

Strategy design in complex systems



ECE resources

While strategic planning is an often familiar exercise for early childhood leaders and their teams, focused on creating lists of actions designed to help reach specified goals, in reality, the complex and dynamic nature of the early childhood setting means that such action plans are often thwarted, or remain unachieved (leading to guilt in leaders and teams for having never got round to completing them). Using complexity theory to understand the early childhood setting as a complex adaptive system can help leaders and teams to develop approaches to strategy design that enable them to work with contingency and unpredictability at the same time as ensuring progress in line with a given strategy for the setting's development.

A complexity theory perspective on early childhood settings

Complexity has long been recognised as a property of large systems, such as cities or natural ecosystems. In the past, these were understood as machine-like systems. These systems were understood as having different parts, each with a different function, that acted on each other in a logical way to cause certain effects. These machinic views of complex systems saw them as operating through control of the parts, much like pressing a button or pulling a lever on a machine. Such systems were therefore considered to be predictable and stable, offering reliable outcomes.

Applying this metaphor to education means that early childhood settings become apparatuses which take children in, apply a number of techniques to them, and then 'spit' them out of the system at transition to school with a reliable set of skills and knowledges that can feed into the next stage of their education. An early childhood setting, however, cannot be understood as a machine. There are so many different variables and interactions between variables that the outcomes of attendance at an early childhood setting on a child cannot be reliably predicted or controlled.

From a complexity theory perspective, early childhood settings might best be described as complex adaptive systems. Complex adaptive systems are comprised of many diverse and inter-dependent elements, and are 'open' rather than closed, meaning that they take in energy from outside themselves (funding, new enrolments and relationships, professional initiatives, policies). This in turn means that rather than being in a state of stability and predictability, they are more usually in a state of flux. Each diverse element is in continuous interaction with other elements in the system, leading to continuous and ever-changing feedback that enables the system to constantly change its shape and behaviour. This leads both to unpredictability but also adaptation – complex adaptive systems are capable of adapting to change as a result of their various inputs and interactions. New, system-wide patterns emerge that are neither simple or linear. This means they could not have been predicted nor are they the simple result of one element acting on another (such as pushing a button). Even systems that begin with very similar conditions can become very different entities, depending on how the elements interact. The emergent nature of the system is described as self-organising, as it is not controlled or designed by any one entity¹.

Strategy for guiding complex emergence

Complexity theory is a way of thinking about practice that recognises the interconnectedness and inter-dependence of everything². This offers a new way of thinking about organisational leadership,

particularly in relation to complex situations and decision-making. When situations are simple, leaders and teams are working with known facts and patterns that occur repeatedly and in the same form. These are predictable situations with which to use standard processes and procedures, and trust that they will produce standardised results. Some new situations may be unknown – these will require a bit more investigation and analysis, but once defined, procedures and solutions can be developed that are likely to be reliable. Strategic planning, in terms of predetermined lists of actions, is most likely to be successful in these kind of scenarios. In complex situations, there are no ‘right’ answers, and there is no real way to determine the effect of a given action. Nothing is predictable nor can be repeated, and the context and parameters keep changing. Complexity theory suggest that complex situations cannot be controlled, so a strategic plan that lists a range of actions to be performed is likely to fail.

Given that complex systems are adaptive, evolving in ways appropriate for their emerging conditions, control of their emergence is thought both impossible and undesirable. However, complex adaptive systems can be steered in particular directions. Only ‘light’ steering is recommended, such as agreement on a general vision or direction. Beyond that, leaders and teams can focus on providing supportive conditions to enable the system to evolve in that direction. With adaptation and change dependent on the interactions of diverse agents, this means maximising the quality of the elements in the system (particularly those most aligned to the vision), and increasing the interactions between those elements. Note that this does not mean merely adding new ‘inputs’ into an existing system, which will just be adapted to the current thinking of the system rather than revolutionising it. In particular, one-size-fits-all, predetermined, and standard processes and procedures will not work, and nor will copying or uncritically adopting practice from another system. System-wide change has to occur from within the system, as a result of focused and deep interactions between the system’s elements: its people, and its physical and conceptual environments. This means developing the collective capacity of the system, particularly in regard to skills for collaboration, robust dialogue, and critique, as well as confidence to experiment and examine outcomes, and then stepping back and allowing it to evolve, adapt, and emerge. Leaders and teams will need to know to expect, and perhaps even desire, the emergence of new practices in unexpected ways³.

Leaders, teams, families, and communities are not, of course, interested in just any emergence. Complexity theory holds that there is no guarantee that what will emerge from the complex interactions of the diverse elements which make up the system will align with the setting’s vision and mission⁴. Important ideas for strategy design in a complex adaptive system therefore include ‘framing’⁵ and ‘cues’⁶. Framing means selecting a vocabulary of words and symbols to help construct a frame in which early childhood practice and vision is understood. Metaphors, stories, catchphrases, and examples can be particularly powerful. However, it is not persuasively communicating a vision that is important here, but engaging in a form of interaction that builds both understanding and commitment. All members of an early childhood community might be encouraged to describe the vision or goals in their own language and choice of words, and to engage in open and constructive dialogue to clarify vision and priorities⁷.

Cues are signals to act. To support the emergence of the system in ways that align with agreed visions and directions for practice, the cues that are relevant to these visions and directions can be made more salient to agents in the system. Cues can be within the physical environment, in language used, and in the actions and behaviours of others in the system. Ensuring that the context is rich in signals about how to act in accordance with a desired vision is important, and this again ensures that a wide variety of elements related to the vision are developed, and that there are plentiful opportunities for interaction between elements. Teams that come together to talk about vision regularly ensure an environment rich in signals, for example. Approaches such as mentoring can help individuals become more sensitive to cues

related to the early childhood setting's vision, and to attend to the right cues, as well as to strengthen the interdependency between agents which supports the capacity for emergence⁸.

A complexity theory perspective on the early childhood setting as a complex adaptive system demonstrates that rather than spending time creating elaborate 'to do' lists, strategy design should be focused on strategising about a desired direction for the early childhood setting's development, and the conditions that will support the system to grow in that direction. Rather than specifying lists of actions, principle-focused strategising might be most effective, ensuring value-guided decision-making that is flexible rather than prescriptive, and enabling leaders and teams to experiment and innovate in creative and adaptive ways about how goals might be met in their particular context⁹.

Endnotes

- 1 Gilbert, J. (2015). Leading in collaborative, complex education systems. Leadership for Communities of Learning: Five think pieces. Leadership-for-Communities-of-Learning-Five-Think-Pieces.pdf (teachingcouncil.nz)
- 2 Gilbert, 2015.
- 3 Gilbert, 2015.
- 4 Bäcklander, G. (2019). Doing complexity leadership theory: How agile coaches at Spotify practise enabling leadership. Creativity and Innovation Management, 28, 42 – 60.
- 5 Woodward, I. C., & Shaffakat, S. (2020). Innovation, leadership, and communication intelligence. In N. Pfeffermann (Ed.) New leadership in strategy and communication: Shifting perspectives on innovation, leadership, and system design (pp. 145-164). Springer.
- 6 Bäcklander, 2019.
- 7 Woodward & Shaffakat, 2020.
- 8 Bäcklander, 2019.
- 9 Bryson, J. M. (2018). Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement. <http://ebookcentral.proquest.com/lib/auckland/detail.action?docID=5215307>.

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