) at the group level, and generally to have difficulty in the crystallizing phase, resulting in low to average levels of innovativeness with respect to their final prototype. This is related to the second situation, in which instructor intervention is needed; it concerns the *social* dimension: groups that have not yet resolved conflicts or tensions on the level of group dynamics, also seem to struggle with uncertainty on the epistemological level. However, it appears that resolving their issues on the social level enables and accelerates resolving epistemological issues within their group. Therefore, instructors must pay more attention to the

group dynamics of a KCT.

Groups that establish a degree of certainty with regard to the social level before presencing, do manage to fully (or for the most part) integrate individual presencing experiences. This involves rapidly repeating shifts from individual reflection and thinking to collective reflection and idea-development, in which all members build upon each other's experiences, thoughts, and ideas. This, in turn, may lead to the emergence of collectively created novel knowledge. KCTs that have such an experience also tend to create highly innovative prototypes. The biggest challenge with all KCTs, regardless of how innovative the final prototype they create, seems to be the letting go and crystallizing phase. As we will show, the root of students' struggle seems to be the challenge of transitioning from collective knowledge creation to individual knowledge creation and back again—in the phases before, and during, but especially after the presencing phase at the bottom of the U process. (see Figure 2)

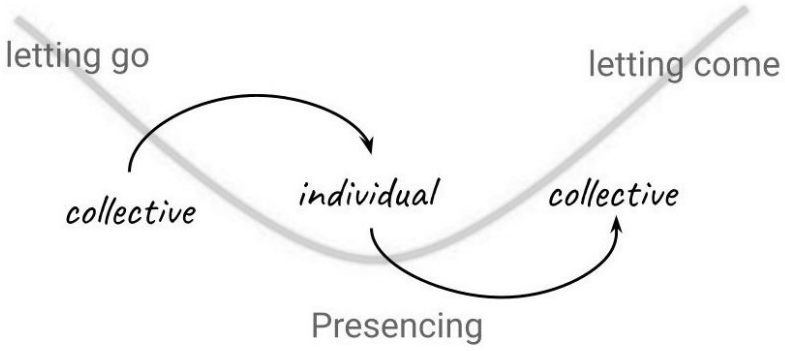

Figure 3: Shift from collective knowledge creation to individual knowledge creation and back before, during and after presencing

Figure 3 shows the shifts in cognizing modes around the presencing experience. Within the entire Theory U process, the phase that necessarily has to be carried out individually is the presencing phase. In contrast, the phases before and after presencing are characterized by collectivizing knowledge and experiences. Before presencing, establishing collective sense organs is crucial. After presencing, the challenge is to merge and consolidate the individual presencing experiences into collective crystallizing. This results in a shift from collective to individual and back to collective modes of cognition. As our research shows, these changes between different modes of cognizing are challenging both on the individual and the group level. Such shifts in cognition afford particular action regarding leader's roles and interventions.

As instructors, we support these processes through embodied and enactive interventions in various ways. For example, we act as *role models* (cf. Peschl et al. 2014; Peschl et al., 2018), showing things in such a way that the students can imitate them. This does not only concern processes, such as leading the way or exemplifying by making, but it is also about culture. For example, we openly address mistakes we make, inviting our colleagues to address them too and establishing a culture of mutual respect and understanding. Another way to encourage desired attitudes and behaviors is to *use our bodies to communicate non-verbally*. For instance, we modify our status/role through our body position: we stand up, when we give instructions, we lower our body when building trust. We also *use the environment and time* as design elements by carefully choosing where and when (and how long) we plan certain activities. And, we encourage participants to *enact their knowledge in embodied practices*. We, for example, facilitate that they express their ideas and insights non-verbally and materialized through sketching, mood-boarding, or materially building something (prototyping).

III.2.1. Letting Go

In our course design, at the end of the observation phase and the day before presencing we enable the creation of *collective sense organs* with the world café method (Brown and Isaacs, 2005), followed by a dialogue session in the plenum using the dialogue technique (Bohm, 1996) in order to (i) establish a general mode of talking/listening/sensing akin to dialogue, and (ii) enable a feeling of belonging on a level, or as Scharmer calls it a "moment of transcending connection" (Scharmer & Kaufer, 2013, p.162). Both methods are carried out on site and in person in a workshop setting. During the world café, students share their so far experience with other colleagues from other KCTs by sitting together in mixed groups and not only talking about it, but also writing and sketching their insights on flipcharts. The groups get mixed again and again, until a joint understanding emerges within the whole group/plenum, which we refer to as collective sense organs, as participants talk about their insights from the observation phase, but also about their feelings.

In the dialogue sessions, the feeling of belonging increases. In a circle of chairs, the whole group/plenum shares their feelings and thoughts about the process with the instructors, who are now joining the group on the same level (sitting, as equal participants in the circle), using a talking object, to reduce the speed of communication and make sure, everybody can talk as long as they need to. Our research indicates that this special form of connection leads to high levels of *trust* and *safety* within the teams but also within the whole group and towards the facilitators. Emphasizing this connection helps individuals to reduce anxiety and to let go of the need for control; these are important prerequisites for presencing. As instructors, we try to establish a *safe space* or "holding the space", as Scharmer & Kaufer (2013) describe it, in order to initiate and enable the letting-go phase

(cf. Bottaro et al., 2021).

Letting-go is an important prerequisite for the presencing experience (Scharmer, 2016). By reflecting, questioning, and eventually abandoning patterns of perception, thinking, and sometimes whole worldviews, the creative agent is readied for the subsequent steps in the presencing process, where ideally *transformative learning* can happen. In this context, this happens by confronting an individual both with the world and other team members in engaging them in connecting and dialogical settings. Ultimately, this phase aims at bringing the mind in a state of *openness* to an emerging future.

As our data shows, participants hesitate to expose themselves to such reframing and transformation experiences. Establishing a connection within their team and/or the whole group helps them to overcome their resistance. In this phase, the role of instructors is to facilitate establishing these connections and to form a safe space for the whole team to become open, permeable, and vulnerable. The goal is to encourage them "... to not hold on to the old, [but] to let go and lean into what wants to emerge through us." (Scharmer & Kaufer, 2013, p.163)

To best foster this phase in our role as facilitators and leaders, we use *servant leadership methods* and approaches (e.g., Iqbal et al., 2023). In our course settings, instructors try to help students lower anxiety and give up control. One effective way to achieve this is by "lowering our status" (Bottaro et al., 2021). Facilitators flatten the hierarchy intentionally in an embodied manner. For instance, by positioning their body on a lower level than the students', e.g. they are sitting or kneeling on the floor, they have to look up to the students sitting on chairs. Or they encourage participants to stand up or even sit on desks or stand on chairs. On a social and linguistic level, instructors avoid commands or harsh communication. They rather make suggestions, foster a friendly and light atmosphere and encourage and motivate students, as this increases the level of creative self efficacy (Tierney & Farmer, 2002). Furthermore, instructors act as *role models*. They exhibit low status behavior within the instructors' team and in front of the students, by openly criticizing each other, interrupting the others, and interacting in a playful and humorous manner.

As studies show, servant leadership style is strongly related to "subordinates' innovative behavior" (Iqbal et al., 2023, p.45). Servant leadership is related to the social context, helping to establish a trustworthy environment and safe space (Chugtai, 2016) and results in encouragement, fostering creative self-efficacy (Iqbal et al., 2023).

III.2.2. Presencing and Sensing Emerging Potentials

At the very bottom of the U, the presencing phase is the most promising phase for transformative learning, but also the most challenging phase for individuals. Engaging with future

potentials is the core of presencing; this is the moment in which true novelty may emerge by reconnecting and co-becoming with an unfolding world (on an individual level). As Ingold (2013) suggests, we are no longer inter-acting with the world, but rather enter into a relationship of *correspondence* with the world (in the sense of an "engaged epistemology"; De Jaegher, 2021). Besides radical openness, this requires the development and use of alternative skills and mindsets resulting in fragile knowledge about future potentials.

To help participants to acquire and explore these alternative skills and to engage in this unfamiliar experience of presencing, we integrate a transformational leadership style within our course design. Studies show that transformational leadership has not such a strong influence on innovative behavior as servant leadership, but it inspires and enhances intrinsic motivation (Iqbal et al., 2023). Thus, while servant leadership focuses on empowering and encouraging as well as creating a safe space, transformational leadership is correlated with feelings of excitement and optimism, exploring novelty and experimenting with new ideas (Carmeli et al., 2014; Groselj et al., 2021).

Presencing is the moment where participants experience a shift from collective to individual (see Figure 2). They have to not only let go of their already existing ideas, concepts, or visions (letting-go). To support this process, we use embodied and enacted practices, such as asking participants to write down their previous thoughts and ideas and then having them crumple up the sheets and throw them away and, by that, letting go of them also in a physical manner.

They also have to leave the comfort and "safe space" of the group, as presencing is an *individual* experience. Our data shows that students hesitate to do so. They often start the presencing phase by walking together as a group or in pairs and only separate later on. The facilitators support this process by walking with them, often leading the way, and acting as role models by also separating and walking alone.

In order to embark on this potentially transformative journey, individuals require guidance and inspiration from their instructors, along with explicit encouragement and the assurance of assistance in making sense of their experiences upon their return. Here the *environment* plays a crucial role in the design. In order to really let go, to change perspective and find into this mode of *"listening to what wants to emerge from the future"* (Scharmer, 2016), it is imperative to design the presencing phase as an *outdoor excursion* in a natural environment (woods or natural landscapes). The goal is to disconnect from routines and everyday life as well as from technologies, engage with the inner self (Scharmer, 2016; Scharmer & Kaufer, 2013), and bring the body, bodily sensations and observation of nature in the center of attention. Such a setting radically reduces distraction and the possibilities to "cheat", enabling a profound confrontation with oneself. We choose locations so that they can't, for example, run off to a café. As we have discussed above, this is an ideal framework to enable

processes of transformative learning. As for embodied practices, participants are guided in engaging in various forms of sitting, walking, lying on the ground, or how to deal with silence and distractions by breathing exercises during the phase of experiencing emerging future potentials.

In addition, the instructors provide inputs on the theoretical background of presencing, meditation and mindfulness and actively shape the mood and mindset for this phase through motivational speech. Still, our data shows different levels of reluctance regarding this experience. Theory also suggests that there can be defense against too much transformative learning (Illeris 2014).

This implies that leadership has to support two dynamics. On the one hand, leaders have to be inspiring and activate individuals to get the necessary energy and courage to actually go out, go into nature, and leave the group to engage in an individual experience in this phase. On the other hand, leaders must not push too hard on the goal of transformation. They have to *reduce the pressure* that something spectacular can or should happen in this phase. Only then participants can manage this inner state of "energetic relaxation" that is a prerequisite *for sensing future potentials*.

III.2.3. Letting Come and Crystallizing

In the phase of letting-come and crystallizing, we face three major challenges: (i) how can we provide space for *cultivating* the fragile potentials having emerged during the process of presencing and (ii) how can we collectivize individual insights from the phase of presencing in order to (iii) bring them into the world? In this context, insights from 4E cognition and related approaches turn out to be crucial; among others, we use the following concepts: participatory sense-making (De Jaegher & Di Paolo, 2007), embodied practices, emotional engagement (Brinck & Reddy, 2020), as well as "making" (Ingold, 2013) and Material Engagement Theory (Malafouris, 2013, 2014) in the form of prototyping as collaborative effort of creating and learning from artifacts. These concepts help us to not only understand innovation and transformation as socio-epistemic processes that are driven by unfolding future potentials in the environment, but also explicitly focus on the *material* and *bodily* dimension of how we can shape innovation artifacts by bodily interacting and transforming the environment.

As our data shows, this phase is the most challenging for the students. Coming back from their individual presencing experiences, many face enormous difficulties to re-connect as a team and to collectivize their individual insights and experiences. The shift back from individual to collective knowledge creation (see Figure 2) is accompanied by feelings of tension and fear. Participants are anxious about telling others what they experienced, what they (really) feel and think. Furthermore, they sometimes cannot even talk about their experience properly, as the insights and emerging ideas are vague, non-verbal, intuitive, and fragile. We address this by design *using the environment and time*.

As the presencing experience is a whole day excursion, participants are often hungry when they return and intuitively sit together in their groups to share a meal (and are encouraged to do so). This helps lowering tensions between the group members and smoothening the transition from individual experience to collective cognizing again by sharing their experiences in an informal setting.

In order to deal with these challenges, instructors encourage the KCTs to switch from abstract and language-based communication to concrete, embodied and enacted cognition (see our discussion about 4E cognition above). This means *doing instead of talking*, co-creating and learning from extending and enacting their knowledge in the form of physical and/or conceptual artifacts. Often, participants bring back items they collected during the presencing in nature. Oftentimes, these items work as starting points for sharing their insights with their group. These objects act as *boundary objects* enabling joint sense-making by bodily engaging with them (e.g., Caccamo, Pittino, and Tell, 2022).

Instructors propose different prototyping methods (e.g., Yu, Pasinelli, and Brem, 2018; BenMahmoud-Jouini and Midler, 2020), like moodboarding, storyboarding, or method collections like Ideo method cards (ideo.com). Still, students fear the judgment and misinterpretation and therefore need further encouragement to externalize their emergent future potentials. Instructors, therefore, have to provide the KCTs with a lot of coaching time and patience, sometimes just sitting with them for 30 or more minutes and just listening to them, subtly ensuring that dialogue formats and deep listening practices are re-established within the group communication. In this phase, we engage in embodied activities, such as wandering around between the groups all the time, subtly offering coaching by passing by and/or asking non-verbally for permission to approach the groups. Participants sometimes ignore us or use signs or nodding/head shaking to communicate their needs.

From a leadership perspective, *kindness* (Haskins et al., 2018) and *compassion* (Hill & Stephens, 2003) play a major role in this phase, as participants have to deal with confusion, frustration, and even tendencies to resign when the presencing phase has not gone well and/or the shift from individual back to collective knowledge creation does not work out well. As we will show, although the focus in this phase is on "doing, doing, doing" (Scharmer & Kaufer, 2013), group dynamics and conflicts may play a major role in this phase, especially within the groups that have negated their conflicts so far. Here at the latest, unsolved issues on a social level cannot be ignored any longer.

III.2.4. Social Dimension: The Importance of "Holding the Space" in an Uncertain Environment

From an instructor's perspective, the innovation process follows the U in a fairly linear manner. Our course design is set up in this linear way, as depicted in Figure 1. Instructors in our

course continuously highlight the phases of the U Process and clearly differentiate between them. However, this differentiation is *not reflected* in the participants' learning journals. Students do not report experiencing phases of letting-go, presencing, and letting-come/crystallizing as a linear process or even as distinct phases. Instead, they report rapid changes between the phases and iterating back and forth between letting-go and letting-come when collectivizing their individual presencing experiences in the group (see Figure 3). Actually, they only differentiate between group experiences and individual experiences. This is accompanied by a resistance toward these transitions (from one experience to the other) that they are "forced" to follow by the course design and instructors.

Our data suggests that, from a participant's perspective, the only thing that remains stable throughout the process are the instructors. *In their role as leaders, they act as a constant*, as point of reference in an innovation/transformation process that is experienced as ambiguous, uncertain, and ambivalent.

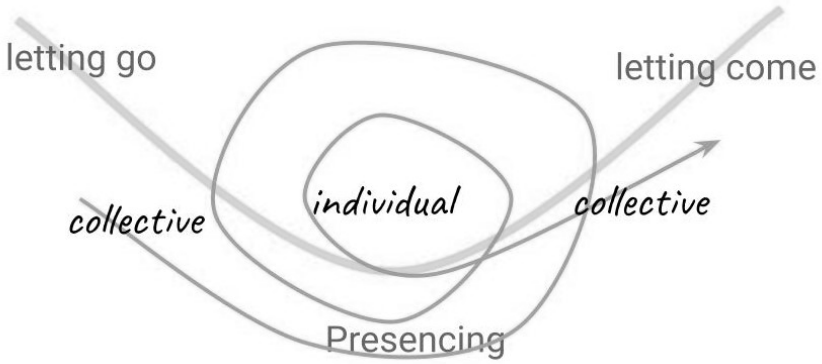

Figure 4: Students experience the "linear process" of Theory U as an iterative shifting back and forth between the phases.

Previous research (Hartner-Tiefenthaler er al., 2018, Peschl et al., 2019, Bottaro et al. 2021) indicated that instructors should act as coaches/facilitators, and that they must not involve themselves on the content-level of the KCTs innovation projects. Rather, they should only coach KCTs by facilitating the process, thereby providing security and a clear framework or "path" towards the innovation/prototype. Of course, the KCTs do tell the instructors about the content of their ideas, but the coaching regarding the content of the KCTs' work is done with a mindset of *open mind*, coming from a *deep place of listening* and without *voice of judgment* (Scharmer & Kaufer, 2013; Scharmer, 2016). Instructors coach participants by asking questions to help the KCTs better understand and reflect upon their project and its premises on the content-level. They guide students

to externalize their individual thoughts in order to share and reflect them with the group, and provide them with adequate methods, tools, and techniques as well as spatial and bodily settings suited to the phases of the U process (like dialogue, mindfulness, design techniques, an atelier-like environment, providing materials for engaging in prototyping material artifacts and models, embodied practices of making, etc.). Instructors are encouraged not to force their own ideas onto the KCTs, but rather, to ask (open) why-questions. They do all this in a constructive and curious manner, and without judging the KCTs' outcomes.

In the courses we analyzed, instructors were explicit and open in addressing conflicts from very early on, framing group conflicts as normal and even as necessary within every teamwork. In fact, instructors even openly disagree about e.g. interventions during coaching and discuss it on the spot (*acting as role models*), which appears to have a positive impact on students. Rather than creating an uncertain or unsafe atmosphere due to not disagreeing, students experience this as relaxing and welcoming, because it suggests to them that they too can and are allowed to disagree and will be able to sort it out. Furthermore, inputs regarding group dynamics are given in an early stage of the process, and participants are trained in non-aggressive communication and how to manage conflicts. Moreover, the teams are coached on group dynamics before, and even more after, presencing.

As we have seen, the bottom of the U is marked by a high level of uncertainty. Letting go of the old and stepping into an emergent field of potentialities is per se extremely uncertain and vague. Still, as is shown in research, uncertainty can also act as a driving force for innovation (e.g., Laszlo, 2018; Sarasvathy et al., 2003). In our own research we could show that there are two dimensions of uncertainty: (i) uncertainty regarding the *process* itself and the interactions with others (relational uncertainty) and (ii) uncertainty regarding the *content* level of the process (epistemological uncertainty) (Hartner-Tiefenthaler et al., 2018). We found out that instructors have to set out a clear process framework and continuously intervene on this framework level (i.e., to coach on the process level, and not on the content-level), in order to create an uncertain, but safe space for students to innovate (Hartner-Tiefenthaler et al. 2018, Bottaro et al., 2021). Our most recent analysis suggests that there is a third kind of coaching that is even more crucial: *coaching regarding relational uncertainty on the social/group* dynamic level. Having now analyzed the role of instructors in more detail, we discovered that instructors do have a strong impact regarding the social level of the U process.

As Figure 4 shows, students do not experience the U process as linear, but iteratively jump back and forth within the U. The only difference between the phases they can perceive is the change from collective to individual and back to collective forms of knowledge creation, as well as a difference in speed or pacing with regard to (collective) knowledge creation. As shown above, students need assistance in overcoming their resistances with regard to these changes. Along with

these changes, the probability of conflicts within the teams rises. Especially *after* presencing, KCTs have to deal with a high level of epistemic uncertainty. They have to re-organise and re-integrate everyone's insights and sometimes have to deal with the frustration of not having experienced anything special at all. When participants have to share these very intimate individual experiences within the team, KCTs often do not need assistance with content, but rather on the level of group dynamics.

Our data shows that, if groups overcome their conflicts on a social level before presencing, they experience the individual presencing experience as a bit of a loss (due to having to "leave behind" the group), but they have *confidence* in their group and *trust* that they will manage to reintegrate their experiences and ideas after presencing. Interaction with the environment (making use of tools, externalization, etc.; see our discussion on the extended approach to cognition in which parts of our thinking and cognitive workload is "outsourced" to the environment) seem to further accelerate and support their process.

Groups that cannot resolve (entirely) their conflicts before presencing, require a lot of coaching and support from facilitators on a social/groups dynamics level. This is because the individual presencing and the associated increase in epistemological uncertainty divides the team further. For these groups, crystallizing is a neutral or even negative experience, they don't feel like they can openly share their ideas or experiences, they are concerned that others might judge them, or find their ideas silly. They often reach an *impasse* in the letting-come and crystallizing phase; their engagement for the whole process starts declining, leaving the process of idea-development and knowledge creation, as well as decisions, to a single or only few group members. In order to address this and the "drifting apart" on a content-level, the *social level needs to be addressed first*. These groups experience the social dimension of their teamwork as uncertain, unsupportive, closed off, and stressful. Facilitators then tend to involve themselves more on a practical level—making suggestions about how to organize group work, providing structures, and even make decisions for them; but only on a process and organizational level. Students in these groups often do not appreciate instructor interventions, or do not agree on whether to follow the instructions or not. Their individuals do not want to give up control and cannot let go of their ego.

Still, instructor's interventions and coaching do provide them with a chance for personal transformation. They need concrete assistance for what Scharmer refers to as a "holding the space" (Scharmer & Kaufer, 2013; Scharmer, 2016). Instructors are involved more emotionally with these groups. They themselves get more touched by not only opening their mind, but also their heart and their will (Scharmer & Kaufer, 2013), in order to appreciate and support the group members within

their struggle. Paradoxically, those groups who fight most against the transformative experiences, provide the highest chance for transformative learning for the facilitators themselves.

IV. Implications: Guiding Principles for Embodied Presencing Practices

Humanity is entering a new historical phase, requiring responses to the challenges of a VUCA world that emphasize collaboration and co-becoming rather than competition (Ingold, 2013). Rather than predicting the future based on the past, we must focus on sensing and co-creating emerging future potentials. Achieving this necessitates disruptive and radical innovation through profound transformation at individual, organizational, societal, and planetary levels (Scharmer & Kaufer, 2013; Scharmer, 2016). To reach these goals, we need leaders who do *not primarily strive for control*, but leaders who *engage* and *enable sensing and unfolding of future potentials*.

IV.1. Developing a Sense for Future Potentials

As we have seen, presencing is not only a highly fragile process, but also a challenging one (both epistemologically/cognitively and socially), as it is primarily about identifying and engaging with *future potentials* (something for which we are not trained in most cases). This is especially true in the field of leadership where we are confronted with this challenge in a twofold manner: first, it concerns sensing future potentials with regard to the development of the organizational dynamics and the employees for whom leaders are responsible. Second, it is about sensing future potentials in the context of future-oriented innovation processes directed towards the outside of the organization (e.g., products, services, etc.).

What does it mean to develop a sense for future potentials of an unfolding world (or an organization) that is mostly unpredictable? The challenge consists partly in the fact that potentials are, in most cases, not visible, they are "not yet", or more generally, not directly perceivable through our senses. As we have seen above, this introduces a high level of uncertainty. What can be perceived, however, are slight and subtle changes or latents (Poli, 2006, 2010) in the environment. Contrary to actuals, possibles or potentials are open to develop in various ways and directions that are partially intrinsic to this phenomenon/object and partially dependent on environmental stimuli, influences, or changes; they are latent (Poli, 2006), they are yet to develop and they "want" to break forth (under appropriate circumstances, contexts, or influences). From a leadership perspective, what is both interesting and challenging about potentials is that we need to learn how to (i) sense and identify such latent possibilities and (ii) to make sense of them, (iii) to cultivate them in a non-imposing way so that they (iv) can (co-)develop into new "interesting", meaningful, and purposeful patterns of interaction, innovations or transformation.

More specifically, this involves the capacity for engaging in a process of *deep observation* leading to "*sensing and seeing/knowing from within*" (Depraz et al., 2003; Scharmer, 2016). Potentials can be derived from a profound understanding of the core of a specific phenomenon or object (to be innovated or transformed). In most cases, it will be necessary to identify a whole bundle of potentials that is relevant for a particular field in which one would like to initiate innovation or transformation. Some of these potentials may be surprising, as—at first glance—they may not be considered important or relevant for this area. However, it is vital to follow up on them in a process of sense-making. By bringing them in and relating them to the context of other potentials, it might turn out that they become crucial in such a changed/novel context.

This bundle of "potentials in context" forms a field of not-yet developed possibilities and opportunities—the concrete realizations are not known yet, as they are still latent. However, through them, we know a kind of relevant "corridor of emergence" leading and guiding us through this process of "learning from the future" (Scharmer, 2016). Hence, we have to bring these future potentials into the present and start creating an enabling environment supporting these processes of emergence to happen (we refer to such environments as "Enabling Spaces"; Peschl & Fundneider 2012; 2014;). In biological/evolutionary terms, this can be compared to a *niche creation* process or the creation of (enabling) ecosystems (e.g., Cazzolla Gatti et al., 2020).

What does this mean for our discussion on the relationship between Theory U, necessary leadership skills and (future) potentials? First of all, we have to be aware that we are discussing here a perspective on innovation and transformation that is intrinsically driven by the future (vs. being driven by past experiences). Second, it calls for changing the perspective on what a leader or an organization needs to concentrate on in such a future-oriented innovation/transformation process: the focus has to shift from already existing knowledge (i.e., actuals) to (future) potentials. Deeply rooted in the environment, they become the source for our learning processes. Thus, novelty has its origin *not* primarily in the creative mind (of the innovator or leader), but rather can be found in the *creative agency of the world* (Peschl, 2024). Third, this implies that the mode of learning and creating has to change as well, shifting from downloading and predicting to *proactive learning* and *anticipation*, being receptive and sensitive to future potentials, engaging with the world, and entering in a *relationship of co-becoming* (Ingold, 2013) by making sense and use of these potentials. In this sense, leadership plays an important role in preparing the ground and facilitating such learning processes (both on the level of the leader him-/herself and of his/her team).

IV.2. Becoming a Future-Driven Leader

A 4.0 stage of leadership requires a new set of enabling infrastructures that can support an eco-system to

> engage in co-sensing (sense-making), co-inspiring (connecting to the source), and co-creating (prototyping) new possibilities together." (Scharmer & Kaufmann, 2013, p.114)

Aligning these 3 modes of engagement or interaction (and/or cognition) before, during, and after presencing with leadership styles, different modes of leadership can be applied to each phase of the U process.

Creating collective sense organs and *letting-go* require a framework of trust and safe space. This has a lot to do with what Scharmer calls "holding the space" (Scharmer & Kaufer, 2013). The main task of leadership in this phase is to enable people to become vulnerable and connect with each other on a deeper level. The leadership style best suited for this phase is the *servant leadership style* (Iqbal et al., 2023).

The next mode of engagement, co-inspiring and/or connecting to the source, requires an encouraging, stirring, and visionary lead that helps people to make a step out of their comfort zone, immerse in the environment and truly engage in the presencing experience. This is best framed by a *transformative or transformational leadership style* (Iqbal et al., 2023; Groselj et al., 2021).

Thirdly, letting-come and crystallizing are first steps towards co-creation and prototyping. The challenge here is twofold. On the one hand, the leader has to help people to re-connect with each other after their individual, and in best case profound transformative presencing experience. On the other hand, leadership has to encourage people to engage in a mode of *doing/making* (Ingold, 2013), or "*thinging*" (Malafouris, 2013; 2014), in order to co-create new possibilities. *Kindness* (Haskins et al., 2018) and a *compassionate leadership style* (Hill, & Stephens, 2003) are best suited for this phase.

Additionally, we have shown that these phases of the Theory U process may not be experienced in a linear way. As we have seen, participants in an innovation team jump iteratively back and forth within the process, having a hard time to cope with the changes between collective and individual knowledge creation at the bottom of the U. Therefore, leaders must pay attention to the social dimension, orientation, and "holding the space" throughout all three phases.

In order to get a more hands-on understanding and a practical perspective of the concepts and processes having been discussed here, we will develop concrete design principles and intervention strategies for leaders in the following section. They are mostly based on both our theoretical considerations and the empirical insights having been discussed in this paper and provide concrete leadership guidelines of how these insights can be implemented in a Theory U process/setting.

IV.3. Leadership Intervention Strategies and Embodied Design Principles for Presencing Settings

When looking at presencing from an integrated perspective of embodiment within the 4E approach to cognition as a complex agent-environment system, the emphasis shifts from facilitating participants' bodily awareness towards designing environments and interventions that *implicitly* shape and enable the participants' experiences. For the participants, the goal is to *intuitively align* with the desired mental states for presencing through (making use of) the structure of the environment and their embodied interactions that occur within it. For leaders, this means observing and intervening in the agent-environment system to guide the participants' embodied transformative learning process. In the following, we develop design principles and corresponding leadership intervention strategies that are based on such an integrated and dynamic perspective of embodiment. The goal is to guide participants into an engaged presencing experience:

1. *Design for the emergence of coherence in agent-environment interaction*
    - *Design Principle:* Recognize that cognition is embedded in the environment and is shaped by the particular context in which it unfolds. By designing environments and experiences that subtly align with the desired cognitive state, participants can be encouraged to experience presencing intuitively.
    - *Intervention Strategy:* Use the environment—spatial design, social dynamics, and temporal pacing—to encourage an intuitive, emergent alignment of participants' actions and mental states. For example, organizing the space in such a way that participants may naturally engage with each other in an organic flow, rather than imposing rigid structures, can subtly promote openness to emergent novelty and collective presence.

      Design the environment in such a way that participants are gently guided into present-moment awareness through subtle sensory cues—such as variations in lighting, ambient sounds, temperature, or textures—that do not explicitly capture attention but instead evoke specific cognitive and emotional states. For example, activities like walking in natural settings or resting within a minimalist, quiet space can foster reflective contemplation. Similarly, incorporating ambient soundscapes, such as the sounds of flowing water or nature, can cultivate a sense of calm that prepares participants for deep listening and openness.

2. *Leverage dynamic spatial and temporal structuring*
    - *Design Principle*: Space and time should be regarded as *active elements* within the agent-environment system, capable of influencing participants' mental states with minimal reliance on conscious effort. The configuration of the physical environment plays a critical role in shaping how participants interact with one another and attune to the present moment.
    - *Intervention Strategy:* Vary the dynamics of space and time subtly to create moments of pause, flow, or transformation. For instance, slow, undirected movements through natural spaces can draw participants into an embodied experience without direct verbal guidance. By intentionally designing moments of non-intervention, such as allowing pauses for contemplation or placing the group in a setting with open vistas, participants can intuitively tune into the present moment and each other.
3. *Cultivate implicit engagement through social interactions*
    - *Design Principle:* Social dynamics within the group should be designed to subtly encourage implicit relational coherence. The bodily presence of the facilitator, and the interactions among participants, can guide participants toward the shared, emergent mental states required for presencing.
    - *Intervention Strategy:* Create spaces for social interaction that foster an unspoken attunement to one another. For example, facilitating informal or unstructured conversational exchanges allows participants to act without the pressure of performing for an audience, creating a subtle relational energy that can orient them toward the present moment. Facilitators can model calm, grounded energy, which subtly affects the group dynamic and invites participants to mirror these embodied cues, creating an implicit alignment toward (collective) presencing.
4. *Create subtle feedback loops through action and environment*
    - *Design Principle:* Incorporate feedback loops that connect the participants' actions (their bodily movements) with the environment. The interactivity between agent and environment should guide the participants toward mental states that support presencing.
    - *Intervention Strategy:* Use embodied feedback mechanisms to guide participants through the process. For example, facilitating movement practices where participants' bodies and collective rhythms naturally adapt to the space (such as synchronized breathing or walking) allows the embodied system to shape their mental states. As they move through different spaces or change the rhythms of their

actions, they receive immediate feedback from the environment, subtly guiding their embodied responses toward presencing.

5. *Facilitate implicit shifts through the dynamics of the group*
    - *Design Principle:* Group dynamics, especially in a collective environment, can be leveraged to implicitly attune participants to the collective energy and presence of the group. The mental states required for presencing emerge from the emergent effects and dynamical interplay between the individuals and the collective.
    - *Intervention Strategy:* Foster group activities that naturally encourage mutual support, where the social dynamics of group behavior nudge participants toward embodied synchronization. For instance, in a shared movement or creative process, the group gradually shifts from individual actions to a collective flow, where each individual is guided by the actions of the others. By providing opportunities for co-creation in an embodied way (such as in joint modeling exercises), the facilitator helps to subtly align the group with the unfolding collective future.
6. *Foster implicit shared attention through synchronization*
    - *Design Principle:* Design activities that encourage implicit synchronization of participants' attention and bodily states. This promotes collective attunement to the present moment and to each other, helping the group enter a (shared) experience of presencing.
    - *Intervention Strategy:* Integrate collective practices that naturally promote synchrony—such as shared breathing, rhythmic movement, or mirroring exercises. The group, without needing explicit instructions, will naturally align their attention and bodily states, fostering a shared present-moment experience.
7. *Design for flow states through environmental continuity*
    - *Design Principle:* Understand that cognition emerges from the continuity of experiences between participants and the environment. By ensuring smooth transitions and consistent environmental cues, facilitators can guide participants into mental states that support presencing without disrupting the flow.
    - *Intervention Strategy:* Create environments where transitions between different activities or phases of Theory U are smooth and intuitive. This could involve gradually changing the energy of the space, from quiet contemplation to more active engagement, without abrupt shifts. The continuity in design ensures that participants stay connected to the process and naturally orient towards presencing, supported by the natural flow of activities, sensory changes, and group interactions.

8. *Design for embodied openness to emergent futures*
    - *Design Principle:* The design of the environment and interventions should support an open-endedness that encourages participants to embrace uncertainty and allow future possibilities to emerge through bodily interaction.
    - *Intervention Strategy:* Use subtle design elements that encourage an openness to the unknown. This might involve creating opportunities for participants to physically and mentally "let go" of predefined outcomes. For example, facilitating activities that allow for open-ended exploration of ideas—such as physically generating ideas through bodily movement, interacting with objects, or creating ephemeral group sculptures—can create a space where participants feel a sense of possibility emerging in an embodied way.

V. Conclusion

In this paper, we discussed what it means to be a(n innovation) leader that is *intrinsically future-driven/oriented* in a VUCA world. Concretely, we addressed the following questions: (i) What role does the body and the physical as well as social environment play in presencing in the sense of a transformative learning process? And (ii) based on this understanding, what kind of leadership skills and mindsets are required to facilitate the presencing process? We elaborated on the relevance of leadership in the phases of Theory-U/presencing and reported on experiences and results from our own empirical research.

To conclude, we tried to show that cultivating a future-driven innovation leadership mindset necessitates a fundamental shift in how we perceive and engage with emerging possibilities. By integrating presencing with recent approaches from cognitive science and transformative learning, leaders can cultivate an openness to latent potentials, transitioning from habitual, past-driven problem-solving to an anticipatory, co-creative and radically future-oriented approach. We have argued that a (leadership) paradigm of control has to be replaced by a mindset of co-becoming with the world and sensing (and making use of) their future potentials. We have shown that this requires not only cognitive skills but also an embodied engagement with both social and material environments. As our findings suggest, the key to such an approach to leadership lies in the ability to sense, unlock, and enact the creative agency of the world rather than merely relying on predefined strategies and projections of our own ideas.

V.1. Limitations and Future Work

Drawing on empirical data from educational settings, the present study highlights the relevance of design principles in fostering adaptive leadership competencies to deal with today's VUCA-world. However, it has to be noted that the insights and implications presented in this paper stem from research based on purely qualitative methods (GTM and SA, see chapter on research setting above) and conceptual research. Thus, important considerations regarding (i) generalizability, i.e. the possibility of generalising our findings to higher education settings as a whole, and (ii) transferability, i.e. transferring our findings to the context of organizations and organizational leadership, need to be raised.

Future research should further explore if and how the design principles derived in this paper can be systematically cultivated across diverse organizational, as well as different cultural environments. Importantly, existing data were collected prior to the recent surge in generative AI tools and the broader wave of rapid technological change, raising questions about the ongoing relevance and applicability of these findings. The interaction with generative AI tools represents a qualitatively different form of agent–environment coupling, suggesting that traditional models may be insufficient to account for the dynamic, co-constructive nature of such engagements. Consequently, future research should prioritize the collection of more temporally relevant data. It appears necessary to critically examine the implications of these tools for both practice and theory. This includes our empirical findings, as well as revisiting foundational theoretical frameworks such as 4E cognition and transformative learning, which may require adaptation or extension to adequately address the evolving complexity of human–technology interactions in organizational and leadership contexts.

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