

CHAPTER 1

Theories of Aging: Developments Within and Across Disciplinary Boundaries

Vern L. Bengtson and Richard A. Settersten, Jr.

This is the fourth handbook that is focused on theory development within aging; the first was published almost three decades ago (Birren & Bengtson, 1988). Although there have been many handbooks on aging over the past 75 years, beginning with Cowdry's (1939) *Problems of Ageing* and the three-volume *Handbooks of Aging* series two decades later (Birren, 1959; Burgess, 1960; Tibbitts, 1960), most have summarized research findings relating to specific topics or problems in aging, usually within specific scientific boundaries. By contrast, the handbooks of theories of aging (Bengtson, Gans, Putney, & Silverstein, 2009; Bengtson & Schaie, 1999; Birren & Bengtson, 1988) instead focused on *theoretical and conceptual developments* in research on aging, both within and across disciplines. This again has been the goal underlying the 35 chapters of this volume: to review current advances in theory across the wide spectrum of gerontological research today, and to spur theory-based research and interventions in research on aging in the next decade.

To ensure the scientific and humanitarian advancement of our field, we must periodically take stock of the state of the theories that undergird our knowledge and consider how we can nurture the future development of theory. In today's era of Big Data, when huge secondary data sets are readily available for rapid analysis, the temptation to churn out principally descriptive publications appears irresistible and necessary—especially when promotion, tenure, and other forms of status in the academy place a premium on empirical papers built on the latest methods and statistical procedures. However, the availability of new data and methods should be harnessed to promote the development of compelling theories as well. Recent years have brought major investments in longitudinal data, investments essential to understanding aging as a dynamic, multifaceted, and interactive process. These have been accompanied by advances in methods and statistics that make it possible to more sensitively and rigorously treat the effects of time and social contexts.

There is a natural and important synergy that links theories, methods, and data, just as there is a linkage across theories, policy, and practice. It is unfortunate that the crafts of theory, synthesis, and application often take a back seat to the more immediate and fundable work of data collection and analysis. Thinking about theory may seem too remote or too abstract to be of relevance; or too costly relative to the rewards; or discussion of theory may seem beyond the limited scope of journal pages or the appreciation of editors or reviewers relative to the data at hand. This is woefully nearsighted.

Theory has been, and continues to be, the cornerstone of scientific inquiry and the gateway to systematic knowledge development. In the following sections, we summarize what we mean by theory, and why theory is so important to advancing aging-related research, policy, practice, and intervention.

■ WHAT IS THEORY AND WHY IS IT IMPORTANT?

Theory as Explanation and Understanding

First and foremost, theories are explanations—explanations that lead to, and are driven by, cumulative knowledge. Theories guide the questions we ask and the research we design. Theories answer the “why” and “how” behind what we find in data. Such explanations can be formal or informal, long or short, but they should be clear and explicit. Most often, they assume the form of a causal statement: *X* occurs because *Y* caused it, in conjunction with (or because of the absence of) *Z*.

Theories also provide understanding, which is somewhat different from explanation. We can posit a theory about the causal relationship between two variables without knowing the mechanism that underlies the relationships; a theory that includes mechanisms achieves a deeper level of understanding. In some fields of the social sciences it can be said that there are two primary types of theory: (a) theories of *explanation of why and how* something occurs—for example, cumulative advantage/disadvantage theories that explain *why* variability among older people partly reflects social inequalities, and *how* social processes generate those inequalities over time; and (b) theories of *orientation* that provide a worldview and even a set of explicit assumptions or propositions, which lead us to see and interpret aging phenomena in particular ways—for example, postmodern theory, feminist theory, critical gerontology, or the life-course perspective. Although the latter are often called “theories,” they are, from another perspective, more often broader “paradigms” than theories. However, the frame and propositions they provide are extremely useful in developing more specific theories. In any case, both types are represented in gerontology today.

“An attempt to explain,” perhaps also adding “for now,” is probably the simplest and most direct way to define theory. This expression has the advantage of reminding us that theories are provisional and embedded in a process that involves rejections, refinements, and reconsiderations over time as we are confronted with new knowledge and data, and with changing people in a changing world. Another useful phrase, “theorizing,” turns the noun into a verb that reflects the ongoing dynamic of *building* explanations. Advances in methods, and in the identification of problems to be studied, are dependent on the knowledge—theorizing—that preceded them, just as they in turn shape the resulting knowledge.

The principal value of theory, then, lies in building knowledge in a systematic and cumulative way, such that empirical efforts will lead to integration with what is already known and help us to see gaps or inconsistencies in existing knowledge or between new knowledge and old. The principal use of theory is to provide a set of lenses through which we can view aging phenomena and make and interpret observations.

Barefoot Empiricism, Empirical Generalizations, and Models

Theory should not be confused with other steps in the process of knowledge development or the terms that have been used to describe them. For example, what James Birren, one of the founders of the psychology of aging, described as *barefoot empiricism*

(Birren, 1973, p. 11) is particularly problematic. This can be seen in papers presenting table after table of data with little interpretation as to why these results occurred or why they matter. Many articles like this can still be found in gerontology journals today, but it is unclear what lasting contribution they make beyond mere description.

What have been called *empirical generalizations* represent a conceptual step up from barefoot empiricism: statements that describe findings that have been repeatedly observed across multiple data sources. Empirical generalizations are usually anchored in extensive reviews of previous research on a given problem, and are often the grounds for explicit and even competing hypotheses. The research process involves collecting data through methods intended to reduce sources of bias, especially reliable and valid approaches to measurement and, in the social sciences in particular, sound sampling. In all scientific fields, the statistical handling of data is highly scrutinized by reviewers.

These steps, taken together—a thorough review of previous knowledge, an explicit statement of the research problem, a concern for unbiased collection of data, and state-of-the-art statistical analysis—can produce empirical generalizations about a research problem that look impressive. Nevertheless, too many journal articles still consist of empirical generalizations that are basically accounts of covariation across or between variables. This limits knowledge development to a description of observations and relationships at a certain point in time, with little interpretation concerning mechanisms of *why* and *how* they are related—in other words, no theorizing.

Models represent another process in knowledge development. A model is a way to *depict* a theory. It portrays the relationships among the complex variables suggested by a theory. It is a prototype of how empirical generalizations might be related to each other. The development of models and approaches to model *fitting* are recent contributions of 20th-century statistical and engineering applications of basic science. However, a model is not yet a theory.

Why Theory Is Important

In the history of science, theory has proven to be of great importance. In addition to explanation and understanding, there are pragmatic reasons for investing in efforts to develop theory.

First, in fostering explanation through specifying *why* and *how* empirically observed phenomena are related, theory contributes to the *integration of knowledge* over time. A good theory identifies the problem and its most important components (concepts) based on the separate findings and empirical generalizations from research. It also describes the linkages among the concepts in a causal sequence, based on previous knowledge. A good theory does this in a way that is clear, concise, and testable. This enables future investigators to test, refine, or refute it, thus advancing future knowledge development.

Prediction is another pragmatic contribution of theory. Theory-driven studies can point to new research directions based on findings that are partial, unexpected, or even anomalous and might otherwise remain hidden. Predictions based on theory can create radical shifts in the way we understand human life and the world around us. This is most obvious in the natural and biological sciences: Darwin's theory of natural selection led to a revolution in human biology; Mendeleev's theory led to the prediction of new elements in the periodic table; Einstein's theory of relativity led to the discovery of new planets and eventually to the atomic bomb.

Theories also guide *interventions to improve human conditions*. Theory is valuable when we attempt to apply or advance existing knowledge in order to solve problems

or alleviate undesirable human conditions. This can be seen in most organizations whose structures and actions are guided by popular theories about effective management, leadership, and communication. At a global level, the usefulness of theory in technological intervention is obvious in applications related to communication. In little over a century, communication has developed from the telegraph to Internet connections that can connect refugees in rural Somalia to reporters in London in a few seconds.

Other interventions are behavioral and social, though these have less often been informed by rational theories. At the *macro*-social level are the actions of governments, whose interventions through public policy are intended to ameliorate problems, such as subsidies meant to keep people above poverty in old age or supports meant to delay the institutionalization of older persons through the delivery of home health care and meals. These interventions can sometimes be evidence based, but they are rarely based on strong theory. At the *micro*-social level are interventions by practitioners who serve older people. These daily provide help and assistance to elders in need. Their efforts, which are routinely touted as being anchored in “best practice” models, most often reflect empirical generalizations concerning practices employed in the past.

The difficult task of implementing effective public policy and service delivery is exacerbated by the fact that little funding is available for the evaluation of these efforts. What is clear is that these interventions rarely rest on strong theory. If we do not understand the *theory* (the why and the how) of the problem, how can we best set up an intervention to fix it?

■ THE DEVELOPMENT OF THEORY IN GERONTOLOGY

In looking back through previous handbooks on aging, one can see that the theories of aging have undergone several pendulum shifts during the relatively short history of gerontology. In the first handbooks, there was still an emphasis on “grand” theory, from Edmund Vincent Cowdry’s (1939) biological theory of aging as a disruption in homeostasis (see Park, 2008), to Ernest Burgess’s (1960) sociological theory of modernization as creating a “roleless role” for the aged (see Chapter 5), and to James Birren’s (1960) “counterpart” theory of psychological decrement. Later, the pendulum shifted back to an era that was “data rich but theory poor”—what C. Wright Mills (1959) would have called “abstracted empiricism” or Robert Merton (1968) “strict empiricism,” in which too much attention was given to data over theory. And the pendulum seems to be swinging back again today, as the chapters throughout this edition attest, to what Merton (1968) once called theories of the “middle range,” built around circumscribed topics and adequate, if not ample, data.

The first of the four volumes to date on theories of aging (Birren & Bengtson, 1988) was not called a “handbook.” With “only” 20 chapters, 480 pages, and 23 contributors, the publisher felt that it was not hefty enough to warrant such a designation; so it was more modestly titled *Emergent Theories of Aging*. It was also the most philosophical of the four editions, with chapters on basic assumptions in theories of aging, dynamics related to aging and time, heuristics and metaphors in aging research, and contributions from the humanities. The chapters were thoughtful and often speculative, and there were far fewer studies to review than in later editions.

Over a decade passed before the next edition (Bengtson & Schaie, 1999) appeared as the *Handbook of Theories of Aging*. This volume contained 25 chapters and 524 pages, representing the work of 49 authors. In it, one can see the movement of the field

toward greater specialization, a narrowing of focus on research topics, and a more problem-oriented perspective. For example, the biological and biomedical section contained a chapter on stress theories of aging; the psychology section, a chapter on everyday competence and aging; and the social sciences section, a chapter on political economy and aging.

The 2009 edition (Bengtson et al., 2009) expanded significantly, with 40 chapters, 789 pages, and 79 authors. In it, the editors observed one major theoretical development in the years since the previous edition: a significant increase in theories and research that crossed traditional disciplinary boundaries. Indeed, that edition also contained a new section on “Translating Theories of Aging,” with chapters on topics such as jurisprudential gerontology, spirituality, a wisdom-based model of psychotherapy, and educational gerontology. Commitments to theory-based translational research have continued to grow, with this section of the current edition being the strongest to date.

In this 2016 edition, readers will find a strong emphasis again on theories related to health, but this time with greater attention to health-related processes and a wider range of health outcomes. This reflects movements in medicine, public health, and health sciences that are focused on prevention and treatment and on health disparities. Research in sociology and psychology, too, has more rigorously examined broader conceptions of well-being and the influences of close relationships, wider social networks, and life-course dynamics. Much of the action in biology has similarly shifted away from longevity and toward “health span” and aging well, not just aging long. Health and well-being are clearly central nodes around which scholars are fostering theories that bridge disciplines and levels of analysis, from cells to societies. The trend toward transdisciplinary work is also very apparent in this edition. In fact, it is now the longest section, and one can see the influence of transdisciplinary commitments in the disciplinary sections and in the section on policy, intervention, and practice as well.

■ AN OVERVIEW OF THIS EDITION

Goals and Emphases

Since the previous edition of this handbook, important developments have occurred within each of the disciplinary areas reflected in gerontology—the biology, psychology, and social sciences of aging, as well as in policy, intervention, and practice. A primary goal of this edition—with 35 chapters, 718 pages, and 70 contributors—is to update researchers, professionals, and students of aging on the latest theoretical developments across these traditional areas of gerontology.

A second goal is to foster “transdisciplinary” theories of aging by expanding concepts and explanatory systems across traditional boundaries. Critical advances have been made in transdisciplinary theories on circumscribed topics. Indeed, this is where much of the action in theory now resides and will continue to move.

A third goal is to increase attention to matters of variability and diversity in aging processes, from the cellular level of biological aging to the societal level of public policy. We asked chapter authors to consider the following issues: How sensitive are theories and concepts to matters of variability and diversity in aging—for example, to differences by gender, race and ethnicity, social class, or culture? How might theories and concepts be revised or tested with these matters in mind? In an effort to treat matters of globalization, we have also increased the coverage of international topics and the roster of international authors.

A fourth goal is to be a catalyst for developing future theories. To this end, we have asked contributors to contemplate common questions that bridge past, present, and future:

- *The state and evolution of theories:* What is the current state of theories and concepts and how far have they come? What theories and concepts have generated excitement? Which have fallen away, and which might be reclaimed but reshaped in light of contemporary conditions or intellectual currents?
- *The synergy between theories and research:* How have key theories and concepts shaped research and the current knowledge base? What research needs to be done to ensure vibrant theories in the decade ahead? What steps need to be taken in order to propel theory development in these directions?

Organization

The body of this handbook is organized into seven sections, six of which have its own introduction by an editor or associate editor. The section introductions not only highlight the key contributions of the specific chapters therein, but also provide a global orientation to the theories in that area and an integrated story about the section as a whole.

The next chapter provides an overview of the volume and an examination of age and aging as our central theoretical constructs. Part I—“Standing on the Shoulders of Giants: Personal Perspectives on Theory Development in Aging”—is a new feature of this edition. This part contains chapters from four of the most senior gerontologists of our day from the fields of biology, psychology, social sciences, and the policy and practice of aging. The essays give readers an intimate backstage view into history of theory development in their respective fields. They share their personal experiences with the process and prospects of developing good theory: disappointments and victories, barriers and opportunities, and solutions and advice.

Parts II, III, and IV—on biological, psychological, and social science theories and concepts of aging—have been mainstays of this handbook since its initiation. Each discipline has an important set of theoretical traditions of its own. In this edition, we have built up the section on policy, intervention, and practice theories and concepts (Part V) to reflect commitments their field is making in theory-based, in addition to evidence-based, application.

Part VI highlights the surge in transdisciplinary theory development. Despite the challenges of bridging disciplines, and of working with different research paradigms and methods, researchers have made significant breakthroughs in explanations of aging phenomena that crossed and integrated disciplinary perspectives. This cross-pollination has been fostered by interdisciplinary graduate programs and training grants, as well as by funding agencies, which have placed a premium on interdisciplinary team science. It is exciting to see the emergence of theories and models that have as centerpieces concepts around which multiple scientific disciplines can collaborate.

Part VII, the conclusion, discusses some of the challenges of theory building in gerontology and advances an agenda for the development of theories in the future. As the field of gerontology and research on aging continue to rapidly expand, the need for a strong theory will only grow.

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