Distinguishing thresholds: Complexity combinations, intelligent intervention, and smart surrender

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From a complexity science perspective, control is an illusion. However, although complexity's puncturing of that illusion resonates with the experiences of leaders, managers, and teachers, few are practically empowered by the knowledge. Confirmation of how even well-planned interventions cause negative outcomes is more useful when accompanied by alternatives. This paper explores how distinguishing different kinds of thresholds can be combined with complexity to reduce unproductive, and increase productive, interventions. It starts with a set of binary oppositions around how best to understand and engage with organisations and classrooms. At one end it situates rational planning, or managing by old science. The other pole has an opposing cluster around managing – in the sense of "coping" – with the new sciences of uncertainty (i.e., emerging learnings alert to unique features). Calling the former pole, the "protocols of scientific control" (as the representative of past evidence-based planning), I credit it with sophisticated insight into relatively fixed, known, and unitary structures. Adhering to such protocols, leaders, managers, and teachers look ahead strategically and set out clear goals in the light of past failures and successes. They then project futures largely based on those past results.

The scientific protocols approach fits with the concept side of threshold approaches. For example, one of my electrical engineering colleagues spent time tracking down the threshold concepts for a first year course, worked out how to teach them, and went on to plot student progress. Although still vulnerable to Black Swan events, this makes can deliver results in relatively static fields and fairly predictable environments. Problems arise in areas such as management, which "is always a discontinuous approximation of a continuous phenomenon" (Baets, 2006) and leadership in unfolding crisis situations. I see similar divides between teaching philosophies: some aim at success in the knowledge transfer business, while others aspire to less measureable and tangible purposes such as expanding consciousness. Complexity perspectives fit with the latter in engaging with uncertain conditions and accommodating classrooms as dynamic entities emerging from complex processes. They also assist in identifying specific contingent factors that make outcomes difficult to predict: initial conditions; irreversible and history-sensitive actions; and nonlinear consequences. Above all, in their attention to key zones of change (e.g., water to steam, mergers and takeovers), the complexity focus on phase transitions can be conceptually and practically combined with the liminal spaces of crossings in threshold thinking.

Combining threshold concepts and/or threshold crossings with complexity phase transitions, the paper suggests a strategy of conscious phase management by selecting periods conducive to smart surrender (and not intervening), and periods conducive to intelligent interventions (and amplifying or dampening unfolding directions). Finally, the paper explores putting the strategy into practice by augmenting Karl Weick's (1987) "requisite variety" with three new requisites: *requisite continuity*, *requisite connectivity*, and *requisite communication.* Control remains an illusion, but by using these three, we can better approximate zones of transformational change and better estimate when intervention is likely to be intelligent and when surrender is smarter.

References

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