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# Reader's response: Complicity: An international journal of complexity and education

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# Complicity: An international journal of complexity and education

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While complexity science has been a part of the fields of cybernetics, artificial intelligence, organizational and systems theory, and nonlinear dynamics for quite some time, it has only recently been taken up by researchers in the field of education. The on-line journal *Complicity: An international journal of complexity and education* does an admirable job of introducing the reader to wide-ranging discussions within education that engage the reader with a theoretical basis to which complexity has been applied. The research and discussions reported are very recent, and have the feel of cutting-edge reporting.

Complexity science attempts to explore how components within a system self-organize and emerge or evolve into complex, purposive, and coherent wholes. As examples of complex systems, *learning systems* are "adaptive, self-organizing phenomena" (Davis, Phelps & Wells, 2004) as suggested in the introduction and welcome to the first issue of the journal. We are invited as readers to explore the diversity of applications within education and explore how complexity influences research, teaching and learning engagements.

These applications range from metaphors of the classroom as having a consciousness of its own (Davis, 2005), to the necessarily emergent reality of learning who is in classrooms and applying the ever-changing goals of education to the job of teaching (Osberg, 2005), to an understanding of educational administration as an effort to achieve and then maintain equilibrium within a dynamic system that is continually influenced and impacted by forces internal and external to it (Gilstrap, 2005). Just these few examples suggest that complexity theory can be widely applied to areas of education, and are of immediate interest to anyone concerned about education. Thankfully, *Complicity* is also open to warnings and criticisms of an unexamined embrace of complexity theory. Also published are commentaries that caution

about the growing pains inherent in a new field (see for example, Phelan, 2004), and this type of self-reflection is a healthy (and necessary) dialogue for a new field as it develops.

As a journal devoted to emergent issues in education, *Complicity* is a kindred spirit to *Educational Insights* (EI). In both journals, we are invited to consider new ways to think about educational settings. Both, in their own way, are attempting to bridge the gap between theory and practice. In a call for contributions to this issue of *Educational Insights* potential contributors were asked "How do we educate educators? For those who educate educators, what are the responsibilities and challenges? Can we break habits? Challenge perceived limits? Are we educating educators out of education? Where is the resistance? What is the point? Why does it matter?" While *Complicity* doesn't seek to answer these particular questions, it does open a theoretical window into how these issues are experienced in schools, classrooms, and the lives of students and teachers, all of which are critical to understanding the work of educators, and why teacher education and professional development in the field of education remains challenging.

The challenge, according to Deborah Osberg (2005), a recent contributor to *Complicity*, is to keep open a space of difference and otherness, which she calls "a space of radical contingency." This is a key issue for complexity theory: the need for awareness and responsiveness to the ever-changing dynamic within a system. When systems are seen to be more than the sum of the individual parts, and in fact, are assumed to have components that interact in sometimes unpredictable ways, a foundation is laid for allowing uncertainty and imprecision into the picture. If one takes a positivist view, the reality of a complex system is reduced to elements and their interaction effects (Lather, 2003), often losing the ability to understand the nature of interconnectedness. What is also lost is how this complexity and interconnectedness leads to adaptivity in a dynamic and evolutionary manner. A complexitivity view sees variation as both a source and an outcome of thinking, rather than as a series of factors to be controlled in a deterministic, mechanistic environment. This opens a potentially imaginative space for attempting to better understand the intricacies of learning systems, and a key space for teachers in training to develop a perhaps new appreciation for the work they are undertaking.

Complexity theory also assumes that interaction, diversity, and redundancy have a role in cognitive processing. This opens the field for discussion of how interactions, on many levels, contribute to the cognitive development of students. It also offers reasons for why diverse systems are able to respond to change, a necessary capability for any system functioning in a post-modern environment, such as we have today. A mistake often made in university and other institutional settings is a propagation (either consciously or not) of totalizing discourses. As a background to the complex job of teaching, these are problematic and of imminent concern for teacher educators.

Discourses that reduce complexity to interacting elements only partially capture the reality of the situation and theorizing learning systems within complexity theory allows us to widen our view to post-structural and post-epistemological frameworks, while developing new research paradigms for studying schools, classrooms, learners, and teachers, as well as create new opportunities to develop deeper understandings of what goes on in learning situations. For teachers, this means stepping beyond a mechanistic view of the elements that comprise the system in which they work, to the interrelations of the various components and how they interact in surprising and generative ways with an often-unanticipated result. This character of complex systems resonates with teachers.

For these and many other reasons, the journal *Complicity* is of interest to a wide range of readers. As a scientist-turned-teacher-turned-graduate student-turned-teacher educator, the issues for me are timely, relevant, and worth reading about, seeming in some ways commonsensical, but contributing much to the wider field of research in education by adding another piece to the complicated puzzle that is education.

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**About the Author**

**Wendy S. Nielsen** is a science education researcher interested in how learners come to be in control of their own learning process. This applies to students in classrooms as well as professional development for in-service teachers. Her projects use theoretical frames in cultural historical activity theory and complexity thinking. From a public school teaching background, Wendy continues to be involved in research on teaching and learning in rural schools.