

Leveraging transformation with a polyarchy of learning edges

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Key words: polyarchy of learning edges, transformative sustainability learning, relational ontology, paradigm stretching, worldview stretching

Extended abstract

Socio-cultural paradigms deeply influence the development of worldviews and resulting behavior of individuals. Groups of individuals, in turn, develop and perpetuate a social paradigm (Freire, 1970/1996; Kuhn, 1996; Morin, 2001). In this paper, a *worldview* is a set of belief systems held by an individual, whereas a *paradigm* is the collective sets of similar beliefs-in-action. This mutually constitutive relationship between individuals and society – worldviews and paradigms – and the practical expression of the inherent meaning systems (primarily ontology, epistemology and axiology) within both paradigms and worldviews, can lead to more, or less, resilient societies (De Witt, de Boer, Hedlund, & Osseweijer, 2016). For example, many philosophers and theorists assert that the dominant Cartesian-Newtonian (Western) paradigm, and its beliefs of reality, knowledge and values, seriously impede humanity's ability to be sustainable (Capra, 2002; Jantsch, 1980; Morin, 2008; Nicolescu, 2002). Most of these philosophers characterize the Western paradigm as simple (hierarchical, reductionist, monist), and fixed (mechanic, static, substance-focused) with a propensity for dualistic (mutually exclusive, binary, opposites, exclusionary) thinking, doing, being.

In contrast, there are many other paradigms, which offer additional ways of thinking, doing, and being, that are arguably more aligned with and supportive of sustainable futures. It is beyond the scope of this paper to compare these paradigms, so this paper focuses on a relational interpretation of the cosmos. The relational paradigm is often described as embedded within Eastern philosophies (Capra, 1982; Macy, 1991); fundamental to many Indigenous philosophies (Aluli Meyer, 2013); and implicit in insights coming out of quantum physics (Barad, 2007; Lange, 2018a). A relational worldview interprets reality entirely through radical interactivity, and this “profound interconnectedness of all existence” (Stewart-Harawira, 2005) is not only recognised, but valued.

A growing number of facilitators and educators in the field of sustainability have (Bawden, 2005; Lange, 2004; O'Sullivan, 2012; Sterling, 2010) and continue to (Barrett et al., 2016; Burns, 2016; O'Neil, 2017) coalesce around the idea of ‘transformative learning for sustainability’ and its potential to foster more sustainable paradigms. This growing and strengthening notion of transformative sustainability learning involves internal transformations (Dirkx, Mezirow, & Cranton, 2006) towards relational views of the world (Lange, 2018b), as well as external changes in society. For example, in transformative sustainability learning experiences, diverse participants often collectively learn their way through complex situations, in order to make an improvement in the messy situation, and ideally through the process, participants stretch their individual worldviews or their shared social paradigms towards more relational, reflexive, integrative ways of being (Bawden, 2010; Brundiars, Savage, Mannell,

Lang, & Wiek, 2014; Chaves, Macintyre, Verschoor, & Wals, 2017). This relational turn can, it is proposed, lead us towards more resilient societies (Lange, 2018b; Williams, 2013).

Both the a) problematisation of the Cartesian-Newtonian paradigm and b) the stretching of worldviews towards relationality are characteristic of transformative learning for sustainability (Lange, 2004; Selby & Kagawa, 2018; Sterling, Dawson, & Warwick, 2018). Both these processes of problematisation and stretching can be considered, analysed and synthesised in terms of ‘meaning- systems’. To clarify, both individual worldviews and social paradigms can be interpreted through at least seven meaning systems. Through combining theoretical insights from worldview theory, philosophy, the New Sciences, and transformative sustainability learning, we conceive of the meaning systems included in our individual worldviews and shared social paradigms as: our view of the origin of the universe (cosmology), our view of reality (ontology), our view of knowledge, truth, and knowing (epistemology), our view of what is good or valuable (axiology), our view of the role of humans and humanity (anthropology), and our beliefs about the best way to organise our societies (sociology); our view of communication (rhetorology), and our view of higher spirits or powers (theology). These meaning systems are complexly interwoven yet also offer a heuristic for developing learning experiences, or analytical framework to prompt a reflection on how pedagogical approaches might stretch or shift the participant’s worldviews, or influence the larger societal paradigm.

This proposed heuristic is similar to the typology offered by Chad Hoggan (2015). Hoggan’s typology provides outcomes that the metatheory of transformative learning should address, such as worldview, self, epistemology, ontology, behaviour, and capacity. However, whereas Hoggan developed his metatheory from the Transformative Learning literature in more of a grounded theory, bottom-up approach, this proposed framework was developed from deep engagement with the theory of sustainable learning philosophies, as well as worldview theory, and how worldviews form (de la Sienna, Smith, & Mitchell, 2017). Thus, the heuristic in this paper offers a broader, philosophically informed metatheory for what transformative learning could touch upon. For example, whereas one of Hoggan’s categories is “worldview”, the proposed heuristic in this paper sees all of the meanings systems together as comprising an individual worldview or shared paradigm, so Hoggan’s sub-categories within worldview of “assumptions, beliefs, attitudes and expectations” would, in this heuristic, be interlinked to specific meaning systems.

In order to test this metatheoretical approach to designing a transformative learning experience, we applied the aforementioned heuristic to a “polyarchy of learning edges” (Lange, 2018a). The polyarchy of learning edges includes the pedagogical approaches of transdisciplinarity, critical theory, experiential learning, and systemic-complexity theories. To do so, we reviewed the historical lineage of theorists and philosophers contributing to each of the pedagogies to determine the beliefs and assumptions related to the meaning systems for each pedagogy. This theoretical exploration and analysis demonstrates how each pedagogy has been developed to explicitly and or implicitly touch upon and stretch certain meaning systems. For example, critical pedagogy has very specific intentions to address deeply embodied assumptions related to our social vision (sociology) and our sense of self and role of humanity (anthropology). On the other hand, systems-complexity philosophies and approaches to problem solving have significant implications for the dominant ontological and epistemological assumptions. While each pedagogical approach does not have, necessarily, a strong ‘stretching capacity’ across all meanings systems, collectively these pedagogies could form or engender an interactive network, or polyarchy of learning edges, which creates the conditions for leveraging transformative

sustainability learning across the entire spectrum of meaning systems. The hypothesis is that an integrated approach, that invokes, or touches deeply upon all of the meaning systems might create the condition for a deeper reflection upon or awareness of learners' own worldviews or the paradigms within which learners operate.

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