Theoretical Developments in the Psychology of Aging

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This article presents a summary overview of the most distinctive psychological theories of aging since World War II. Theoretical developments are broadly classified into three periods, respectively: The Classical period (‘40s–’70s), represented by Developmental Tasks/Activity Theory, Psychosocial Theory of Personality Development, Counterpart Theory, Disengagement/Activity Theory, Personality Theory of Age and Aging, and Cognitive Theory of Personality and Aging; the Modern period (‘70s–’90s), which includes theories on Life-span Development and Aging, Reduced Processing Resources, Personality and Aging, Behavioral Genetics and Aging; and the New period (‘80s–’90s), represented by Gerotranscendence and Gerodynamics/Branching Theory. The overview ends with an outlook on psychogerontological theorizing.

Key Words: Psychological theories of aging, Gerodynamics, Branching theory, Gerotranscendence

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The scientific history of the psychology of aging is quite brief (Birren, 1961). Aside from pioneer work by G. S. Hall (1922), Charlotte Buhler (1933), Carl G. Jung (1933), and Walter Miles (1933), theoretical developments in psychogerontology started basically after World War II. Since then, research in the psychology of aging has been guided by a somewhat diverse collection of theories, models, and metaphors, of which the time-based, gerontological research approach is by far the most important (Schroots & Birren, 1990). From a calendar time perspective there are three foci — the aged, age, and aging (see also Treas & Passuth, 1988). The first, the psychology of the aged, focuses on older people and later life. Grounded in a stages-of-life perspective, most studies of the aged demonstrate a thematic, descriptive approach and little coherence (e.g., studies of Alzheimer's disease, life satisfaction, widowhood, retirement, cognition, death and dying). The second approach in psychogerontology falls within the psychology of age, which studies age differences in behavior by comparing groups of different ages in cross-sectional research. Productive research focuses on identifying the causes and consequences of the processes responsible for age-related differences (e.g., processing speed, attentional capacity, etc.). Finally, the psychology of aging studies behavioral patterns of change with age, integrating both the psychology of age and the aged in longitudinal research.

After World War II theoretical developments in the subject matter can be broadly classified into three groups or periods: the Classical period (‘40s–’70s), the Modern period (‘70s–’90s), and the New period (‘80s–’90s; Schroots, 1996). From each group the most distinctive psychological theories of aging are represented in Table 1. Before summarizing these theories, with the emphasis on Modern and New theories, some general issues in gerontological theorizing need to be discussed.

Some Issues

The first issue concerns the distinction between the terms theory, model, and metaphor. According to Lewin (1951), there is nothing so practical as a good theory. A theoretical framework helps the scientist to accumulate and integrate data into a body of knowledge, as well as to provide directions for new research. Early attempts to develop formal, quantitative theories in the behavioral and social sciences have not been very successful. The attention of researchers was turned, therefore, to the formalization of models, which are regarded to be more simple and quantifiable than theories, but also focus on limited aspects of behavior. Formalization in terms of quantitative models (or theories, for that matter), ignores the constructivist view that science is in an essential way metaphorical or characteristically employs metaphors. In fact, models are extended and systematic metaphors. This explains why the terms theory, model, and metaphor are often used interchangeably in the research literature (Schroots, Birren, & Kenyon, 1991). The relative significance of these terms can be summarized as follows: the metaphor drives the theory in the psychology of aging in the first place, and the model functions as a more general, extended or systematic kind of metaphor, which connects theory with empirical research. In the following sections, the term “theory” should be understood in the broadest sense of the word.
The second issue concerns the term “aging.” Briefly summarized, the psychology of aging studies the regular changes in behavior after young adulthood (Birren & Renner, 1977). Thus defined, the psychology of aging is grounded in a two-stages-of-life perspective, development and aging, which are usually described as two successive processes of change in time, with the transition point or apex at maturity. The classic metaphor for the two stages of age-related change in life is the “hill” metaphor (Hall, 1922), which is based on biological conceptions of growth and decline, particularly, the so-called mortality curve: mortality rates are high for infants, regularly decline to a minimum at about age 10, and then rise progressively throughout the remainder of the life span (Gompertz’ law, 1825). Psychological processes of change, however, do not necessarily parallel biological changes along the life-span. For example, fluid abilities like speed of information processing reflect genetic-biological determinants and tend to decline with age. Crystallized abilities, on the other hand, represent social-cultural influences on general world knowledge, for example, and may display some growth with age (Horn, 1989). This cognitive phenomenon raises the as yet unsolved problem of to what extent psychological processes of development and aging are different from each other, as both processes refer to age-related changes.

The third, also unresolved issue is what changes are typical or normal psychological processes of change in the individual, and what changes are atypical, abnormal, or pathological patterns. The boundaries between these phenomena are often indistinct. To clarify this issue, Busse (1969) made a conceptual distinction between primary and secondary aging. Primary aging refers to changes intrinsic to the aging process that are ultimately irreversible. Secondary aging refers to changes caused by illnesses that are correlated with age but may be reversible or preventable. Later, a third distinction was added, tertiary aging, which refers to changes that occur precipitously in old age (Birren & Cunningham, 1985, p. 22).

In the following overview, the term aging should be understood as primary aging.

The fourth and last issue concerns the term “psychological.” Psychology as a science has labors relations with the adjacent biological and social sciences. Sometimes, psychological theories of aging are labeled as “psychosocial” (with the emphasis on “social”); at other times they are conceived as biobehavioral, behavioral genetic, or neuropsychological, with the emphasis on the biological substrate. In either case, the aging individual falls into the trap of biological or social reductionism. But also within the field of psychogerontology there is the question of reductionism, because of the unidirectional emphasis on cognition and information processing, to the neglect of affective and conative processes of change over the life span. Obviously, the psychology of aging is in a permanent identity crisis. As Birren and Lanum (1991, p. 114–115) would say,

There is no major theory or underlying metaphor that links the various areas of psychology. Its state is much like physics was in the first decades of this century in which there was little unifying theory that linked the topics of optics, sound, levers, heat, and light. Contemporary psychology has similar topical islands of knowledge organized under the headings of sensation and perception, memory, learning, psycholinguistics, social psychology, motor skills, psychometrics, and developmental psychology. It is not surprising that the psychology of aging takes on a complexion derived from these subdivisions.

The following overview aptly illustrates Birren and Lanum’s point.

Classical Theories

**Developmental Tasks/Activity Theory.** — In 1948 Robert J. Havighurst published his often reprinted book on the concept of developmental tasks in a life-span perspective. A developmental task arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and success with later tasks, while failure leads...
to unhappiness in the individual, disapproval by the society, and difficulty with later tasks. All of these tasks have biological (physical maturation), psychological (aspiration or values), and cultural (expectations of society) bases. Havighurst has described six developmental stages or age periods in total, each with its own developmental task. Later on, the central organizing concept of age-related developmental tasks has been named "activity theory," as opposed to "disengagement theory."

Psychosocial Theory of Personality Development. — In 1950 Erik Erikson formulated a psychosocial theory of eight stages of personality development, each with its own characteristic crisis that arises out of the conflict between two opposite tendencies. The developmental task of each age period is to resolve its conflict, which requires the integration of personal needs with the demands of society. The successful resolution of each conflict leads to developmental strength in terms of a new virtue. Failure, however, to deal adequately with a task during its period of ascendancy is damaging to personality development. Erikson’s psychosocial stages of development are not tied closely to specific age periods. The early stages are defined in much more detail than the later ones: postadolescence, for example, includes about three quarters of the life span, but only the last three stages. This division reflects the increase in psychosocial variability with age: the developmental tasks of an infant are relatively universal, but the tasks in later life are dependent as much on personal experiences as on general principles.

Counterpart Theory. — In 1960 James E. Birren presented a general theory of aging as a counterpart of development. The term “counterpart” is meant to express the idea that there are latent structures of behavior (emotions, cognition, and motivations) carried forward from earlier experience that interact with present situations. Counterpart theory advocates indirect selection for positive late-life characteristics that embrace a wide range of complex biological (e.g., potential for a long life) and behavioral (e.g., intelligence) characteristics. For example, although individual differences in longevity do not appear until long after reproduction has been completed, intelligent, long-lived parents are able to provide an environment (in terms of food and protection) favorable for their young to survive. Birren's counterpart theory expanded the classical "hill" metaphor of development and aging to include questions about their relationships and how behavior comes to be organized over the adult years of life, if not over the whole life span.

Disengagement/Activity Theory. — The term "disengagement" refers to the withdrawal of people from previous roles or activities. Starting from the assumption that people turn inward from middle age and over, Cumming and Henry theorized in 1961 that this primary mental process produces: (a) a natural and normal withdrawal from social roles and activities, and (b) an increasing preoccupation with self and decreasing emotional involvement with others. Although the disengagement theory professes to explain general psychological and social processes of aging, it offers in fact a one-sided view of the aged, given the significant proportion of older people who do not lose interest in life and do not withdraw from society. Disengagement theory encouraged the development of an opposing theory of the aged, activity theory, which is based on the concept of developmental tasks. According to its main proponent, Robert J. Havighurst, activity theory states that in order to maintain a positive sense of self, elderly persons must substitute new roles for those lost in old age. As such, activity theory presents a more realistic view of older people.

Personality Theory of Age and Aging. — Starting in the 1950s, Bernice L. Neugarten (1968) and associates studied the life cycle with two theoretical emphases. The first emphasis is on the timing of transitional events in the lives and roles of individuals. Life events, such as marriage or parenthood, are normatively scheduled: that is, they are expected to occur within certain ages and in a certain sequence. As such, they lead to changes in self-concept and identity. However, unexpected events (e.g., accidents) or age-normative events that occur “off time” (e.g., early widowhood) may have negative developmental consequences, such as life crises. The second emphasis is on the study of personality type as predictor for successful aging. Aging is viewed as a process of adaptation in which personality is the key element. Eight different patterns of aging have been distinguished. The successfully aging individual not only plays an active role in adapting to the biological and social changes that occur with the passage of time, but also in creating patterns of life that will give him or her greatest ego involvement and life satisfaction.

Cognitive Theory of Personality and Aging. — In 1970 Hans Thomae described briefly a cognitive theory of the aging personality, one which is intended to integrate various biological, sociological, and interactionist perspectives while at the same time focusing upon the psychodynamics of aging. Central concepts in his theory are those of perception, perceived situation, and perceived self. Thomae postulates, for example, that perceived change rather than objective change is related to behavioral change, and that change is perceived and evaluated in terms of the aging person’s dominant concerns and expectations. Successful adaptation to age-related changes, then, relates to the maintenance and restructuring of the balance between cognitive and motivational systems; for instance, the balance between acceptance of oneself as old or rejection of this perception, which is one of the developmental tasks of aging persons.

Modern Theories

Life-span Development and Aging. — Since the beginning of the 1980s, Paul B. Baltes and his associ-
ates (Baltes, 1987; Baltes, Reese, & Lipsitt, 1980; Baltes, Smith, & Staudinger, 1992) have conducted a series of studies on psychological processes of development and aging from a life-span perspective. In line with the tradition of life-span developmental psychology, development and aging are conceived as synonyms for behavioral changes across the life span. Starting from these studies, Baltes has developed a theoretical framework of seven propositions about the nature of human aging from a psychological point of view: (1) there are major differences between normal, pathological, and optimal aging, the latter defined as aging under development-enhancing and age-friendly environmental conditions; (2) the course of aging shows much interindividual variability (heterogeneity); (3) there is much latent reserve capacity in old age; (4) there is aging loss in the range of reserve capacity or adaptivity; (5) individual and social knowledge (crystallized intelligence) enriches the mind and can compensate for age-related decline in fluid intelligence (aging losses); (6) with age, the balance between gains and losses becomes increasingly negative; and finally, (7) the self in old age remains a resilient system of coping and maintaining integrity.

Based on this framework of propositions, a psychological model of successful aging has been devised, called "selective optimization with compensation." The central focus of this model is on the management of the dynamics between gains and losses, i.e., a general process of adaptation, consisting of three interacting elements. First, there is the element of selection, which refers to an increasing restriction of one's life to fewer domains of functioning because of an age-related loss in the range of adaptive potential. The second element, optimization, reflects the view that people engage in behaviors to enrich and augment their general reserves and to maximize their chosen life courses (and associated forms of behavior) with regard to quantity and quality. The third element, compensation, results also (like selection) from restrictions in the range of adaptive potential. It becomes operative when specific behavioral capacities are lost or are reduced below a standard required for adequate functioning.

The lifelong process of selective optimization with compensation allows people to age successfully, i.e., to engage in life tasks that are important to them despite a reduction in energy. For instance, the famous pianist Rubinstein remarked in a television interview that he conquers the weaknesses of aging (adaptation) in his piano playing in the following manner: First, he reduces his repertoire and plays a smaller number of pieces (selection); second, he practices these more often (optimization); and third, he slows down his speed of playing prior to fast movements, thereby producing a contrast that enhances the impression of speed in the fast movements (compensation).

Reduced Processing Resources. — For some time, it has been generally accepted that there is an average age-related decline in cognitive performance. Researchers have advanced several explanations for this phenomenon of aging, but so far only the resource-reduction view has found wide support. In this view, aging leads to a reduction in the quantity of one or more processing resources, such as attentional capacity, working memory capacity or speed of processing. According to Timothy A. Salthouse (1985, 1988, 1991) — a typical exponent of this view since the eighties — processing resources are characterized by three properties: (1) they are limited in quantity, with a measurable aspect such as quantity or effectiveness of allocation increasing up until maturity and then decreasing across the adult years; (2) they enable or enhance cognitive processing so that performance in many cognitive tasks is improved when greater amounts of the resources are available; and (3) they are not local or specific in the sense that they are restricted to a small number of highly similar cognitive tasks, but instead are relevant to a broad range of cognitive processes.

The three properties of processing resources have generated a number of specific theories. They can be classified into three categories, based on the dominant metaphor used in theorizing on resource-reduction, i.e., metaphors of space, energy, and/or time. That is, space limitations correspond to restrictions on the size of the computational or working memory region available for processing; energy limitations correspond to attentional capacity restrictions; and time limitations refer to restrictions imposed by tradeoffs between the rate at which information can be processed and the rate at which it becomes unavailable through decay, interference or some other mechanism.

In a series of experimental studies, Salthouse and his associates have focused on the time metaphor of processing speed as an explanatory construct of cognitive aging. Their findings indicate that processing speed is a fundamental construct in human cognition, linked to explicit changes in neural structure and functioning on the one hand and to higher-order cognitive processes like reasoning and abstraction on the other. As such, Salthouse hypothesizes that processing speed may well provide the cornerstone for integrative theories of cognitive aging. It should be noted, however, that the resource-reduction view leaves unanswered the fundamental questions of why the reduction in resources occurs, and how that reduction results in lower levels of cognitive performance (for a review, see Birren & Fisher, 1995).

Personality and Aging. — Studies of personality and aging reflect the concept of personality behind them, here defined as the set of characteristic dispositions that determine emotional, interpersonal, experiential, attitudinal, and motivational styles. Generally speaking, two theoretical traditions can be distinguished in this field, trait and developmental-stage models. In both traditions, the central issue concerns the extent and nature of personality stability and change over the life span; or, to put it differently, the extent to which aging processes per se are responsible for personality change.
Theoretical models of adult personality development represent the first and oldest tradition in the personality-and-aging field. Two theories, developed by Erik Erikson (1950) and Daniel Levinson (1978), respectively, offer developmental stages beyond the period of early adulthood. Erikson’s eight stages, extending from infancy to old age, were formulated more than 45 years ago. From this perspective, it is surprising that there has been collected only limited empirical evidence for the maturity and old-age stages, i.e., generativity vs stagnation and integrity vs despair. There are no longitudinal studies, for example, that ask whether the achievement of generativity in midlife is a necessary precursor for the achievement of integrity in the later years. In Levinson’s theory of personality development, based on a series of in-depth interviews with 40 men, each man’s life structure goes through an orderly sequence of three periods: early adulthood, middle adulthood, and late adulthood. The timing and length of each period and the development that takes place within it vary from man to man depending on the biological, psychological, and social conditions of his life. Nevertheless, a close linkage of periods with age intervals is suggested. Levinson’s theory can be severely criticized on many grounds, of which the impossibility of replicating the in-depth interviews poses the most serious problem in aging research.

Trait models represent the second tradition. Overall, longitudinal studies of personality traits have consistently found structural invariance of personality over time, i.e., a marked pattern of similarity in factor structure across instruments, cohorts, types and times of measurement. According to Paul Costa and Robert McCrae (1988, 1992) — typical proponents of the trait model — the same five major factors (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) have emerged from longitudinal studies using somewhat different approaches. In conclusion of the evidence, they state that people stay much the same in their basic dispositions and show a high degree of stability of personality, particularly during the latter half of their life course. More recent extensions of the trait model pertain to personality-linked constructs like locus of control and self-concept. Generalizations about stability and change are limited by the relatively small number of studies available, the large majority of which are cross-sectional in design. However, there is a growing consensus that personality traits tend to be stable with age whereas key aspects of self such as goals, values, coping styles and control beliefs are more amenable to change (for a review, see Ruth & Coleman, 1996).

Behavioral Genetics and Aging. — Behavioral geneticists of aging are concerned with the extent to which hereditary factors influence age-related changes over the life span of the individual. Here, heritability is defined as a descriptive statistic referring to the portion of observed, phenotypic variation in the population that can be accounted for by genetic differences among individuals; the rest of the variation, the nongenetic portion, is called environmental. Thus, change in heritability over the life span indicates that the relative roles of genetic and environmental influences can change with age in terms of their effects on biological and behavioral differences among individuals in the population.

Robert Plomin and Gerald E. McClearn (1990), two leading researchers since the eighties, have convincingly shown that behavioral genetics provides a theory and methods that can go beyond simple nature-nurture comparisons to consider age differences, age changes, shared and nonshared environments, and multivariate analyses. Nevertheless, theory formation in gerontological behavioral genetics is still in its infancy. On the basis of recent analyses of mostly twin studies of aging, the third leading researcher in this field, Nancy L. Pedersen (1996), comes to the following tentative conclusion: (a) the relative importance of genetic and environmental effects on individual differences in the elderly is phenotype-specific. Heritability is low to moderate for personality traits and measures of well-being, moderate for health-related phenotypes, and greater for cognitive abilities, whereas heritability for memory is lower than for verbal and spatial abilities or perceptual speed; (b) there are age differences in heritability, the pattern of which is phenotype-dependent. For some measures, particularly health-related characteristics, the relative importance of genetic effects appears to decrease across age groups. For others, heritability is stable, increases, or reflects an inverted L-shaped function. Variance changes may reflect either an increase in environmental or genetic influences, depending on the phenotype. More often, environmental effects account for the increase in variability in health-related phenotypes; (c) across short spans of time, genetic effects are more stable than environmental effects for personality and cognition. Environmental effects of importance for individual differences late in life are changing. Nevertheless, environmental influences are at least as important for phenotypic stability across short (3-6-year) spans of time.

New Theories

Gerotranscendence. — In 1989 Lars Tornstam suggested that human aging, the very process of living into old age, encompasses a general potential towards gerotranscendence; that is, a shift in meta-perspective from a materialistic and rational vision to a more cosmic and transcendent one, normally followed by an increase in life satisfaction. On the basis of qualitative and quantitative studies, Tornstam (1992, 1994) developed the theoretical concept of gerotranscendence at three levels of age-related ontological change: (1) cosmic level — changes in the perception of time, space and objects, increase of affinity with past and coming generations, changes in the perception of life, disappearing fear of death, acceptance of the mystery dimension in life, and increase of cosmic communion with the spirit of the
mortality (probability of dying, life expectancy), morbidity (disease, disorder, disability or dysfunction) and quality of life (well-being, life satisfaction). For example, traumatic life events and a healthy life style may result in lower and higher order structures, respectively, and consequently in higher and lower probabilities of dying. It should be noted, however, that lower order bifurcations at the biological or psychological level of functioning (e.g., illness or divorce) do not always result in lower order branching behavior. Some people, for instance, are strengthened by illness, and divorce may have a positive rather than a negative effect on mental health in terms of life expectancy and quality of life.

Briefly summarized, branching theory studies the determinants and patterns of branching behavior across the life span. As yet, this innovative theory of aging is not based on empirical evidence. It remains to be seen how empirical research in progress lends support to its theoretical claims.

Next Ten Years

Owing to circumstances, a schematic overview of postwar psychological theories of aging was lacking in Emergent Theories of Aging (Birren & Bengtson, 1988). Hopefully, the foregoing supplies a need, even though this overview illustrates painfully Birren's classic dictum that the field of psychogerontology is data-rich but theory-poor. The question arises how psychogerontological theorizing will look ten years from now. Extrapolation of the section on New Theories teaches that two types of theoretical developments can be expected (see also Birren & Schroots, 1996).

The first development is taking place at the intersection of science and the humanities, and relates to interesting combinations of qualitative and quantitative research (Denzin & Lincoln, 1994). The roots of qualitative research lie in the traditional soil of idiographic methods and techniques for the study of individual lives. In its modern form, qualitative research on aging is partly a reaction to what has been omitted in quantitative research, i.e., the experiences of growing old and being old. In this respect, personal life narratives are rediscovered as a rich source of new insights into the experience of human aging. Increasingly, life stories (e.g., letters, diaries, autobiographies, interviews) are being used for a wide range of research studies on topics of psychological importance (Birren, Kenyon, Ruth, Schroots, & Svensson, 1996). This development will no doubt be stimulated by the recent publication of sophisticated software packages for the qualitative and quantitative analysis of non-numerical, unstructured, biographical data (e.g., QSR NUD*IST [Richards & Richards, 1995] and WINMAX Pro [Kuckartz, 1996]).

The second development is concerned with the theoretical expansion of what has been called gerodynamics and the derived branching theory of aging. Increasingly, the study of aging depends on longitudinal and time-series data to gain insights into the branching patterns and processes of change.
Findings suggest that there is a wide range of individual differences in the rate and manner of aging at all levels of analysis — biological, psychological, and social (Schroots, 1993). From a methodological perspective, considerable progress has been made in characterizing the time-varying distributions associated with aging (e.g., longitudinal factor analysis, latent growth curve analysis, state-space modeling). Methodological sophistication, however, is in marked contrast with the verbal form of most psychological theories of aging (Charness, 1995; Molemaar, 1993). For this reason, the primary task of the next ten years is to search for ways to integrate theoretical thought and empirical research. A promising approach consists of dynamic systems modeling — that is, on the basis of time-series data, an individual is characterized by a set of parameter values and a history of events that shape his or her particular aging (growth) trajectory. Paraphrasing Van Geert (1994, p. 277), who advocates a so-called experimental theoretical developmental psychology, mathematical model-building is necessary to peel the psychological theories of aging out of the verbal form in which they have been caught. Once the dynamic theory or model is expressed in a set of equations, it is possible to try out the model under as many conditions as possible. The Latin origin of the word “experiment” is “the act of trying,” and it is in this sense that the study of the behavior of dynamic models is a form of the experimental theoretical psychology of aging that promotes the integration of data and theory in the future.

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