Developmental Regulation in Adulthood

Age-Normative and Sociostructural Constraints as Adaptive Challenges

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Human behavior is very flexible, and ontogenetic potential adds to the scope of variability of developmental paths. Therefore, development in the life course needs to be regulated. Developmental regulation by the individual is scaffolded by external constraints. External constraints to development based on biological aging, institutional age grading, and internalized age norms provide an age-graded agenda for striving for developmental growth and avoiding developmental decline.

The life-span theory of control proposes that control of one's environment is the key to adaptive functioning throughout the life span. The theory identifies the evolutionary roots and the life-span developmental course of human striving to control the environment (primary control) and the self (secondary control). Primary control is directed at producing effects in the external world, while secondary control influences the internal world so as to optimize the motivational resources for primary control. A series of studies illustrate the rich repertoire of the human control system that exists to master developmental challenges in various age periods and developmental ecologies.

Jutta Heckhausen is senior research scientist at the Center for Lifespan Psychology, Max Planck Institute for Human Development. Since 1991, she has been an associate member of the MacArthur Foundation Research Network on Successful Mid-Life Development and, from 1995 to 1996, was a Fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University. She is coeditor, with Carol Dweck, of *Motivation and Self-Regulation across the Life Span.*

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The unique institutional context at the Max Planck Institute also facilitated important collaborations that reached beyond the institute. The involvement as an associate member of the MacArthur Foundation Research Network on Successful Midlife Development (director: Gilbert O. Brim) promoted interdisciplinary discourse and furnished a study on self- and other-related conceptions about midlife, which was jointly conducted with Gilbert O. Brim. A year as a Fellow at the Center for Advanced Study in the Behavioral Sciences, Stanford (John D. and Catherine T. MacArthur Foundation, grant No. 8900078) and its most conducive intellectual climate have greatly facilitated the revision of the book manuscript.

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Introduction

In this introductory section the conceptual rationale and structure of this book is laid out. First, it seems important to mention that the sequential structure of chapters follows a conceptual logic rather than the chronology of events. Some of the empirical work was conducted before or concurrently with the development of the life-span theory of control (J. Heckhausen & Schulz 1995) and its specification for phenomena of developmental regulation (J. Heckhausen & Schulz 1993a; Schulz & J. Heckhausen 1996). This means that the nine empirical studies presented in Chapters 2, 6, and 7 do *not* represent empirical tests of the theory in a strict sense. Instead, they serve to illustrate the usefulness and scope of the theory and provide the groundwork for future research. In my report of significant empirical results, I have made an effort to convey the gist of the findings rather than burden the reader with technical and statistical details. Readers interested in a more detailed account of specific studies are referred to the relevant journal publications (see References).

This book is about developmental regulation in adulthood. The regulation of development in the human life course is anything but a trivial matter. The human species is endowed with extensive behavioral flexibility and immense ontogenetic potential. Thus, to make life-span developmental change predictable and manageable both for the individual and the social community, regulation is required. Developmental regulation is achieved jointly by external constraints and the efforts of individuals. The external constraints are both biological (maturation, aging) and societal (age-graded institutions, age norms). This book focuses on the adaptive role external constraints play in scaffolding individual efforts to regulate their own development.

The basic proposition underlying the theory that is developed, discussed, and empirically investigated in this monograph is that individuals profit from, and are challenged by, external constraints to their developmental potential, including biological, sociostructural, and age-

normative boundary conditions. These external constraints provide a scaffold for the individual in that they greatly reduce the vast complexity of potential options in human behavior and ontogenetic change. Moreover, these life-course constraints provide the individual with an age-graded agenda for striving for developmental growth and avoiding developmental decline.

The key proposition of the life-span theory of control is that individuals endeavor to control their environment throughout their life span. In doing this they adjust their behavior to changing developmental ecologies so as to optimize their potential to exert control. In other words, prompted and assisted by the external constraints to development across the life span, the individual strives to attain optimal levels of control of his/her environment throughout life.

This striving inherently involves experiences of failure and defeat, which may endanger the individual's essential motivational resources; they therefore need to be compensated for. Such experiences of failure and loss can come about as inevitable by-products of ambitious striving, as a consequence of biological aging, or as unfortunate twists of fate (non-normative events). In any event, experiences of failure and loss may undermine the individual's self-esteem, hopefulness for future success, and thus his/her motivational resources for future action. Compensatory strategies to protect internal motivational resources are therefore indispensable instruments of developmental regulation. Such compensatory control strategies can take various forms – for instance, self-protective attributions ("It was not my fault but tough luck"), downward social comparisons ("Others are much worse off than I"), or goal disengagement ("This was not the right thing for me anyway"). These internally directed compensatory strategies often are supported by external constraints, in that sociostructural or age-normative constraints help to adjust frames of reference for self-evaluation (e.g., in social comparisons, age-normative conceptions about aging-related loss).

In the first chapter, the fundamental requirements of human behavior are discussed, as they provide the basic challenges to be managed by individuals' developmental regulation. Two fundamental requirements result from the lack of predetermination and the enormous variability of human behavior: selectivity in resource investment and failure compensation. The extensive behavioral and developmental options require the individual to select appropriate goals for action and, once a choice has been made, to focus his/her resource investment on the chosen goal. With regard to failure compensation, the individual needs to protect his/her own motivational resources against

the negative effects of experienced failures. Both requirements of human functioning become even more essential in the context of ontogenetic change across the life span.

The second chapter examines the life course as a context of an individual's actions directed at regulating his/her own development. Compared to other species, the human ontogenetic potential is immense. The human life span is extensive, comprising a long period of maturation and growth that overlaps with a long period of aging and decline. The long life span, along with the great flexibility and variability in developmental patterns, brings about a continuous dynamic of developmental gains and losses throughout the entire life span. However, this dynamic is not unstructured and unpredictable, although it is open to individual variation and intraindividual plasticity. Rather, the life course is composed of an age-graded structure of constraints provided by biological maturation and aging, social structure, and age-normative conceptions about life transitions and developmental change. These age-graded constraints not only restrict the scope of individual life courses but also scaffold developmental regulation across the life span. Age-normative conceptions about life-course transitions and developmental change are widely shared in a given society because they allow assessment and evaluation of the self and of other people, and thereby guide action directed at development.

A life-span theory of control is introduced in the third chapter. This theory distinguishes functionally different types of control-related behavior, primary and secondary control striving (J. Heckhausen & Schulz 1995). Primary control striving refers to behaviors directed at the external environment and involves attempts to change the world to fit the needs and desires of the individual. Secondary control striving is targeted at internal processes and serves to minimize losses in, maintain, and expand existing levels of primary control. The life-span theory of control proposes a functional primacy of primary control as a universal characteristic of human behavior. Both primary and secondary control striving ultimately serve the purpose of maximizing the individual's control over the environment. Across the life span, the potential for primary control follows an inverted U-shaped curve, with rapid increases in childhood and adolescence, a plateau in midlife, and a steady decline in old age. Accordingly, the individual needs to adjust his/her control behavior to optimize primary control across changes in control potential. This involves the need to compensate for the negative effects of aging-related losses on motivational and emotional resources. Therefore, we expect an increased employment of secondary control strategies in the second half of the life span, when primary control

potential gradually wanes. Such compensatory investments in secondary control can be expected whenever primary control potential is irretrievably lost, be it due to aging-related decline, non-normative events (e.g., accidents, illnesses), or uncontrollable socioeconomic crises. The effectiveness of primary and secondary control strategies to manage challenges of control is most likely high but probably also has its limits, when in situations of excessive and irretrievable loss of control the control system collapses and the individual is exposed to emotional despair.

Chapter 4 integrates the first three chapters to construct a life-span model of developmental regulation. The model specifies how different kinds of primary and secondary control strategies are used to manage the two fundamental requirements of human behavior: selection and compensation. Four control strategies are specified: selective primary control, selective secondary control, compensatory primary control, and compensatory secondary control. These four control strategies need to be employed in a manner that reflects the specific requirements of the respective developmental ecology. For instance, investments in futile goals as well as premature disengagements from primary control must be avoided. Therefore, a higher-order regulatory process is required to orchestrate the various control strategies. Based on a discussion of criteria of adaptiveness, the functional requirements for such a higher-order process of optimization are identified. In this context, the adaptive role of external constraints to development becomes salient again, as they reduce the regulatory load on the individual's developmental optimization.

Chapter 5 discusses developmental goals as basic action units in developmental regulation. Developmental goals provide an organizing framework with an intermediate time range for the individual to structure his/her developmental regulation. The age-graded structure of opportunities and constraints across the life span provides a timetable for the pursuit of developmental goals and also sets final deadlines for the attainment of developmental goals (e.g., biological clock for maternity). When integrating modern action theory with the life-span theory of control and the concept of age-graded constraints, fruitful research paradigms – with regard to developmental deadlines, for instance – can be derived. Modern action theory ("Rubicon model of action phases," H. Heckhausen 1991) differentiates between predecisional (motivational) and postdecisional (volitional) processing, and thus allows for highly specific predictions about modes of processing in different action phases. In an analogous fashion, one can differentiate between predeadline and postdeadline processing and predict a radical shift

from predeadline selective primary and secondary control to compensatory secondary control after passing the deadline without goal attainment.

Chapter 6 addresses developmental regulation in different life-course ecologies. Two developmental challenges with partly contrasting functional characteristics are juxtaposed both conceptually and empirically: aging-related decline and radical sociohistorical transformation in East Germany. Two empirical studies show how individuals adjusted their control strategies to different developmental ecologies. Primary control striving is typically directed at goals that fit the opportunities and constraints encountered at a given age period. Compensatory secondary control becomes more important at higher ages. The investigation of age/birth cohort differences in East German adults uncovered different patterns of control strategies that reflect the primary control potential available to the different cohorts. The study of East German cohorts also revealed limits of the control system, when, as is the case for one middle-aged cohort, primary control potential was severely constrained and at the same time disengagement from the respective primary control goals was impossible because of life-span timing (premature disengagement from occupational goals). Thus, the findings of the two studies reported in this chapter illustrate the substantial power and flexibility of individuals' developmental regulation, but they also indicate its limits under conditions of severe restrictions of control.

Chapter 7 focuses on social comparisons as prototypical strategies in developmental regulation. The individual can use upward, lateral, and downward social comparisons as models in striving for developmental goals, assessing his/her own developmental status and compensating for experienced developmental losses respectively. Two empirical studies show the adaptive function of age-normative conceptions as constraining frames of reference for social comparisons. In the first study, age-normative conceptions about developmental change in the generalized other ("most other people") appear to reflect the need of older individuals to compare favorably to age peers and thereby compensate for experienced losses. In the second study, social downgrading with regard to perceptions about problems in various life domains is identified in all age groups, but it is particularly pronounced as a response to personally experienced problems in older adults. A third study demonstrates that social comparisons with specific real or imagined persons are used commonly and regularly in everyday life. Social comparisons reflect the availability of social comparison targets and are adapted to the specific needs for control modeling or control-loss compensation.

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