Aligning Psychology With the Physical and Biological Sciences

A review of

Dynamical Psychology: Complexity, Self-Organization, and Mind
by Jay Friedenberg

Reviewed by
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For a number of years, researchers in many areas of psychology have adopted a dynamical approach to studying psychological phenomena. In short, such an approach assumes that the system under study is complex, continually changing, and self-organizing. As a result, specialized mathematical and statistical tools are required to understand such systems. Using such tools, researchers in neuroscience, cognitive psychology, development, motor control, and social psychology (to name a few subareas of psychology) have made important progress toward understanding complex psychological phenomena.

Among the strengths of a dynamical approach to psychology is the promise to explain complex psychological phenomena without many of the pitfalls that have driven a historical wedge between psychology and the biological and physical sciences (e.g., a homunculus, genetic or motor programs). Moreover, the dynamical approach may allow for a dramatic
reframing of some of the classic “unsolvable” dichotomies in psychology (e.g., nature vs. nurture, free will vs. determinism, mind vs. body) such that these dichotomies become significantly less problematic or (perhaps) dissolve completely. Thus, such an approach promises to bring explanations of psychological phenomena into greater congruence with the physical and biological sciences while at the same time avoiding a mere reduction of psychology to physics or biology.

For the most part, however, books on the dynamical approach have primarily described how such an approach applies within a relatively narrow research area. In several groundbreaking books, authors have made attempts to show how the dynamical approach applies across related research areas (see Kelso, 1995; Thelen & Smith, 1994). Importantly, *Dynamical Psychology: Complexity, Self-Organization, and Mind* is an attempt not only to provide a reader-friendly introduction to the dynamical approach but also to show how the dynamical approach applies to all research areas within psychology. Thus, in this book Friedenberg attempts to show how a common set of principles underlies what seems to be a vast and disparate set of phenomena in neuroscience, cognition, personality, social psychology, and pathology.

Friedenberg calls for nothing short of a paradigm shift in how psychologists conceive of their discipline. In doing so, he attempts to do for the dynamical approach what Wertheimer, Köhler, and Koffka did for the gestalt approach (Koffka, 1935), Gibson (1979) did for the ecological approach, and McClelland and Rumelhart (1986) did for the connectionist approach. Given the broad scope of Friedenberg’s book, it can be viewed as a “prequel” to and an expansion on the books by Kelso (1995) and Thelen and Smith (1994). It is an ambitious book, to say the least.

Friedenberg first leads the reader through an excellent introduction to the dynamical approach and its associated concepts and tools. In the first half of the book, he covers complexity, self-organization, dynamical systems, networks, neurodynamics, fractals, and statistical mechanics. He covers this ground exceptionally well and provides an excellent synthesis of background material from just about all of the relevant sources. I found these chapters to be particularly well thought out and well written. Moreover, given that many of the concepts in the dynamical approach are not necessarily intuitive, his choices of examples, analogies, and figures in this section of the book are particularly illuminating. Two particularly informative analogies are (a) using the contrast between matter in a gaseous state and matter in a solid state as an analogy for the contrast between a “chaotic system” and an “ordered system” (p. 34) and (b) using the local and global organization of iron atoms in the context of thermal noise as an analogy for the local and global behavior of brain cells under increasing levels of distraction (pp. 137–141).

The second half of the book describes how these principles can be applied to many of the particular subareas of psychology. Again, Friedenberg covers the ground well and cites many of the key articles in the various fields. His coverage is quite broad, but, as a result, it
is somewhat thin and underdeveloped in places. In addition, discussions within a particular chapter are sometimes tangential to the main point(s) of a given chapter.

Perhaps my strongest criticism of Dynamical Psychology is that the chapters seem somewhat disjointed. Friedenberg provides a “road map” to the book in Chapter 1, but this does not seem sufficient to tie the chapters together, especially when the reader is immersed in the details of a particular chapter. As a result, in many places, each new chapter seems like the beginning of an entirely new book. That said, however, the level of disjointedness is perhaps no more severe than one would find in a standard introductory psychology textbook.

Given that Dynamical Psychology provides an excellent background of the dynamical approach in general, it is perhaps most useful for people who are unfamiliar (or less familiar) with the dynamical approach. However, this is not to say that it would not be of use to those who have some degree of expertise. I must admit that even though I would consider myself fairly well versed in the dynamical approach, Friedenberg helped to illuminate concepts that I have always found difficult to grasp. The book may also be useful for people who are interested in a relatively thorough review of how the dynamical approach applies to research in many of the various subfields of psychology. Given its broad scope and ambitious agenda, Dynamical Psychology is unlike any other book on the dynamical approach to psychology and perhaps unlike any other book on psychology in general.

References


