

Book Review

A Dynamic Systems Approach to Development: Applications

Linda B. Smith and Esther Thelen, editors
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Reviewed by György Benedek

Developmental scientists have always been receptive to dynamic systems because they come face to face with complexity, nonlinearity, and context dependency every day. The works of scientists from Werner and von Bertalanffy through Piaget, Lerner, Sameroff, and Gottlieb attest to this receptivity. It still seems that the broad scholarly environment became interested only recently in the very general principles of process and change. The enthusiasm for this approach expressed by the participants of the workshop "Dynamic Systems in Development" held in Kansas City in 1989 convinced Linda B. Smith and Esther Thelen that the papers from the workshop and some invited papers would find a large audience.

This book intends to be a pioneering attempt to bridge the general principles with applications to developmental issues that span domains, levels, and time scales. The chapters of the book are organized into two major parts. Part I is introduced with a tutorial on the general principles of dynamic systems by Kelso, Ding, and Schöner. This chapter presents dynamic principles in a generic form applicable to questions of pattern formation in any biological organisms over many time scales. The remainder of the first part contains chapters whose focus is primarily on the motor performance of developing infants and children. In Part II the authors cast their nets

more broadly into various domains of inquiry, including perception and its relation to action, infant state, cognition and language, and behavior. Thus, they move within the largest social and ecological spheres. Finally, Richard Aslin provides a witty concluding commentary and critique.

Experts in system theories will find an excellent overview of dynamic system applications in this book. Those who are pursuing works in developmental sciences but are not familiar with the terms used in the book may initially doubt that this book is accessible to them. Fortunately, the logic, definitions, and clear explanations help the reader negotiate some of the topics presented here that might otherwise be perplexing. By the end of the book the reader is convinced that dynamic systems theory can provide us with rich metaphors in our attempts to understand behavior and development. Yet, despite the best efforts of the authors to go beyond metaphors and actually provide new insights into application, the result is not completely successful. Most of the work presented here is based on data obtained independent of the dynamic systems approach. In addition, the term "development" covers a much broader ontogenetic range than postpartum human development. Thus, it might have been helpful if the chapters presented here had been expanded to incorporate studies on the dynamic approach to morphological changes during prenatal maturation.

Summing up, this is a pioneering volume. It provides new insight into the rather complex and important field of developmental sciences. The well-written, clear text, and the clever structure of the book offer a valuable resource for those familiar with dynamic systems approach. It is also accessible to those working in related areas who might regard themselves as largely ignorant of system theories.