

Autopoiesis, enactivism and student learning: An ecological model

Keywords

4E Cognition, Autopoiesis, Ecological, Enactivism, Learning

The paper is a contribution to the LINK 2021 Special Track: Informing design and practice-led research from the epistemology of the Santiago school of cognition. It presents a general ecological model of student learning in higher education, weaving together different threads from student learning research, Bateson's work on the ecology of mind, and the concepts of autopoiesis and enactivism that emerge from the work of Maturana and Varela in the Santiago school. The paper takes as its starting point the seminal research on deep and surface approaches to student learning, developed inter alia by Marton, Biggs, Ramsden, Prosser & Trigwell during the 80s and 90s. While other neoliberal understandings of student learning as 'engagement' or 'employability' tend to dominate current discourse, the deep/surface literature is still widely cited and forms the basis of many courses in teaching in higher education. What is less explored are the ways in which the deep/surface learning research resonates with Bateson's ecological views on mind and learning, and the idea of the embodied mind as developed from the pioneering work of Maturana and Varela. This research also emerged in the 80s and 90s. By tracing the patterns that connect these earlier ideas with current advances in 4E cognition and biosemiotics, the paper develops an ecological model of student learning based on concepts of non-linearity, emergence, complexity, embodiment, cognition as biological, learning as dialogical enquiry, communities of learning and practice, and the shaping influences of power circulating through information networks. The model visually depicts a process of learning informed by key principles:

- Both the cognizing agent and everything with which it is associated are in constant flux, each

adapting to the other in the same way that the environment evolves simultaneously with the species that inhabit it.

- Learning (and similarly teaching) cannot be understood in monologic terms; there is no direct causal, linear, fixable relationship among the various components of any community. Rather, all the contributing factors in any teaching/learning situation are intricately, ecologically and complexly related.
- Cognition is thus not the passive representation of a pre-existing world 'out there' but rather the ongoing bringing forth or enactment of a world through the biological processes of living.
- Learning/teaching is a process of mutually enacting meaning—the student and teacher bringing forth a world together.
- Cognition is not located within the abstractions of a decontextualised individual consciousness, but rather in the processes of shared action.
- Knowledge is not separate from the world but embedded within it in a series of interrelated systems.
- The individual self is thus constituted in a network of relationships.
- Enactivism is an ecological epistemology where individual mind is an emergent property of interactions between organism and environment.
- An enactivist view of the teaching/learning ecology sees teachers and learners embedded in a dynamic system of relationships between people, information, knowledge, and the institutional structures and processes that form the context of learning. The system acts to generate knowledge by transforming information into understanding.