instance of the model for each subject). Although not very interesting from a connectionist learning perspective, these models do demonstrate that the processing inherent in a connectionist network can produce results very similar to those obtained for human subjects.

The second model presented will be much more satisfying to a connectionist *purist*. It uses a comparatively straight-forward back propagation network in order that students learn to classify arithmetic problems according to the schema proposed. The model succeeds at this quite admirably.

The final model presented is a hybrid model which uses the connectionist model presented above to classify arithmetic problems and a rule-based production model to actually solve them. Marshal proposes that such a hybrid is required to capture all of the aspects of the schemas humans use to solve problems in this domain though the model presented is only able to solve simple problems.

In the concluding chapter, Marshall points out that "one of the foremost challenges to schema theory in the past has been its lack of specificity" (p. 391). In contrast, the large body of work which makes up this book presents a very convincing argument for the usefulness of a specific schema theory. That theory certainly seems to work well for schemas in the domain of arithmetic problem solving and there is some basis for optimism concerning its generalizability. To that end, this book presents several methodological approaches which should prove invaluable to anyone attempting to apply variations on this schema theory to their domain.

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Maxcy, S.J. (1995). *Democracy, chaos, and the new school order.* Thousand Oaks, CA: Corwin Press, 197 pp. (Softcover).

I have seldom taken so long to read a book as I took with *Democracy, Chaos, and the New School Order* by Spencer J. Maxcy. I wish I could say that this resulted from my reluctance to part with the pleasure of reading, but precisely

the opposite is the case. Maxcy's writing is heavily laden with jargon like: "A 'new science of chaos' is a contradiction that poststructuralist science has proposed that the modes of inquiry themselves must be open to scrutiny. Consensus at the level of inquiry theory is opposed to discord at the level of phenomenological operations" (p. 41). Jargon density is such an overwhelming feature of the text that I believe uncommon persistence is necessary to read the entire work.

It is sometimes the case that hacking through a jungle of jargon is a means of acquiring exotic fruits from the tree of knowledge and that may be true in this case. If it is, I failed in the mission. Maxcy's work did not provide me with any significant accumulation of new knowledge or with significantly better insights into what I already knew. Another reader might fare better, but permit me to tell you about my fruitless *safari*.

Maxcy does a good job of staying on topic and the topics he covers are well defined in the book's title. I'll address each briefly. With respect to *democracy*, Maxcy depends heavily on John Dewey. Remarkably, the index shows only one reference to Dewey, on page five, but there are substantial sections of several chapters devoted to conveying Maxcy's understanding of Dewey's writings on democracy, culture, and aesthetics. He sums this up nicely in the closing chapter: "I have proposed that the pragmatism of John Dewey provides a route to uncovering the linkage between human experience, pluralistic and communal in nature, and the problems of contemporary postmodern culture" (p. 177). While I would agree that Dewey still has a great deal to offer education, I think a reader interested in benefiting from Dewey's thinking would be better served by the original sources. Maxcy provides a service in calling the reader's attention to the value of Dewey's thinking and in suggesting some of the ways in which it might be applied to contemporary problems, but on the whole, I think the work would have been better if less space had been given to recounting what Dewey himself has said with clarity and precision.

Furthermore, through the first two-thirds of the book, I found myself wondering if Maxcy and I agree on what democracy means. One is left to infer that for him, *participation* is the key element in democracy. Yet the nature of what constitutes participation is left undefined. When he does get around to defining democracy, Maxcy depends heavily on the work of Bode H. Bode, especially *What is Democracy*, co-authored by Dewey and T.V. Smith. In the end, I was still left wondering: I know that participation is important to Maxcy, but I am left wondering about what qualifies as participation; I know that Maxcy considers the way in which cultural diversity is handled to be an

important test of democracy, but I am left wondering what mechanisms or policies he would consider appropriate in dealing with diversity.

I understand the importance of cultural diversity as a test of American democracy and I see that it applies to many other democracies but not, I think, to all. The Republic of Ireland, for example, is a democratic state with a fairly homogeneous population. There are some differences of religion and there is a small population of "travellers" who live a nomadic life that is not fully in keeping with mainstream Irish life, but these differences are not so pervasive as to constitute a test of Ireland's democracy. How then does democracy, more generally understood, come to be defined and tested. This seems not to be of interest to Maxcy and the stars and stripes cover of the book suggests the reason: Maxcy is concerned with *American* schools and American school problems. This is perfectly all right, but aside from a brief allusion to reputed poor performance of American schools on international comparisons, Maxcy fails to consider that America and American schools operate within a global culture. In light of the growing communication between teachers and students around the world, the influence of international markets and competition, and the remarkable similarity in political directions of English speaking industrialized nations (at the least), I would think that a work with the broad aims that Maxcy has set forth would have benefited from some consideration of the interplay in international education.

The second of Maxcy's title words, *chaos*, is what drew me to the work in the first place. I was pleased to find that he shares my reticence about the application of chaos theory principles to educational problems, but I was disheartened to find that he continued to use some chaos concepts and terminology throughout the book nevertheless. I was also concerned that his treatment of chaos, while better than some in the education literature, leaves something to be desired.

In particular, Maxcy tends to contrast chaos with order (even in the chapter title). Yet it is clear that he knows this is imprecise when he says things like "some components are orderly" (p. 38), "chaos theory relies on structure" (p. 39), and "chaos theory postulates a chaos-order pulsating system" (p. 36) Likewise, I think Maxcy overstates the case when he claims that "chaos thinking has become a full-blown theory of education in a few short years" (p. 42). While it is true that there is an increasing number of writers attempting to apply chaos concepts to education (I call them "education chaoticists"), little in this writing would generate either testable hypotheses or useful prescriptions for practice.

On the whole, though, I would credit Maxcy for resisting this trend. He points out that chaos theory is strongly deterministic (p. 37), a feature some of its advocates seem to overlook. He also claims that "rather than being postmodernist-poststructuralist as claimed, chaos theory of education is conservative, modernist thinking writ large: an effort to engage in a grand narrative" (p. 41). Maxcy seems to recognize as many education chaoticists do not, that the attempt to apply chaos to education is an extension of the error of applying previous physical science models to education and that theories of human behaviour in schools or elsewhere need to leave room for volition or choice.

Maxcy's last title concept, the *new school order*, is likely to be the part of the work that he feels most confident in since his prior publications are in the area of school leadership. I find myself in sympathy with nearly all that he says as he attempts to speak against school reforms that are based in romantic notions of past school glory and I think that he has done well to include analyses of both historical trends and contemporary innovations and directions; however, there was little in any of this that I found new or surprising. Maxcy seems to want to place his hope on aesthetic approaches to school leadership, to an emphasis on moral artistry, and to the building of educational communities, but contrary to the publisher's blurb on the back cover, I did not find "a useful set of recommendations for changes in administrative practice that create a 'new school order'; rather, I found broad suggestions of general directions and approaches and some wishful thinking about how this might all come about in a "postmodern, poststructural, postliberal" world that defies description.

So, I bagged no trophies on this safari, not even snapshots of exotica. Some parts of the work are both more clearly written and stronger on substance than the remainder. For example, I think the content of the later chapters (on the new school order) would be useful as part of an introduction to teaching or to school administration. I also think the chapter on chaos and some of the sections dealing with aesthetic leadership and moral artistry may have value to graduate students examining the school change literature. Although I cannot think of an instance in which I could recommend the book as a whole, I do hope these parts will get wide attention.

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