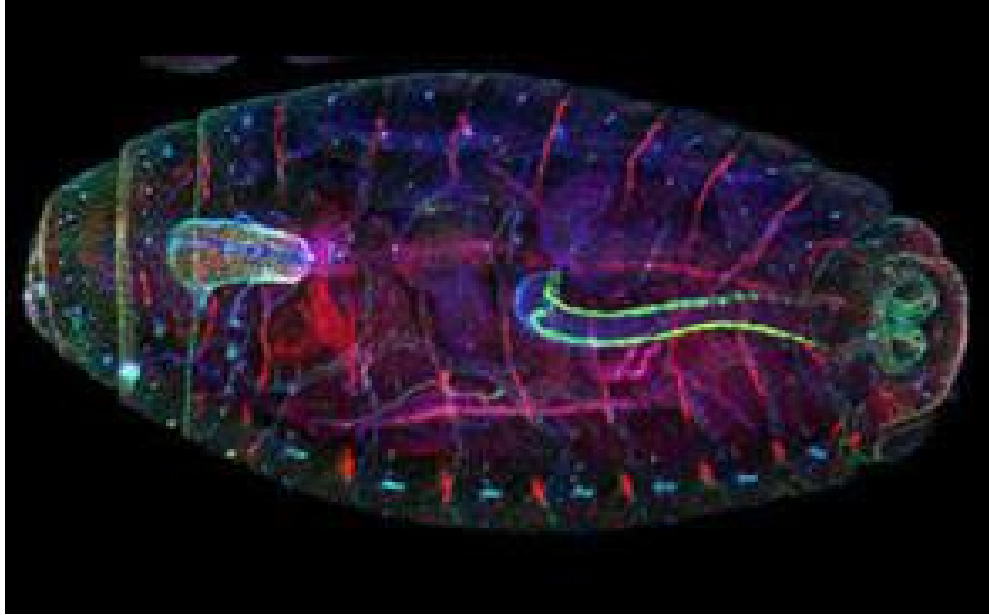




Drosophila embryo imaged by Sam Warrington, Patterning and Morphogenesis Interest Group, [www.morph.group.shef.ac.uk](http://www.morph.group.shef.ac.uk)

## Envisioning the Morphogenetic Classroom



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Morphogenesis - beginning of the shape - "an interplay between genetic determination and physical self-organization" (Fleury, et al., [Branching in Nature: Dynamics and Morphogenesis](#)).

Morphogenesis is one of the four key interrelated classes of event that characterize all of development:

1. Patterning: The setting up of the positions of future events across space (at a variety of scales)
2. Regulation of timing: The 'clock' mechanisms that regulate when events happen. Clocks can directly regulate morphogenesis of individual tissues such as somites, and changes of relative timing of events (heterochrony) can drive the evolution of new body plans.
3. Cell differentiation: Changes in a cell's set of expressed genes (its molecular phenotype)
4. Morphogenesis: The processes that generate tissue organization and shape and are usually the downstream response to the timing and patterning

Morphogenesis is responsible for anatomy, physiology, behavior, and mutations that drive evolutionary change. ([Morphogenesis](#))

Social Realist philosopher Margaret S. Archer focuses on the interaction between determined factors ("structures") and self-organization ("agents") in her theory of the Morphogenetic Approach. In "The Trajectory of the Morphogenetic Approach: An account in the first-person," she speaks of the "key concepts" of sociology as "relational":

the historical configurations and courses taken by social structures are morphogenetic in nature . . . being shaped and re-shaped by the interplay between their constituents, parts and persons. This means that society is open-ended and not 'finalistic' in its elaboration. ([Trajectory](#) 37)

Archer proposes active and intentional participation in this morphogenetic relationship as advancing a vision of society "commensurate with human thriving." She outlines this participation and its effects as "Concerns>Projects>Practices." Jennifer M. Case associates Archer's theory with education in *Researching Student Learning in Higher Education: A Social Realist Approach*. She writes of the "morphogenesis of student agency": "Human interaction . . . is at the center of Archer's model of the morphogenesis of agency and thus we should not be surprised at the significance of the social context for learning" ([Student Learning](#) 62, 101, 134). Bushra Connors, *Emergent Pedagogy in England: A Critical Realist Study of Structure-Agency Interactions in Higher Education*, models the application of Archer's theory to the field of education research ([Emergent Pedagogy](#)).

The Morphogenetic Approach appeals to my Taoist philosophical approach to teaching which, as expressed by Greta Nagel in *The Tao of Teaching: The Ageless Wisdom of Taoism and the Art of Teaching*, allows "students to enter into the process of measuring their own growth" ([Tao of Teaching](#) 19). I have some thoughts about how I will intentionally morphogenetically approach the structure of society-institution-classroom and my student agents in ways that will enhance our active participation in physical, intellectual, emotional, and behavioral self-organization to help advance a vision of society "commensurate with human thriving."