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Editors-in-Chief

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CHAPTER 10

Action Perspectives on Human Development

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THE RISE OF ACTION PERSPECTIVES IN DEVELOPMENTAL PSYCHOLOGY

Developmental psychology has elucidated the conditions and constraints of human ontogeny from a diversity of theoretical perspectives. However, it has not paid a great deal of attention to the individual's contribution to the creation of his or her own developmental history throughout the life span, although action perspectives are gaining momentum in developmental research and theorizing. Through action, and through experiencing

the consequences of our actions, we construe representations of ourselves and of our material, social, and symbolic environments, and these representations guide and motivate activities, which shape and influence our behavior and personal development.

Action thus forms development, and development forms action: The individual is both the active producer and the product of his or her ontogeny. The central tenet of an action-theoretical perspective thus holds that human ontogeny, including adulthood and later life, cannot be understood adequately without paying heed to the self-reflective and self-regulative loops that link developmental changes to the ways in which individuals, by action and mentation, construe their personal development. This should not imply that individuals are the sole or omnipotent producer of their biography. Just like any

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other type of activity, activities related to personal development are subject to cultural, sociohistorical, and physical constraints that lie partly or even completely outside one's span of control but decisively structure the range of behavioral and developmental options. Action-theoretical perspectives on development must therefore consider not only the activities through which individuals try to control their development over the life course, but also the nonpersonal or subpersonal forces that canalize such activities.

The idea that human individuals play an active part in shaping their development and aging has never been doubted seriously. Yet, at least until recently, no systematic effort has been made to frame this idea in an elaborated theoretical statement. Though actions have been recognized as formative elements of every individual life history, they have hardly figured as elements in developmental theories (Dannefer, 1989). Presumably, one reason for this neglect lies in the traditional preoccupation of developmental research with the formative periods from early childhood to adolescence. Activities of self-regulation and intentional self-development are related to personal goals, plans, and identity projects; such orientations typically become more differentiated and concrete in the transition to adulthood when developmental tasks of independence and autonomy gain importance. It is certainly no mere coincidence that early proponents of action-theoretical perspectives were simultaneously advocates of a life-span perspective in development; Charlotte Bühler (1933) is a prominent example. The neglect of action-theoretical perspectives may also reflect deeper epistemological and methodological reservations. The applicability of causal explanatory schemes to actions is a long-standing and still strongly contested controversy in philosophy of science, and a final consensus is not in sight (e.g., Brand, 1984; Lenk, 1978; Thalberg, 1977). Moreover, an action perspective that conceives of development as a process that is shaped and canalized by collective and personal action appears to be barely compatible with the search for deterministic laws and universal principles of development. These questions are discussed at more length later. It should be noted at this juncture, however, that notions of universality, ordered change, and determinism in human development have recently come under attack from various lines (e.g., Bruner, 1990a; Gergen, 1980). In the same measure, interest in action-theoretical perspectives has grown during the past decades (e.g., Brandtstädter, 1984a, 1984b, 2001; Brandtstädter &

Lerner, 1999; Bruner, 1990b; Chapman, 1984; Crockett, 2002; Dannefer, 1984; Eckensberger & Meacham, 1984; J. Heckhausen, 1999; J. Heckhausen & Dweck, 1998; Lerner, 2002; Lerner & Busch-Rossnagel, 1981; Silbereisen, Eyferth, & Rudinger, 1987; Valsiner, 1989).

The actional stance seems to offer a vantage point for integrating developmental and cultural perspectives. In fact, the concepts of development, culture, and action are intrinsically related as illustrated by Figure 10.1. Development, as the result of personal and collective activity, is essentially a cultural product—this is the core of the argument advanced in the present chapter. Conversely, actions, and self-regulatory activities are dependent on developmental change; the goals, values, and beliefs that motivate and direct such activities change under the joint influence of ontogenetic and cultural-historical factors. Similar conceptual and functional links also relate the domains of action and culture. Cultures are the collective result of individual actions and decisions, even though the long-term and cumulative dynamics of cultural evolution and change generally are beyond the grasp of any single individual (Hayek, 1979). On the other hand, cultures form action-spaces (Boesch, 1980, 1991) that shape possibilities, outcomes, and meanings of actions, and cultural institutions constitute certain types of action, as I explain later. The mentioned relationships also imply a functional interdependence between culture and human ontogeny, which is mediated through constructive and selective action: Individuals shape their developmental ecology and thus regulate their own development; they construct a personal culture (Heidmets, 1985) that becomes a constitutive element of the larger cultural

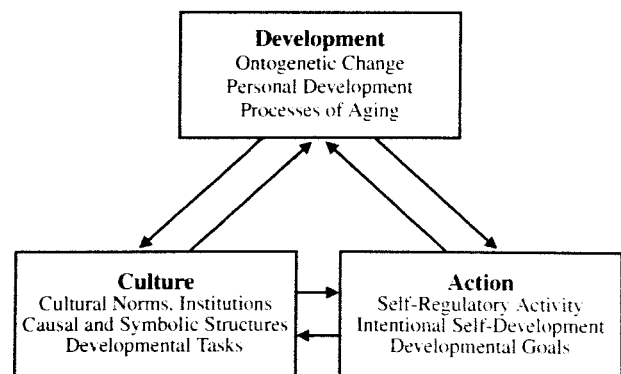


Figure 10.1 Development, culture, and action as interrelated spheres.

macrosystem. The cultural context, in turn, forms an arrangement of constraints and “affordances”—to use Gibson’s (1977) terms—that canalizes and institutionalizes developmental pathways. This canalization is an essential requirement for the maintenance and self-perpetuation of the cultural system; conversely, human ontogeny in its physical, social, and psychological aspects is fundamentally dependent on the regulative and protective influences of the cultural context.

In the following sections, I focus on the multiple ways in which personal and collective actions, embedded in cultural and historical contexts, form, and are formed by, development over the life span.

Cultural Regulation of Development

The regulation and control of ontogenetic and age-graded change is integral to the processes by which cultures stabilize, reproduce, and reform themselves (e.g., Bourdieu & Passeron, 1977). Every cultural system has at its disposal a broad armamentarium of techniques, institutions, or rules to regulate development, and without such cultural proxies and scaffolds, human development would be virtually impossible. Neonates and young children vitally depend on persons who care for their physical and psychological development and who organize environmental contingencies in ways that enhance growth and fend off harmful influences. The regulation and institutionalization of development becomes increasingly salient in processes of education and socialization that define an arrangement of developmental tasks, affordances, and options across the life cycle. Like development itself, the canalization and control of development is a lifelong process. This process serves to transfer cultural values and problem solutions, and to inculcate attitudes, dispositions, and skills that are, or are considered to be, necessary for existence and coexistence in a cultural-historical context. The ontogenetic necessity of culture, however, is rooted more deeply in the biological constitution and the phylogenetic evolution of *Homo sapiens* (e.g., Tobach, 1981).

Among the evolutionary and biological predicaments that make possible, and at the same time enforce, the cultural contextualization of ontogeny is the great plasticity and openness of development. These features are already implied in the notion of culture, insofar as it connotes the cultivation and perfection of some object or process that is amenable to modification, particularly of life itself. As early as 1777, Johann Nicolas Tetens

considered the “perfectibility” of human development as being premised on two basic conditions: the capability for reflexion and self-referential action (*innere Selbsttätigkeit*) and the modifiability of development:

Among all fellow animate creatures, the human being is by far the most perfectible, the one that, at birth, has the largest potential for development . . . ; the human being is the most flexible and versatile of all creatures, the one that can be modified with the greatest diversity, in accordance with the wide sphere of activity for which it is destined. (Tetens, 1777, p. 40; trans. J. B.)

The functional relationship between culture and ontogeny is captured even more cogently in the argument that cultural institutions—and the developmental and action potentials necessary for creating culture—compensate for the lack of specialized adaptive automatisms in the human organism. This idea can be traced back to the writings of Herder (1772); it has been taken up and elaborated in the anthropological system of Gehlen (1955/1988). As Gehlen pointedly puts it, the human individual is a “deficient being,” who is characterized by a lack of physical specialization and of ties to a specific environment, and for whom culture has thus become a “second nature”:

Man is an acting being. In a narrower sense, he is also “undetermined”—he presents a challenge to himself. Actions are the expression of man’s need to develop an attitude toward the outside world. To the extent that he presents a problem to himself, he must also develop an attitude toward himself and make something of himself . . . self-discipline, training, self-correction in order to achieve a certain state of being and maintain it are necessary to the survival of an “undetermined” being. (Gehlen, 1955/1988, pp. 24–25)

According to this stance, culture secures survival and development by providing an artificial arrangement of “outside-the-skin,” compensatory means of adaptation (see also Geertz, 1973). The notion of humans as deficient beings, however, may be misleading as far as it equates lack of specialization with adaptive deficit. In fact, the lack of adaptive automatisms and instinctual regulations is more than offset by the remarkable ability of human agents to cope with adversity through creative and constructive action. To respond flexibly to the continuous and fluctuating adaptive challenges posed by a nonstationary environment, behavior must be organized

with sufficient latitude for variation and experience-based modification. The excessive growth of the cortical and neocortical areas of the central nervous system lends the requisite openness and variability to the cognitive and motivational control of behavior. Of particular mention here are capacities of abstraction, categorization, and representation, which enhance extraction of order and regularity from the flow of events and allow for a mental simulation of actions and effects. Human adaptive competencies are further boosted by language and communication. Language enables the transmission of knowledge, and provides the symbolic means for the social control of behavior, as well as for self-control and self-reinforcement (e.g., Luria, 1979; Zivin, 1979). The markedly prolonged period of physiological maturation and growth, the correspondingly long period of protection and care, and the emergence of family and group structures form a complex of mutually supportive evolutionary factors that make for both the vulnerability and the potential of human development (cf. Bruner, 1972; Gould, 1977; Lerner, 1984).

Culture and development thus form a functional synthesis that can be assessed adequately only when the mediating role of actions and self-related activities is considered. Cultures are aggregated systems of problem-solutions that have been developed during the process of cultural evolution; they offer solutions to adaptive problems that arise from the biological constitution of the human species, as well as to problems related to the maintenance and further evolution of the cultural system itself, and they also offer existential orientations that guide human actors in their search for meaning and purpose. Most important, cultures augment action resources and developmental options through compensatory strategies and "prosthetic devices" (Bruner, 1990b), thus enabling the developing subject to transcend constitutional limitations. These compensatory arrangements also comprise "psychological tools" (Vygotsky, 1960/1979), which are embodied in cultural conventions, institutions, and knowledge systems:

Psychological tools are artificial formations. By their nature they are social, not organic or individual. They are directed toward the mastery or control of behavioral processes. . . . By being included in the process of behavior, the psychological tool alters the entire flow and structure of mental functions . . . just as a technical tool alters the process of a natural adaptation. (Vygotsky, 1960/1979, p. 137)

The commonplace formula which defines development as the joint or interactive product of genetic and environmental influences gives short shrift to the dynamic relationships that mediate development, action, and culture. Environment is "nature organized by organisms" (Lewontin, 1982, p. 160); likewise, developmental ecologies are "intentional worlds" (Shweder, 1990) that constrain and enable intentional self-development.

The semantic and symbolic content that essentially characterizes actions and cultural action spaces cannot be reduced to physical or physiological processes. Although the meaning of actions may be related to, and can partly be extracted from, the physical features of actions, intentional and physical aspects of action are not related in ways that would allow for reductive explanations (Dennett, 1987). This does not mean that an actional stance would necessitate discarding the "natural" bases and constraints of action. Natural and cultural aspects influence and pervade each other in the developmental process (Boesch, 1980; Brandtstädter, 1984a, 1984b; Dannefer & Perlmutter, 1990; Gibson, 1977), and I have already pointed to the interdependence between the cultural and phylogenetic bases of development. In developmental genetics, increasing recognition is being given to the fact that the genetic regulation of development is to a considerable extent mediated by behavioral systems (e.g., Gottlieb, 1992). Individuals choose and create their environments according to preferences and competencies that, as phenotypic dispositions, are linked to genotypic factors; such dispositions also influence the ways in which individuals respond to environmental influences to which they have exposed themselves selectively (e.g., the concept of "active genotype-environment covariation"; Scarr & McCartney, 1983; see also Plomin, 1986). Through their actions, individuals form, and continually transform, their phenotype and extend it into their personal culture and developmental history.

Personal Regulation of Developmental Processes

The cultural regulation of human ontogeny is closely intertwined with, and in part mediated by, processes of intentional self-development. The active subject is a constitutive and productive element of the cultural system, which is continually realized, maintained, and reformed through personal action. At the same time, individual action in its physical and symbolic aspects is inherently bound to the action space of a culture; it is

through transaction with the cultural context that individuals construe prospects of possible and desired developmental courses and acquire the knowledge and means to implement these prospects.

Culture, therefore, is not a system of forces that is intrinsically opposed to self-development, as alienation literature since Rousseau has maintained; rather, cultural contexts both constrain and enable self-regulatory processes. Cultural demands and affordances may be more or less congruent to and often conflict with the individual's developmental goals and potentials. The relational pattern of personal and contextual constraints of development is continually redefined and transformed in the course of cultural evolution and individual ontogeny. These changes, which occur in historical as well as in personal-biographical time, permanently induce conflicts and discrepancies in the transaction between the developing individual and the cultural ecology: Developmental tasks, role expectancies, or performance standards may overtax the individual's developmental resources; social opportunity structures may impede realization of personal goals and identity projects, and so on. As dialectic approaches have emphasized (e.g., Kesselring, 1981; Riegel, 1976), such discrepancies and conflicts are driving forces in cultural evolution as well as in the individual's development over the life span because they promote readjustments and new syntheses within the system in which they originate.

Individuals can respond to these adaptive problems in a variety of ways. They can adjust personal goals and projects to situational constraints and resources, or, conversely, attempt to modify external circumstances to suit personal interests and capabilities; they may try to evade or neutralize normative demands, or accommodate to them. Such adaptive activities generally aim at reducing discrepancies between factual or perceived courses of personal development and the person's normative conception of self and future development; they also serve to stabilize and maintain personal identity, thus displaying the functional characteristics of autopoietic processes through which living systems maintain and perpetuate themselves (e.g., Brandtstädter & Greve, 1994; for an explication of the concept of *autopoiesis*, see Maturana & Varela, 1980; Zéleny, 1981).

These considerations support and illustrate the argument that processes of intentional self-development are integral to human ontogeny over the life span. However, one should be aware that these processes, like any human activity, involve elements beyond personal con-

trol. We organize our life and activities within a socio-cultural matrix that structures and constrains personal action and development; our possibilities to alter these contextual constraints are limited. We even have limited influence on the "inner" context of our actions; in particular, we cannot deliberately change our own motives and beliefs (e.g., Brandtstädter, 2000; Gilbert, 1993). Action-theoretical stances here reach limits that have to be carefully fathomed. Finally, one should not discount the influence of accidental, uncontrollable events and "chance encounters" (Bandura, 1982a) in any individual life history, although, even here, some degree of control may be involved, as individuals may deliberately expose themselves to or actively seek risks or chances.

From the point of view of the acting subject, development over the life span appears as a blend of expected and unexpected, controlled and uncontrollable elements, or as a story of gain and loss, of success and failure (Baltes, 1987; Brandtstädter, 1984a). Efforts to keep this balance favorable are essential aspects of human activity. Individuals differ in the degree to which they feel able to alter the course of personal development, however, and such differences profoundly affect the emotional attitude toward self and personal future; feeling incapable of achieving desired developmental goals, or of becoming the person one wants to be, is largely coterminous with depression and loss of meaning in life.

Historical Notes

Action approaches to human development have a long history that can be traced back to antiquity. The idea that human beings make themselves is already expressed clearly in the philosophical work of Aristotle, who conceived of action as the process by which the person transforms self and life in accordance with ideals of rationality (Müller, 1982). In the Renaissance, self-formation and self-perfection flowered and even became a dominant form of life. The Renaissance ideal of *uomo universale*, of the individual who strives for self-perfection in all areas of development, resounds in the works of Shaftesbury, Herder, Schiller, and Goethe (Spranger, 1914); Tetens' notion concerning the "perfectibility" of human development, which was mentioned earlier, is still clearly influenced by this ideal. Giambattista Vico (1725/1948) even based his philosophy of history and culture on the argument that we can truly understand only what we ourselves have created (see also Bunge, 1979).

In early German psychology—especially in the philosophically oriented branch of “understanding” psychology (Dilthey, 1924; Spranger, 1914)—human development had always been conceived as a lifelong process of active self-development (Höhn, 1958). In Charlotte Bühler’s conception of development during the life course (Bühler, 1933; Bühler & Marschak, 1969), the theoretical focus was on success and failure in concretizing and realizing life goals, the outlines of which emerge already in childhood and adolescence. However, early concepts of intentional self development were strongly loaded with connotations of freedom and spontaneity, and generally implied an anticausalist methodological stance. Such positions did not find fertile soil in a discipline that identified itself increasingly with the methodological ideals of the natural sciences (e.g., Cairns, 1983; Reinert, 1976).

In particular, it was the rise of behaviorism with its explicit antimentalist stance that impeded the broader reception and further development of action perspectives. This remains true despite the fact that it was the behaviorist program that promulgated an almost unlimited manipulability and modifiability of developmental processes (Bijou & Baer, 1961; B. F. Skinner, 1953; J. B. Watson, 1930). It was in the behaviorist framework, too, that the themes of self-control and self-regulation were first addressed systematically. From the behaviorist point of view, self-regulation boils down to a process by which individuals control their own behavior through manipulating stimuli and reinforcement contingencies: “When a man controls himself . . . , he is behaving. He controls himself precisely as he would control the behavior of anyone else—through the manipulation of variables of which behavior is a function” (B. F. Skinner, 1953, p. 228). A theoretical stance that rejects mentalistic terms such as personal goals, beliefs, or intentions as explanatory concepts, however, can hardly grasp those very issues that are of central interest to an action perspective; namely, the connection of personal development with the system of meanings, institutions, and norms that constitutes cultural contexts as well as personal activities in cultural settings.

In psychology, interest in these topics has been renewed by the so-called cognitive revolution of the 1950s and 1960s. The philosophical and epistemological critique of methodological behaviorism (e.g., Putnam, 1975) has further contributed to dispelling the skepticism that has surrounded the action concept. Today, action-theoretical approaches figure prominently in many

domains of research. Moreover, the traditional dichotomies of explanation versus understanding, freedom versus determinism, or causalism versus intentionalism have lost much of their adversarial fervor; philosophical positions that plea for compatibility or, at least, peaceful coexistence between these stances have been advanced (e.g., Davidson, 1980; Dennett, 1987). The resurgence of cultural perspectives in psychology, and an increased theoretical concern with the cultural bases of behavior and development—Bruner even presages an impending “contextual revolution”—finds a natural ally in action-theoretical approaches:

A cultural psychology, almost by definition, will not be preoccupied with “behavior” but with “action,” its intentionally based counterpart, and more specifically, with *situated action*—action as situated in a cultural setting, and in the mutually interacting states of the participants. (Bruner, 1990a, p. 15)

THE CONCEPT OF ACTION

Unfortunately, or not, the attempt to explicate the concept of action cannot proceed from a single or unitary theoretical frame of reference. Action-theoretical formulations have been advanced in such diverse fields as psychology, sociology, anthropology, biology, philosophy, or economics; and even in these disciplines, concepts of action come in different shapes.

In the narrower domain of psychology, we can roughly distinguish between structural, motivational, control-system, and social-constructivist action theories.

Structural Theories of Action

This family of theories centers on the structural analysis of actions. There are different formats of structural analysis and it is not always possible to separate them clearly. One line of research has focused particularly on the formal structure of actions and of the cognitive operations underlying action; this approach is represented by the work of Piaget (e.g., 1970, 1976). Other approaches have centered more strongly on the componential analysis of specific activities and skills (e.g., Fischer, 1980; Mascolo, Fischer, & Neimeyer, 1999). Yet another variant of the structural approach is instantiated in the analysis of basic syntactic features that constitute

different types of actions, such as their actors, instruments, goals, objects, and further contextual elements (e.g., Aebli, 1980; Bruner, 1982; Fillmore, 1968; Schank & Abelson, 1977).

Motivational Theories of Action

Influential action-theoretical formulations have been advanced in motivational psychology, perhaps the most prominent being the expectancy-value models of action originating from the work of Tolman and Lewin (for overviews, see Feather, 1982; Krampen, 1987a). According to the basic explanatory scheme of this approach, actions are explained and predicted as a joint function of (a) personal expectations related to action-outcome contingencies, and (b) the subjective evaluation of expected consequences with regard to personal goals and standards. Different variants and extensions of this basic model have been proposed (e.g., Ajzen, 1988; Atkinson, 1970; Fishbein & Ajzen, 1975; H. Heckhausen, 1989; Vroom, 1964).

Control-System Theories of Action

In the tradition of G. A. Miller, Galanter, and Pribram (1960), this type of action-theoretical approach draws on cybernetic and systems-theoretical concepts. The basic analytic tool is the feedback cycle: Processes related to the transformation of goals into behavior and to the regulation of goal-related activity are described as hierarchically organized levels of discrepancy-reducing feedback loops (e.g., Carver & Scheier, 1981, 1998; Ford, 1987; Powers, 1973).

Social-Constructivist Concepts of Action: Activity Theory

A largely autochthonous strand of action research has emerged in the former USSR from the work of Vygotsky and his pupils (Leont'ev, 1978; Luria, 1979; Vygotsky, 1934/1986). Based on the tenets of dialectical materialism, this approach has a strong sociohistorical orientation. Goal-directed activity is seen as the mediator between external reality and individual consciousness; cognitive structures develop from the individual's interaction with cultural symbols as well as with material objects and tools, which, as objectified ideas and problem-solutions, organize thought and

action (see also Cole, 1978; van der Veer & Valsiner, 1991; Wertsch, 1981).

This classification cannot claim to be exhaustive; there are no sharp boundaries between the theoretical clusters and there is a broader spectrum of research programs that, to various extents, borrow or integrate elements from the theoretical families described earlier. Such programs focus on, for example, social-cognitive aspects of action (e.g., Bandura, 1986, 1997), on cultural-symbolic perspectives (e.g., Boesch, 1980, 1991; Bruner, 1990a, 1990b; Valsiner, 1998), or on processes related to the formation and implementation of actions and action plans (e.g., Frese & Sabini, 1985; Gollwitzer & Bargh, 1996; Kuhl & Beckmann, 1985; von Cranach, 1982). Influential contributions to action theory have also been advanced in neighboring disciplines, particularly in sociology (e.g., Bourdieu, 1977; Parsons & Shils, 1962; Schütz, 1962) and in anthropology (e.g., Geertz, 1973; Gehlen, 1955/1988; Tyler, 1969). Last, analytical philosophy of action has contributed significantly to elucidating the action concept (for overviews, see, Brand, 1984; Care & Landesman, 1968; Moya, 1990). Some of the earlier-mentioned theoretical positions have been cast from the outset in a developmental framework or are framed as developmental theories; this is particularly true for structuralist and social-constructivist approaches. These approaches contribute important elements to a more comprehensive theoretical perspective of intentional self-development, which is outlined in later sections.

These introductory comments should make it clear that the different theories and research programs centering on the concept of action do not form a coherent system. Given the inherently cross-disciplinary nature of the action concept, the vision of a grand unifying action theory seems utopian. This compromises any effort to formulate consensual definitions. To elucidate the concept of action, I concentrate in the following on some general and rather uncontroversial elements that seem particularly relevant for conceptualizing the interdependencies between action and development.

Explicating Action: Conceptual Constituents

Is it possible to identify a set of essential and discriminative features that is common to all instances of actions, and that separates actions from other forms of behavior that would not count as actions? When speaking of acts, actions, or action-like activities, we obvi-

ously do not refer indiscriminately to any behavior but to behaviors that can and should be explained and predicted in a specific way. We seem to imply that the observed behavior has been chosen by the individual because of personal beliefs and values, and that it can be interpreted as serving some personal goal or as expressing personal attitudes and values. Accordingly, when accounting for actions, we try to show how they are linked with the actor's values, beliefs, attitudes, or competencies. When interpreting an observed behavior as an action or particular type of act, we suppose that the actor "could have done otherwise" (Chisholm, 1966), and that he or she was sufficiently free to refrain from the behavior (even nonbehaving sometimes can be considered as an action). Conversely, behavioral events that are beyond personal control seem not to qualify as actions; physiological reflexes, emotional reactions, and all forms of inadvertent or erroneous behavior (slips of attention, lapses of memory, and so on) are typical examples. These differentiations are also fundamental to moral and ethical evaluations; according to the conceptual rules inherent to moral discourse, standards of justice, rationality, or responsibility apply only to intentional and personally controlled behavior, not to nonintentional behavioral events (Austin, 1956).

There is no one-to-one correspondence between behaviors and actions; a given behavior, taken as an observable physical event, is often only one of several components that constitute an action (Thalberg, 1977). For example, an action of greeting can be instantiated through a multitude of physically different behaviors (i.e., through waving the hand, nodding the head, uttering a verbal formula); in turn, a given behavior such as waving the hand may instantiate such different actions as greeting, giving a signal, or chasing away a mosquito depending on the "inner" context (the individual's intentions, beliefs, and so on), situational specifics, as well as on the system of symbols, social norms, and conventions according to which certain behaviors in certain situations instantiate a specific action. To categorize a given behavior as a specific type of action thus generally involves an interpretative process that transcends the immediate observable givens; in this sense, actions may be conceived of as interpretative constructs (Lenk, 1981). Occasionally, a distinction is made between actions and acts in which the term *acts* is taken to denote the generic category or type of actions to which a given action belongs (e.g., Harré & Secord, 1972). Again, the same generic act can be instantiated through different

actions, and the same action can instantiate different acts. To count as instantiations of some act or type of action, different actions must bear some structural semblance to one another: They have to possess those features that, according to conventions and conceptual rules, are constitutive for the respective act type. Parenthetically, this point is fundamental to the construction of developmental continuity and coherence, which often involves establishing structural or "homotypic" equivalence (Kagan, 1971) between phenomenally different behaviors at different ontogenetic levels.

In a first approximation, we may thus consider criteria such as intentionality, personal control, reflexivity, and (perceived) freedom of choice as defining actions (e.g., Groeben, 1986; T. Mischel, 1969). However, none of these criteria is without problems. Considering the criterion of intentionality, intended action outcomes often imply undesired or harmful side effects that are simply tolerated; people may be held morally and legally responsible for such condoned effects even when they did not focally intend them. There are also cases of reduced intentionality, for example, when someone doodles aimlessly on paper while making a phone call. The criterion of personal control has its complications as well. There are many nonintentional behaviors, such as physiological reflexes, that we can control in a technical sense; for example, we can deliberately induce sweating by exposing ourselves to higher temperatures. It does not follow that such physiological reflexes are actions (although the instrumental activities by which we brought about the response certainly are). It is also true that actions in any phase involve component processes that are not under personal control; we would have no control over our own behavior and development without the helping hand of mediating mechanisms that lie beyond our control. As already intimated, we even do not have full command over the internal context of our actions; thus, we are not at liberty to intend, wish, or believe whatever we want to believe, wish, or intend (e.g., Kunda, 1990; Lanz, 1987).

Within the confines of this chapter, I cannot dwell on the conceptual intricacies surrounding the notion of action (for a more detailed discussion, see, Greve, 1994; Moya, 1990). For the present purpose, the earlier considerations may be condensed in a working definition: *Actions may be conceptualized as behaviors that (a) can be predicted and explained with reference to intentional states (goals, values, beliefs, volitions); (b) are at least partly under personal control, and have been selected*

from alternative behavioral options; (c) are constituted and constrained by social rules and conventions or by the subject's representation of these contextual constraints; and (d) aim to transform situations in accordance with personal representations of desired future states.

This definition again underscores the intimate relation between action and personal development. Self-referential actions that are intentionally related to personal development, however, have additional properties that are delineated in later sections. Before addressing these issues, I attempt to give a more detailed account of how personal and social factors intertwine in the regulation of action.

Constraints of Action: Constitutive and Regulative Rules

Human action is related to rules in a twofold sense. In a first and familiar sense, actions and personal action spaces are *constrained* by rules; in a second and more fundamental sense, actions—or at least some actions—are *constituted* by rules. Following Searle (1969), one can differentiate between regulative and constitutive rules (the distinction can be traced back to Kant; see also Brandstädter, 1984b; D'Andrade, 1984; M. J. Smith, 1982; Toulmin, 1974).

Regulative Rules

Personal action is regulated by a variety of cultural prescriptions and restrictions, and these can be more or less formal and explicit (laws, norms, customs, social expectations, etc.). Such rules delimit situationally defined zones and margins of action. The limits imposed by regulative rules, however, are not rigid; cultural laws, in contrast to natural laws, can be violated. Regulative rules, however, have "normative force" (Toulmin, 1969); they are linked to subsidiary social forces such as sanctions or patterns of reinforcement that tend to increase the frequency and probability of rule-conforming behavior. Regulative rules, whether they are externally imposed or "internalized" and integrated into the processes of self-regulation, generate regularities in patterns of action and development. For example, the developmental tasks or normative timetables which determine the proper scheduling of biographical events in social contexts (e.g., Chudacoff, 1989; Neugarten & Hagestad, 1976) define systems of regulative rules that institutionalize and synchronize individual life courses and thus impose order and regularity on development.

Constitutive Rules

When considering acts or action episodes such as marrying, formulating an excuse, promising something, or taking a penalty kick, it is evident that such actions are not simply regulated, but, in a stronger sense, are *constituted* by rules. Just as one can play chess only within the framework of chess rules, one can marry someone, give a promise, and so forth. Only according to specific semantic rules and social conventions that define, at least in outline, in which ways and under which contextual circumstances an action has to be performed to count as a valid instantiation of that particular act. Describing or understanding an action as an instance of a generic act presupposes familiarity with the corresponding constitutive rules (Winch, 1958). The rules that constitute particular acts are represented individually in scriptlike cognitive structures or schemas (Schank & Abelson, 1977). These scripts or schemas enable us to organize our activities according to socially shared meanings, and to extrapolate, anticipate, and coordinate courses of action in social settings.

Through constitutive rules, certain types of action are linked inseparably to cultural institutions. As D'Andrade (1984) has pointed out, changes in institutional contexts alter the range of possible actions, eventually creating radically new types of action:

One consequence of constitutive rule systems is the enormous expansion of the behavioral repertoire of humans compared with the behavioral repertoire of other animals. For example, without the system of constitutive rules called football, the behaviors of scoring, blocking, passing, and so on would not exist. (p. 94)

Regulative and constitutive rules provide important vantage points for reconstructing developmental regularity and invariance from an action-theoretical point of view. The constitutive rule concept in particular offers a fresh perspective on the traditional theme of developmental universals; as I show later, the formal or conceptual rules that determine the structure of particular skills and competencies also impose order on the ontogenetic construction of the corresponding competencies.

The Polyvalence of Actions

The concept of polyvalence is related to the valence concept in Lewinian theory; it refers to the fact that one and the same action can serve different purposes and in-

tentions and correspondingly can have, and usually has, multiple meanings at both personal and public levels. For example, the person who quits smoking can do so for health reasons, to avoid social conflicts, for financial reasons, to demonstrate willpower, or for some combination of such reasons. Actions or action tendencies mostly result from a mixture of instrumental, symbolic, expressive, and aesthetic valences, which may sometimes conflict:

Polyvalent means three things: first, actions, aiming at composite goals, are "over-determined"; second, they connote different areas of experience; and, third, they draw their justifications not simply from the concrete specific results they (tend to) achieve, but also from the subjective experiences implied, from personal fantasms, cultural rules and values. (Boesch, 1991, p. 363)

From the polyvalent (or polysemous) nature of actions, it follows that one and the same basic action can simultaneously instantiate a multitude of different acts. When Mr. Doe mows the lawn, he is cutting the grass, making noise, and exercising his muscles; by doing this, he is—depending on the given causal, social, and symbolic context—perhaps pleasing his neighbors, evading conflicts with his wife, showing a sense of responsibility, and so forth (Rommetveit, 1980). Some of these effects and implications may be intended, others may be simply tolerated or even remain unnoticed. To capture the multiplicity of levels on which a given action can be described, Goldman (1970) has coined the metaphor of an "act tree" whose branches are generated through causal mechanisms, conventions, or language rules. The ways in which actors construe the effects and implications of their own activities, and describe their actions, may differ from the interpretations of external observers. Such differences may give rise to social conflicts and identity problems, the solution of which often requires negotiation of consensual interpretations. Negotiating meanings is a basic strategy for establishing consensus and co-orientation between developing individuals who have to coordinate their actions and developmental goals in, for example, marital relationships or family systems (Berger, 1993; Brandtstädter, Krampen, & Heil, 1986). As is evident from these considerations, the meanings and motivating valences of actions, even of everyday activities, can be and often are ultimately rooted in global identity goals and life themes.

Different kinds of knowledge and expertise, and corresponding developmental steps, are required for a

differentiated representation of the meanings and effects of action: Knowledge about the causal structure of action spaces is required for gauging possible action-outcome contingencies whereas the construal of semantic or symbolic implications requires corresponding conceptual knowledge. The polyvalence of actional meanings also implies emotional polyvalence: when different interpretive schemes can be applied to a personal or observed action, different or "mixed" emotional evaluations may result. For example, an aggressive action may be coded as an act of self-assertion, as an infringement of moral norms, as a lapse of self-control, and may simultaneously invoke feelings of pride, guilt, or shame. The emergence of such mixed feelings appears to be an ontogenetic marker of the individual's developing ability to represent the causal and semantic implications of observed events and behaviors (Harter, 1986).

Self-control and intentional self-development crucially hinge on the construction and deconstruction of meanings and evaluative standards. Human actors can take an evaluative stance with respect to their own intentions, emotions, and actions; for example, we may experience feelings of pride or shame with regard to our own feelings. Such metaemotions or second-order evaluations are characteristic for a higher ontogenetic level of action regulation, a level on which moral principles, social norms, and personal representations of "ought selves" (Higgins, 1988) become integrated into the process of intentional self-development (see also Frankfurt, 1971). Again, ontogenetic requirements should be noted. The polyvalence of actions reflects the embedding of individual behavior into a hierarchy of contextual levels that—to borrow terms from Bronfenbrenner's (1979; Bronfenbrenner & Morris, 1998) model of developmental ecologies—extends from the encompassing macrosystem of cultural institutions, norms, and symbols through intermediate mesosystems down to the social and physical microsystems that constitute the proximal setting for the individual's activities. The representation of meanings proceeds ontogenetically in a sequence that corresponds to the increasing abstractness and complexity of the contextual levels in which actions are situated. Whereas early in development, the focus for evaluating one's actions is primarily on perceived and anticipated effects in the immediate or proximal environment (e.g., reactions of parents or peers), the evaluative scope widens on subsequent developmental stages so that more complex and abstract system perspectives become progressively influential in self-regulation (see

Eckensberger & Reinshagen, 1980; Edelstein & Keller, 1982; Harter, 1983; Selman, 1980).

The Context of Action

Psychological action explanations primarily center on the "inner" context of action: on the individual expectations, goals, beliefs, and so forth that determine the intentional structure of action. This explanatory focus, however, provides only a reduced, largely ahistorical, and adynamic picture of action that is of limited use for developmental theorizing. To appreciate how an individual's life history relates to the patterning of personal goals, projects, and actions across the life course, external contextual conditions must be taken into account. The blending of intended and unintended, expected and surprising outcomes that makes up any biography is essentially determined by the external context of action and its physical, material, and social constraints.

People generally have only limited insight into the contextual conditions of their behavior. The complexity of the causal and symbolic structures that generate meanings and effects of action generally exceeds the representational capacities of the individual actor; unintended and unexpected effects are intrinsic to the reality of action under conditions of "bounded rationality" (Simon, 1983). Though the aspect of unintended consequences has been largely neglected in psychological and philosophical accounts of action (see Giddens, 1979), it has profound implications from a developmental point of view. The experience of unintended or unexpected effects provides an impetus for the revision and continuing adjustment of individual goals and beliefs; surprise induces exploratory activities through which the inner context of an action is modified and accommodated to external constraints. Unintended effects, and the ways in which individuals cope with them, are dramatizing elements in any personal biography (Bruner, 1990a); they shape future action spaces and developmental options, and provide a corrective for the theories and beliefs that individuals hold about themselves and their environment.

As cultural artifacts, action contexts are to a large part the result of individual and collective actions. Cultures provide means and prosthetic tools to maximize intended effects of actions and to suppress unintended side effects of actions; they create norms and institutions to coordinate the actions of individual actors so that they become mutually compatible. Beyond this, in-

dividuals themselves actively control the texture of their action space; actors have an interest in making effects or meanings of their actions converge with their intentions, and they strive to organize the personal action space accordingly. If such efforts fail, individuals may select an ecological niche (Super & Harkness, 1986) that fits better with their intentions or developmental goals. Through these selective and constructive activities, personal action contexts become extensions of the actor's self (e.g., Brandstädter, 2001; Csikszentmihalyi & Rochberg-Halton, 1981; Thomaе, 1968).

In general, individuals select and organize contexts and fields of activity according to a principle of "just manageable difficulty" (G. Brim, 1992). In early childhood, this selection is typically under the control of adult caretakers. Parents structure the activities of the child through limiting access to certain situations and experiences, as well as through encouraging or supporting particular activities; they create "zones of free movement" and "zones of promoted action" (Valsiner, 1987a) that are more or less adjusted to, but at the same time also shape, the "zone of proximal development," that is, the next developmental tasks or steps that a child has partially mastered already but the successful completion of which still requires external support (Vygotsky, 1978; Wertsch, 1984). This structuring of action zones provides a scaffold that organizes and directs developmental progress; examples can be found in the organization of the child's action spaces during meal times or of toddlers' climbing activities (Gärling & Valsiner, 1985; Valsiner 1988a, 1988b).

Harmonizing contextual demands and resources with personal goals and developmental potentials is in itself a fundamental theme of intentional self-development (Kahana, Kahana, & Riley, 1989). Because both external (physical, social, symbolic) contexts and personal resources of action (values, interests, competencies) are involved in historical and ontogenetic change, this mutual accommodation remains a concern over the entire life span, and developmental problems often result from poor fit between (or within) these systems of influences at different developmental stages (Brandstädter, 1985a; Chess & Thomas, 1984; Lerner & Lerner, 1983; Thomas & Chess, 1977). Critical events and transitions in the individual's life course involve particularly strong pressures to revise action spaces and developmental goals. In later life, the changes and limitations of action resources, which typically accompany the processes of aging, enforce readjustments of per-

sonal projects and activities. The importance of such adaptive dynamics for buffering experiences of loss and for preserving a positive view of self and personal development has become a topic in developmental and gerontological research over the past years (e.g., Baltes & Baltes, 1990; Brandtstädter & Renner, 1990). I address this in a later section.

The extent to which external contextual constraints fit, or can be made to fit, with personal interests and potentials deeply affects the long-term balance of successes and failures, or of developmental gains and losses, in the individual's life history. Recurring experiences of noncontingency between one's actions and contextual effects undermine a sense of personal control and self-efficacy and may foster a tendency to avoid tasks and developmental options that involve a risk of failure; yet, it is precisely these challenges that afford opportunities for further personal development (Bandura, 1981, 1997).

DEVELOPMENTAL DIVERSITY AND REGULARITY: ACTION- THEORETICAL RECONSTRUCTIONS

The search for coherence and lawful regularity in human development is a traditional heuristic ideal that has inspired developmental psychology from its very beginnings: "From the colourful play of human changes, we must go back to an invariant order, back as far as possible to the eternal source of phenomenal variation" (Carus, 1823, p. 94; trans. J. B.). This ideal can be traced back to the philosophical teachings of Parmenides (540–480 B.C.) and Plato (427–347 B.C.): For Parmenides, the phenomenal world in all its diversity was merely the appearance of one immutable substance, whereas Plato considered empirical phenomena to be the reflection or imperfect instantiation of timeless and unchanging ideas (see also Toulmin, 1977).

To what extent are action-theoretical perspectives compatible with this influential epistemic stance? At least at first glance, it appears that the rise of action perspectives signals the demise of a Parmenidean or Platonic stance; the arguments that strengthen the latter seem to weaken the former, and vice versa. First, a research heuristic aimed primarily at the disclosure of universal ontogenetic principles tends to detract from the institutional, symbolic, subjective-intentional condi-

tions of development—conditions that seem to breed diversity rather than regularity in human ontogeny (Shweder, 1990). Second, the search for universal laws in ontogeny has not been an extraordinary success, to put it mildly; it has generated massive evidence apparently speaking against the assumption of lawful regularities in development. Thus, longitudinal investigations have documented considerable variability and heterogeneity in developmental patterns for many behavioral domains; correspondingly, long-term predictions have evinced a high degree of indeterminacy (Baltes, Reese, & Lipsitt, 1980; Lerner, 1984; Rutter, 1984; Schaie, 1983). Likewise, there is only scarce support for the traditional claim that personality development over the life course is shaped profoundly by early childhood experiences, as has been argued by psychoanalytic theory and partly also by learning theorists (Clarke & Clarke, 1976; Oyama, 1979). O. G. Brim and Kagan (1980, p. 13) have aptly described the situation: "... growth is more individualistic than was thought, and it is difficult to find general patterns."

Not surprisingly, these research experiences have strongly encouraged theoretical views that programmatically emphasize the discontinuous, contextualized, and aleatoric (i.e., coincidental or random) character of development over the life span (Baltes & Reese, 1984; Baumrind, 1989; Emde & Harmon, 1984; Gollin, 1981; Lerner, 1984). There even have been claims as to the basic futility of any search for universality and invariance in ontogeny (e.g., Gergen, 1980; Shweder, 1990). However, a note of caution is required here: As long as we cannot rule out that difficulties in extracting structure and law-like regularity from developmental diversity merely reflect theoretical deficiencies, it would be a weak argument to simply attribute such difficulties to an allegedly unpredictable or inchoate nature of development. Allusions to the fundamental indeterminism of phenomena in quantum physics that recently have become trendy among developmentalists do not seem to be tenable; it may suffice here to note that the uncertainty principle in quantum physics is not a declaration of theoretical ignorance but a powerful predictive device. In any case, it would be a logical mistake to equate lack of evidence for lawful regularity with evidence for the lack of such qualities. Coherence and universality in development are not observable facts that can be established conclusively; these qualities emerge only by way of theoretical abstraction. In a similar way, plasticity and modifiability are not features that characterize development

in an essential or fundamental sense; they have to be conceived as qualities that relate to potentials of change and modification in a given cultural and historical frame.

The Construction and Deconstruction of Developmental Coherence

To account for continuity and coherence in developmental patterns, it is usual to invoke causal mechanisms (e.g., Overton & Reese, 1981). A causal or deterministic stance, however, is rendered problematic by the fact that developing organisms have to be conceived as open systems (see also Ford & Lerner, 1992). Only in a system that is closed to external influences can there be causal chains such that subsequent states are linked in a necessary and invariant fashion: the developing organism, however, is functionally coupled to its physical and social environment by the continuous interchange of stimulation and information. Defenders of a determinist stance might argue that such difficulties could be handled simply by expanding the analytic perspective: "If determinism is assumed, alterations in a system which do not appear to occur as the consequence of the presence or operation of antecedent factors or conditions, must be regarded as belonging to a more inclusive system which is deterministic" (Nagel, 1957, p. 17).

If we widen our explanatory scope to include the physical and social ecologies of development, however, it becomes obvious that regularities in human development are not brought about by causal laws alone but, to a considerable extent, reflect the ways in which institutions, collective agents, and the developing individuals themselves, purposefully or inadvertently, make use of such laws. If the notion of causality is taken to refer to invariant sequences of events in which some antecedent condition inevitably generates some consequence (e.g., Bunge, 1979), the regularities that characterize human development as a product of personal and collective action can hardly be described that way. In cultural contexts, developmental regularities are in large measure patterned and mediated by individual and institutionalized actions, and, by consequence, can also be transformed or suppressed through action. For example, connections between risk factors in early development and unfavorable developmental outcomes generally depend on moderating or mediating variables such as prevailing attitudes in the social environment or the availability of preventive and therapeutic resources (e.g., Busch-Rossnagel, 1981);

likewise, age-related decrements in memory, physical stamina, health, and so forth will be expressed more strongly in contexts (and individuals) in which the motivation, knowledge, or resources to counteract functional loss are lacking (Baltes & Schaie, 1974; Salthouse, 1987). A particularly intriguing example of how a seemingly inevitable causal sequence can be broken up through interventive action is the inherited metabolic disease of phenylketonuria (PKU). Formerly, PKU invariably led to severe mental retardation; today, the metabolic mechanisms involved are sufficiently known so that it has become possible to avoid insidious developmental consequences by a proper dietary regime. The list of examples obviously could be extended *ad libitum*.

Developmental regularities in actional contexts essentially arise from personal and institutionalized agency. Thus, the tendency in a given social or personal context *C* to produce or forestall a specified developmental outcome or pattern *D* can be conceived as depending on available resources of intervention, on the cost of such interventions, as well as on the value (which may be positive or negative) that *D* has in *C* (Brandstädter, 1984c). Accordingly, we would expect that for developmental domains that are amenable to control, transitions from socially undesirable states to positively valued states should be more frequent or probable than the obverse transitions. Consistent with this assumption, longitudinal observations suggest that in regard to traits that are socially recognized as positive, the probability that children at lower levels on the trait later come up to a higher level is greater than the reverse case; likewise, socially deviant behaviors seem to show less developmental stability than behavior that conforms to social norms (Kagan & Moss, 1962; Kohlberg, LaCrosse, & Ricks, 1972). Longitudinal findings also hint, for example, that the probability of a delinquent adolescent exhibiting socially deviant behavior in adulthood is lower than the reverse, retrodictive probability (Rutter, 1984). By the same reasoning, we may infer from the frequent or regular occurrence of a negatively valued developmental pattern or outcome a lack of pertinent preventive knowledge or resources: this argument also accounts for the observation that developmental losses in later life are perceived as less controllable when they involve positively valued domains (J. Heckhausen & Baltes, 1991).

Even biology and developmental genetics no longer provide a safe retreat for deterministic views of invari-

ance and ordered change in development. The genome does not rigidly determine a developmental phenotype. Rather, it defines the norm of reaction or the function that, for a given genotype, maps possible environmental influences onto phenotypic outcomes; “genes . . . code for a range of forms under an array of environmental conditions” (Gould, 1981, p. 56; see also Gottlieb, 1992). From this point of view, developmental patterns appear as genetically fixed only as long as relevant epigenetic conditions are held constant or within critical margins. If we define the heritability of a given developmental phenomenon as the portion of phenotypical variance that is accounted for by genetic sources, the obtained estimate is not a natural constant, but depends crucially on the range of variation in critical environmental conditions that is produced or tolerated in a given cultural context. Ethical norms and codes of justice, for example, limit inequalities in the distribution of developmental resources, public health measures restrain detrimental influences, and theoretical and technological progress permanently spawns new means of preventive and corrective intervention into human ontogeny. Accordingly, the relative portions of phenotypic developmental variation accounted for by genetic and exogenous influences, respectively, can change over a shorter or longer historical interval; but “change the mix and the answers change” (Plomin, 1986, p. 7). Seen from an action perspective on development, heritability coefficients provide only limited evidence as to the lesser or greater external modifiability of a developmental trait; rather, they reflect propensities and limitations in developmental ecology to control critical epigenetic influences (Brandtstädter, 1984b; Lerner & von Eye, 1992; Scarr, 1982).

Developmental Plasticity: Weak and Strong Constraints

The earlier considerations suggest the following proviso when framing propositions about developmental regularities: No developmental tendency exists that cannot be altered, provided that the individual or collective agents concerned both want to alter it and possess the appropriate means to do so (see also Watkins, 1957). On closer examination, this proposition turns out to be irrefutable; it is true by virtue of its logical form alone. It does not implicate, however, an unlimited plasticity or modifiability of human ontogeny, neither are all devel-

opmental modifications possible nor are all possible variations desirable or permitted.

We can differentiate between weak and strong constraints on the range of developmental trajectories, that is, between constraints that themselves are, at least in principle, open to change, and those that, for strong reasons, are not. Strong, if also very wide, constraints are imposed on development by the laws of logic (e.g., through logical and mathematical structures); developmental outcomes that involve logical contradictions or combine logically opposed states are a priori impossible. Natural laws also constrain the space of possible developmental phenomena in a strong sense. Human beings are both personal actors and, at the same time, organic systems that are subject to physiological, biochemical, and biophysical laws. These laws can eventually be exploited to generate desired developmental outcomes through deliberate manipulation of antecedent conditions, but they cannot be altered, for reasons inherent to the very notion of a natural law. Developmental trajectories necessarily remain in the limits imposed by natural laws, which are narrower than those imposed by logic.

In contrast, the values, technologies, and theories that provide the orienting framework for social and personal regulation of development are not fixed or rigid in a strong sense, but are factually or in principle open to change. The limits of what is possible and desirable in human development are continuously redefined and renegotiated in the process of cultural evolution; it is certainly not by accident that the progressive expansion of cultural resources for developmental intervention and modification coincides with the rise of theoretical paradigms that emphasize the plasticity, multidirectionality, and variability of human ontogeny.

Finally, ontogenetic processes are also constrained by the semantic rules and conceptual structures that are used, in science as well as in everyday contexts, to analyze, and communicate about, development. The semiotic context not only constitutes and constrains spaces of action but also imposes order on developmental sequences. With regard to the distinction between weak and strong limitations, this type of constraint cannot be classified easily. This is an important point that is discussed more closely when turning to the issue of developmental universals.

To summarize these considerations, we may picture the different constraints as a hierarchy of inclusive sets as shown in Figure 10.2 (see Brandtstädter, 1984c):

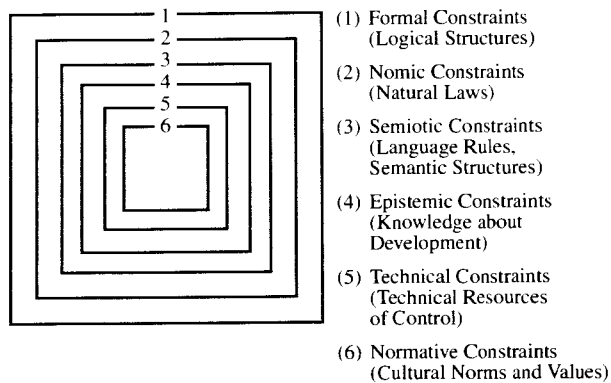


Figure 10.2 Development in action contexts: A system of constraints (see text for further explanation).

From the totality of all logically possible states that a developmental system might assume, only a subset of states is compatible with natural laws and with semiotic constraints; from this subset again, only a smaller portion can be realized within the limits of available theoretical and technological means; and finally, only a selection of developmental pathways that could possibly be realized will also be desired or permitted under prevailing normative constraints (here, the reverse is generally also true). The shaded residual area in Figure 10.2 describes the allowable margins of developmental variation within this system of constraints.

Assumptions regarding developmental phases of higher or lower modifiability play an important role in policy decisions concerning the distribution of educational and intervention resources over the life cycle. Often, such assumptions are based on observed inter- and intraindividual variation in the trait in question. For example, early childhood programs were launched under the premise of a special sensitivity of the early years as compared with later phases in life; this assumption leaned strongly on an analysis of longitudinal variations in the stability of intelligence test scores (e.g., Bloom, 1964; Clarke-Stewart & Fein, 1983). The earlier considerations caution against potential pitfalls of inferring developmental plasticity from observed variation. Because actually observed variation in a developmental trait depends on the affordances, resources, and constraints realized in a given environmental setting, it obviously can provide only a weak estimate of the potential range of variation. As McCall (1981, p. 9) has put it, "the environments not represented in the sample also have implications for the . . . potential for change."

To gauge limits of performance and developmental variation, planned experimental interventions seem to offer a stronger basis; efforts to boost memory performance of elderly subjects through mnemonic training may be considered as an example (Baltes, 1993; Kliegl, Smith, & Baltes, 1989). Even through experimental manipulations, however, limits of potential development cannot be determined in any definitive way because the results of such interventions always depend on the theoretical and procedural means available in a given cultural and historical situation, and thus are themselves subject to theoretical and technical limitations.

Invariance and Universality in Development: An Action-Theoretical Account

The notorious difficulties in establishing generally valid developmental patterns reflect the general principle that development—as Hegel (1837/1857) in his philosophy of history once put it—only manifests itself in concrete-historical modifications. Thus, one might suspect that theoretical views that consider context, culture, and intentional action as driving forces in human development are likely to end up in a relativism that renders the search for continuity and universality quixotic (Bruner, 1990b; Gergen, 1980). This is a threatening perspective, at least to those developmentalists who still subscribe to the view that the strength of a theoretical framework comes from its ability to encompass differences as well as regularity and invariance in development (Block, 1971; Brandtstädter, 1984c, 1985b; Lerner, 1984; Rosch, 1977). Expanding arguments from the last section, we explore in the following how the traditional issue of developmental universals may be approached from an action perspective. To preview, an action-theoretical account of invariance and universality differs in some respects from traditional treatments of these issues.

Developmental Universals as Empirical Regularities

As it is commonly used, the notion of developmental universals refers to ontogenetic phenomena manifesting themselves in the same or similar ways across different social, cultural, or historical contexts. Across all cultures, we observe similar structures and sequences in prenatal development, in the maturation of physiological functions, in early sensorimotor development, in language acquisition, in cognitive and affective develop-

ment, as well as in the processes of biological aging (for overviews, see Cole & Scribner, 1974; Kagan, 1981b; Warren, 1980). A theoretical emphasis on diversity and multidirectionality in development should certainly not obfuscate the considerable constancy and transcontextual stability in basic patterns and processes of human ontogeny. Cross-cultural research, with its emphasis on documenting cultural specificity, often tends to overlook the conspicuous commonalities in development (Rosch, 1977).

Although developmental commonalities of the mentioned type emerge across a broad range of environmental variation, they necessarily presuppose constancy in those exogenous influences that have an impact on the given ontogenetic functions. Genetic mechanisms generate similar developmental phenotypes only as long as critical epigenetic influences remain sufficiently stable or—which is the interesting case from an action-theoretical perspective—are actively kept within critical margins. If critical exogenous variations exceed those tolerance margins, for example, as a result of influences that override genetic buffering mechanisms because they occur for the first time in evolutionary history, anomalous developmental patterns emerge: The thalidomide disaster is a dramatic example. The genetic control of ontogenesis presupposes mechanisms and structures that regulate and standardize the distribution, intensity, and temporal patterning of critical exogenous variables. The mediating processes that warrant this epigenetic order involve the selective and constructive activities of the developmental organism itself, as well as the “institutionalized operativity” (Warren, 1980, p. 310) of the social and cultural system. As already stressed, personal and cultural agentivity merge in the regulation of development; both are related to social norms that prescribe and enforce the timing and sequential order of developmental tasks and role transitions across the life span.

An important point that follows from these considerations is that observed regularity of certain ontogenetic forms is not in itself sufficient to establish universality in the strict sense because observations can always cover only a limited range of situations. Even if an empirical rule has been found valid without exception, this does not warrant its universality across time and space; this is the problem of inductive generalization as classically formulated by Hume. Postulates about universal ontogenetic sequences, as they have been set forth in, for example, stage models of cognitive, sociomoral, or emotional development (e.g., Kohlberg, 1976; Piaget, 1970;

see also Brainerd, 1978), can eventually be refuted but never be definitively settled on an empirical base alone.

At this juncture, the differentiation between weak and strong constraints of development suggests a corresponding distinction between universality in a weak and a strong sense. Traditional notions of developmental universals, as far as they refer to empirical regularities resulting from commonalities in the social and cultural canalization of development, can at best qualify as universal in a weak sense (even if no exceptions have ever been observed). By contrast, to claim universality in a strict sense, it has to be demonstrated that falsifying events are logically or conceptually impossible, and thus can be excluded on an a priori basis.

Developmental Universals as Structural Implications

As already indicated, the search for universals of human development, at least for universality in the strict sense, is often deemed to be an obsolete research heuristic, being diametrically opposed to a posture that emphasizes the formative impact of context and culture on human ontogeny. However, it seems that consideration of the formal and conceptual structures that constitute development in action contexts opens a fresh perspective on these issues.

The notion of constitutive rules provides a starting point for elaborating this argument. As introduced earlier, constitutive rules establish structural criteria that empirical phenomena must satisfy to count as an instance of certain generic category. According to the constitutive rules defining, for example, the concept of altruism, acts of altruism must involve a sacrifice of own interests to the advantage of others; this feature serves as a criterion to identify altruistic intentions, and it is therefore present in all valid instantiations of this type of act. If there never has been a case of altruistic behavior that did not involve an element of sacrifice, this is not due to some natural law or causal mechanism but reflects constitutive rules that preclude such an event, quite as it would be impossible to “castle” in chess without moving the king two squares toward the rook. In physical theories, we have a similar situation when the measuring of a theoretical variable is based on or derived from some theoretical core assumption: the gathered data cannot disconfirm those parts of a theory whose truth is asserted in the very procedure of observation. According to a structuralist view of theories (Balzer & Moulines, 1980; Balzer, Moulines, & Sneed,

1987), this “theoreticity” of measurements should not be viewed as a methodological weakness but is characteristic of advanced physical theorizing.

Generally, we may assert: When a relationship of the type “If *A*, then *B*” is proposed, and the falsifying event (i.e., the occurrence of *A* without *B*) is excluded for reasons inherent in the formal or conceptual structure—or, as Wittgenstein put it (Waismann, 1979, p. 91), in the “syntax”—of the terms that figure in the proposition, then the proposition becomes a tautology, a statement that is true in all possible worlds. Implications that in this sense structurally preclude the falsifying case may be denoted as *structural implications*, or as propositions involving *implicative structures* (e.g., Brandstädter, 1987; Lenk, 1987). Structural implications correspond largely with an entailment account of necessary implications as advanced in relevance logic (Anderson & Belnap, 1975). According to relevance logic, the universal validity of necessary implications follows from a relation of entailment in which the meaning of the consequent is nested in the meaning of the antecedent so that a valid verification of the antecedent condition necessarily involves the verification of the consequent. Interestingly, Piaget in his late work has espoused a relevance logic point of view to elucidate the notion of necessity and its ontogenetic acquisition (Piaget, 1986, 1987; Piaget & Garcia, 1983/1991; Ricco, 1993; see also Overton, 1990).

Structural implications may easily be confused with empirical hypotheses, at least as long as the structure of the concepts involved is not analyzed sufficiently. There are numerous examples of such confusions in psychological research (e.g., Brandstädter, 1982; Kukla, 1989; Smedslund, 1979, 1984). However, drawing firm distinctions between implicative and empirical relations can be problematic: especially when dealing with concepts involving a large array of interpretative specifications (“cluster concepts”; Putnam, 1975), the categorical border between meanings that are structurally implied and empirical correlates of the concept may be blurred (e.g., Brandstädter, 1987; Lenk, 1987). Despite such reservations, implicative structures offer a vantage point for approaching developmental universals.

The point here is that implicative structures can impose an invariant order on ontogenetic sequences: however, some notes of caution are required in advance to avoid misunderstandings. First, it should be stressed that structural analyses, like empirical ones, are not fail-safe. It is not uncommon, for example, that presum-

ably “logical” ontogenetic sequences actually do not appear (e.g., Carey, 1982; Fischer, 1980); as Flavell (1972) has noted, “the path from logical to developmental priority can be an extremely slippery one” (p. 331). Furthermore, structural analyses can never account for a developmental sequence in any empirical detail. For example, scrutinizing the formal or conceptual implications of a developmental task can yield insights as to the steps involved in the acquisition of the pertinent skills or competencies but may not tell us much about the type of learning experiences or didactic arrangements that might foster this process. By much the same token, structural analyses cannot explain why structurally homologous skills often are acquired at different ages or developmental stages; for example, children develop conservation of substance before conservation of weight, though the tasks have a similar formal structure (e.g., Aebli, 1987; Piaget & Inhelder, 1942/1974).

Paying heed to these caveats, the claim that implicative structures impose an invariant order on ontogenetic sequences should be read as follows: Whenever a developmental state or outcome *D* by virtue of its (formal, conceptual, material) structure entails certain constituent elements *C_i*, then *D* will presuppose *C_i* also in the ontogenetic sequence. It may be an open empirical question whether *C_i* will emerge prior to, or simultaneously with, *D*; but to the extent that the occurrence of *D* without *C_i* can be excluded formally or conceptually, it should be impossible for the same reasons for *D* to precede *C_i* ontogenetically.

In the following, I briefly consider three variants of structural implications that involve different type of structural relationships: (1) formal implications, (2) constructive and conventional implications, and (3) conceptual implications.

Formal Implications

This type of structural implication follows from the formal (logical, mathematical) structure of a given task or competence. As Piaget (e.g., 1970; Inhelder & Piaget, 1958) has shown for the domain of cognitive development, the formal structure of a task is reflected both in the type of cognitive operations necessary for mastering it, as well as in the ontogenesis of these operations. For example, seriating objects according to size presupposes an understanding of the transitivity property of asymmetric relations; balance scale tasks require a grasping of the compensatory relation that holds between the

length of levers and the suspended weights. The competencies implicated by these tasks, in turn, presuppose more elementary ones such as detecting and monitoring differences in size or length, and so on. Though such developmental sequences can be demonstrated empirically by appropriate methods, such as scalogram analysis (Siegler, 1981; Strauss & Ephron-Wertheim, 1986), they obviously do not reflect simple empirical or causal contingencies but follow from the formal characteristics of the particular tasks (see also Smedslund, 1984).

Constructive and Conventional Implications

Actions often involve the competent use of mediating objects: particular skills (e.g., skiing, piano playing) are inherently tied to the competent use of instruments, tools, or other cultural artifacts. Efficient action here presupposes accommodation to the particular structural features and demands of these mediating means (Kaminski, 1982; Leont'ev, 1978; Oerter, 1991). These structural features often impose strong constraints on the ordering of steps in the acquisitional sequence (e.g., Resnick, 1973). For example, children will not be able to read the hands of a clock and tell the time unless they have acquired other component skills such as distinguishing between big and little hands, translating the positions of the hands into particular numerical relations, and so forth. Though there is no one-to-one relation between structural features of an object or instrument and the developmental steps that lead to its competent use (Fischer, 1980), we can safely assume that in the ontogenetic sequence, a complex skill will not emerge earlier than the constituent skills related to the specific structural features and demands of the objects and instruments involved.

It appears that these arguments apply to all activities that are defined by specific production rules. Actions such as making a promise, dancing a waltz, or cooking spaghetti bolognese imply a recurrent configuration of actional and contextual elements, which is encoded in constitutive rules, prescriptions, or recipes. There may be variants, creative modifications, as well as atypical and less-than-successful realizations of the constitutive rules. Categories may be fuzzy, so that there may even be no criterial feature that would be common to all possible instantiations (Rosch, 1977). In cases like the ones considered earlier, however, we can identify structural features that must invariantly be present because they constitute the act in question: A waltz can only be performed in $\frac{3}{4}$ time, a promise can only be given by a per-

son who understands the concept of obligation, and so forth. By excluding some ontogenetic sequences as structurally impossible, these structural implications also determine ontogenetic invariances.

Conceptual Implications

The meaning of the terms that we use in describing, and communicating about, behavioral or developmental phenomena essentially results from their position in a conceptual network. The semantic relations constituting such a network may be conceived of as a system of rules that determine which terms or attributes are "copredicable" (Keil, 1979). The concept of "lie," for example, is semantically related to "truth" and "intention": when we accuse someone of a lie, we mean that he or she has purposely told an untruth. As Piaget (1932) observed, young children often use the word "lie" in a vague manner to refer to naughty words; during the course of language acquisition, the use of the word gradually becomes restricted to untrue statements made with deceitful intent, thus conforming with established conceptual rules. These rules imply that one cannot possibly identify a "lie" before having grasped the concepts of truth and intention, and that one will not be able to perform an act of lying before being able to discriminate between true and untrue and act intentionally.

Invariant ontogenetic sequences such as postulated in cognitive-developmental models of moral judgment likewise can be reconstructed as structural implications. Moral judgments essentially involve ascriptions of guilt and responsibility (Kohlberg, 1976; Turiel & Davidson, 1986); according to conceptual rules that relate responsibility to intentionality, ascribing responsibility, in turn, implies consideration of the actor's motives, intentions, and constraints. From such analyses, we may derive that competent moral judgment ontogenetically presupposes a capability to assess the motives and intentions of other persons; this also corresponds to theoretical postulates about the "necessity but insufficiency" of social-cognitive competence for competent moral judgment (e.g., Selman & Damon, 1975). It is doubtful, however, that we are dealing here with a proposition that is open to empirical refutation; rather, it seems that the falsifying case (moral competence without social-cognitive competence) is conceptually incoherent and cannot occur—given a conceptually valid assessment of moral competence. Another constitutive feature of moral competence is the ability to evaluate prevalent social norms and institutions with respect to general ethical standards.

This assumption is captured in the postulate that principled or postconventional moral judgment presupposes the development of a sociomoral perspective that is system-transcending or "prior to society" (e.g., Kohlberg, 1976). For basic conceptual reasons again, it is difficult to conceive of an ontogenetic pattern that would not conform with this assumption because ethical principles formally implicate a universal, system-transcendent stance.

These examples give an impression of how the structure of language games influences ontogenetic forms. This influence is, of course, particularly obvious in the domain of language acquisition: Through learning and instruction, communicative behavior is gradually brought into forms that conform to the established semiotic order. This constructive process is reflected in what Keil and Batterman (1984; see also Keil, 1989) have described as the "characteristic-to-defining" shift: When using a concept, children initially focus on salient features that, by way of statistical association, characterize typical instantiations of the concept (e.g., for the young child, "mother" may be strongly linked to the feature of "making supper"; see Inhelder & Piaget, 1964). As language development proceeds, the child increasingly heeds to structural invariants that structurally define the concept (e.g., "mother" as defined by a specific kinship relation), and so eventually becomes capable of correctly categorizing atypical examples that do not exhibit the expected characteristic features, as well as invalid cases that do so, but lack the defining features.

Conceptual structures do not only shape language development, as the given examples might perhaps suggest. Rather, they impose constraints on ontogenetic patterns wherever developmental phenomena are produced, defined, or assessed with reference to conceptual categories. To briefly illustrate this point, I consider some examples from the domain of emotional development. Emotion terms are embedded in, and derive their meaning from, a network of other mental concepts that we use when describing and explaining actions. For instance, "envy" is conceptually related to a process of social comparison; "jealousy" implies the perception of a particular social constellation; "worry" or "fear" imply the anticipation of aversive events, as well as doubts concerning one's ability to avert these events; "pride" points to the perception of a personal success, and so on (Brandstädter, 1987; Mees, 1991). In the guise of causal hypotheses, relationships of this kind have also been proposed in attributional theories of emotion (e.g.,

Weiner, 1982). However, for a relationship to qualify as a causal contingency, the effect must be verifiable independently of the cause. Whether the cases considered can meet this formal requirement has to be questioned. If we were to ascribe feelings of, for example, envy to someone, while denying at the same time that he or she experiences the criterial cognitions constituting that emotion, this would not be a conceivable observation but rather a case of conceptual confusion. Here again, the conceptual structures define a developmental order: If a particular emotion implies a criterial or defining cognition, it will also ontogenetically presuppose the development of the corresponding cognitive competencies. Such structurally implied sequences of emotional development also emerge in empirical studies (cf. Averill, 1980; Brandstädter, 1987; Frijda, 1986; Reizenzein & Schönplflug, 1992); however, this does not convert a structural implication into an empirical conjecture but rather attests to the conceptual validity of the empirical procedures employed.

It is important to note that unlike causal structures, semiotic structures or rules have no inherent formative force; their effect on development is mediated by individual and collective action. The processes of socialization or intentional self-development largely aim at bringing individual behavior and development into a form that justifies the application of certain concepts; concepts, for example, that denote competencies, developmental tasks, or positively valued traits. Furthermore, implicative structures that (in the mediated way specified earlier) form development are themselves the product of formative processes (Piaget, 1970; Wartofsky, 1971). Semiotic structures, unless fixed by terminological dictates, are not invariant; they accommodate to changes in socially shared beliefs and values, so that successive modifications of a concept may eventually be connected only by a loose relationship of family resemblance (Putnam, 1975; Rosch, 1978). The same is true for norms, institutions, or conventions and other structures that generate regular and recurrent developmental forms.

How can we look for invariance and universality on such unstable grounds? Although we can imagine cultures or historical periods in which particular language games and rules simply do not exist, it is likewise true that developmental constructs have no independent existence outside the semiotic and institutional structures that constitute them first and foremost. Developmental patterns that are constructed and defined in a given lan-

guage game necessarily follow the rules of that game; these games may change, but "When language games change then there is a change in concepts, and with the concepts the meanings of the words change" (Wittgenstein, 1969, p. 65).

To summarize, it appears that an action-theoretical perspective affords an improved understanding of both diversity as well as invariance in development. In defending this view, I have posited that the range within which developmental processes may vary and be modified is broad, but not unlimited. It is limited by constraints that may change across cultures and epochs (e.g., normative, theoretical, and technological constraints), as well as by constraints that, by definition, are not bound to particular contexts (such as physical laws and logical principles). Constancy and invariance in development often result from commonalities in the ways in which ontogenetic processes are canalized through personal and collective action. We have furthermore tried to show how a stronger concept of developmental universality that goes beyond mere empirical regularity might be derived from a consideration of the formal, conventional, or material structures that are constitutive of particular developmental phenomena. The common claim that the search for universality is antithetical to an understanding of development and diversity in historical and cultural contexts thus appears questionable. An actional perspective on development can apparently encompass both heuristic stances.

INTENTIONAL SELF-DEVELOPMENT AND PERSONAL CONTROL OVER DEVELOPMENT

The idea that individuals are producers or at least coproducers of their own development is not novel. Interactionist, contextualist, and organismic-structuralist approaches have embraced this notion and thus have contributed to discrediting lopsided views that portray the developing subject as being only the passive recipient of formative influences (cf. Bronfenbrenner, 1979; Lerner, 1982; Magnusson, 1990; Reese & Overton, 1970; Sameroff, 1975). These approaches, however—and the organismic models in particular—have primarily conceived of development as the result of person-environment transactions rather than as a target area of intentional action; in other words, the relation

between action and development has been conceptualized primarily as a functional rather than an intentional one. This focus seems appropriate for early phases of development: The infant certainly does not engage in interactions with the social or material environment with the intention of promoting his or her development. Even if at very early developmental stages the child's activity shows signs of intentionality, it is not intentionally directed toward some developmental task or goal. Such intentional orientations generally come into play indirectly through other agents, primarily through the caregivers who organize and constrain the child's space of action according to intended developmental agenda, and who thereby shape and canalize the child's further development in co-constructive interaction with the child him- or herself, as well as with the cultural macrosystem (Goodnow & Collins, 1990; Lerner, 1985; Valsiner, 1988c; Wozniak, 1993).

It is during the transition to adolescence and early adulthood that the individual's conceptions of self and personal future become articulate enough to guide intentional activity. External directives and demands originating in the familial and larger social context become increasingly internalized and integrated into processes of self-regulation and self-evaluation; with the progression from a heteronomous, external mode of developmental control to an increasingly intentional and autonomous mode of intentional self-development, a new and higher level in the regulation of ontogeny is reached. This reflexive-intentional mode has been given rather short shrift in developmental research; however, for an actional perspective, it is of focal interest.

In elaborating this point, it will be necessary to heed the reciprocal character of the action-development relationship: Activities of intentional self-development are themselves developmental outcomes, they change over the life cycle in structure and intentional content. In the following, I first try to elucidate the basic process features of such activities. Based on these analyses, I focus more closely on the ontogeny of self-regulatory activities as well as on modifications and changes in these activities across the life span.

Activities of Intentional Self-Development: Structure and Process

Self-regulative activities in contexts of intentional self-development comprise different functional components. Models of self-regulation differentiate mostly between

the following phases or component processes (Bandura, 1986; Carver & Scheier, 1981, 1986; Kanfer & Hagerman, 1981; Karoly, 1993; Schunk, 1991): (a) *processes of self-observation and self-evaluation*, in which the convergence of an actual with a desired situation or course of events is monitored; (b) *predecisional or preparatory processes*, which involve the weighing of alternative options, the specification of goals, and the elaboration of plans for goal implementation; (c) *executive processes* (when goal-directed behavior has to be maintained over longer periods, the executive phase may engage auxiliary processes to buffer implementational intentions against distractive influences and to compensate for the relative absence of external supports); and (d) *evaluative processes*, in which the efficiency of actions is assessed with respect to intended outcomes, and which also serve to gauge self-views of competence and efficacy.

The various phases or levels of action regulation are partly intertwined and often cannot be separated cleanly. In complex, nonroutine tasks, preparatory and executive phases may comprise intermediate action cycles that each involves the whole range of processes distinguished earlier. It has to be emphasized that the transformation of intention into action is not generally a smooth or automatic process; rather, difficulties may occur in the transition between the different phases or levels of action regulation. Such problems deserve particular attention because they often give rise to feelings of helplessness and depression (Kuhl & Beckmann, 1985).

Figure 10.3 (see also Brandtstädter, 1992, 2001) summarizes these considerations and translates them into the realm of development-related action; the figure

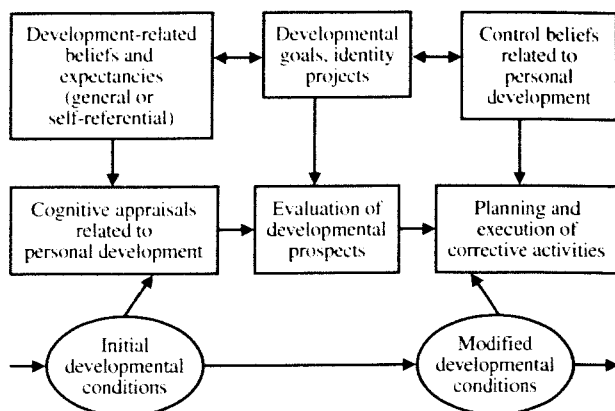


Figure 10.3 Personal control of development: Component processes and constraints.

also serves as an orienting framework for the further discussion.

In Figure 10.3, the connection of self-observational and self-corrective phases resembles a feedback loop. In the typical negative-feedback loop, observed deviations from a preset standard activate corrective measures designed to counteract the discrepancy (for action-theoretical applications of the feedback loop concept, see, e.g., Carver & Scheier, 1981, 1998; G. A. Miller et al., 1960). However, some caveats have to be added. First, it should be clear that activities of intentional self-development may be induced not only by currently perceived but as well by anticipated discrepancies from a desired developmental course or outcome. More important, activities of intentional self-development may involve not only discrepancy reduction but also discrepancy production, as is the case when persons set themselves new and more ambitious goals. Such self-generated discrepancies are not frustrating, but rather provide positive motivation and a sense of meaning in life (Bandura, 1989, 1991). The positive emotional quality of internally induced, as compared to externally produced, goal discrepancies is presumably related to differences in perceived control; generally, individuals only select new goals that they consider to be attainable. Finally, negative-feedback models of self-regulatory behavior do not provide for the important fact that discrepancies between actual and desired situations can be reduced not only by changing the situation in accordance with goals but also, conversely, by adjusting goals and conditions to situational circumstances—for example, through rescaling self-evaluative standards or downgrading ambitions (Brandtstädter & Renner, 1990; Carver & Scheier, 2003; Elster, 1983; Klingler, 1975, 1987). As discussed later, this adjustment of preferences is fundamental to understanding changes in themes and goals of intentional development across the life cycle.

Self-Observation and Self-Monitoring in Intentional Self-Development

In self-observation and self-monitoring, bottom-up or data-driven processes are interlinked with top-down or concept-driven processes. In order to assess, for example, whether some attribute denoting a certain skill or competence applies to oneself, one has to scrutinize behavioral episodes and pertinent representations in episodic memory to ascertain whether they sufficiently match the indicator pattern of the particular attribute;

this process is directed and constrained by conceptual rules that are stored in semantic memory and are activated during the process of self-observation (cf. Berzonsky, 1988; Medin & Smith, 1984).

Through elaborating the meaning and implications of observational data, a semantic link or correspondence with self-concept representations is construed, given that goals and self-evaluative standards also are sufficiently elaborated. Self-evaluative processes will not be activated unless such a correspondence is established. To be compared in an evaluative contrast, goals and observations must be represented on a similar level of specification; this hints at a potential trouble spot in self-regulatory processes.

Processes of self-monitoring can differ inter- and intraindividually with respect to their differentiation, thematic focus, and accuracy. These qualities depend on cognitive resources and motivational dispositions, which, in turn, can change over the life cycle.

Complexity and Differentiation

The more explicit and detailed the monitoring process, the more precise the timing and targeting of corrective interventions can be. For example, weight control is more effective when changes in weight and related parameters such as calorie intake are monitored closely and regularly (Bandura, 1982b; Mace, Belfiore, & Shea, 1989; Schunk, 1991). Explicitness and differentiation of self-observation depend on person-specific and situational factors. Of great importance is the complexity and richness of the individual's knowledge base, which itself is dependent on personal and biographical conditions such as cognitive capacity and expertise (Sternberg & Wagner, 1986). The quality of self-observation also depends on personal interests and motivations because areas of personal importance are generally monitored more intensively and carefully than those of less relevance. In cases in which self-referential feedback has threatening or self-depreciating implications, however, defensive processes may be activated that inhibit a careful scrutiny of information (e.g., Kruglanski, 1990); I discuss this more closely in later sections.

Attentional Focus

Self-observation involves self-focused attention. The readiness to make oneself (and one's self) the target of attentive observation differs between individuals and situations; dispositional differences are addressed by constructs such as "self-awareness" (Duval & Wick-

lund, 1972), "self-consciousness" (Fenigstein, Scheier, & Buss, 1975), or "self-monitoring" (M. Snyder, 1979). A state of self-attentiveness is likely to occur in situations of high personal concern that have implications for the public or private construal of the agent's self, and in which no routinized pattern of action is readily available (Karoly, 1993). Generally, attention is centered on those elements in an action sequence that lack a safe orientational basis so that additional information has to be gathered or generated to prepare the next steps (Allport, 1987; Carver & Scheier, 1986, 1990; Parasuraman & Davies, 1984).

The regulation of attention engages automatic as well as strategic-intentional processes (Shiffrin & Dumais, 1981; Shiffrin & Schneider, 1977); as an intentional strategy, self-focused attention may serve purposes of self-cultivation, self-management, or self-presentation, and may enhance a flexible adjustment to changing social situations (Bandura, 1986; M. Snyder & Campbell, 1982; Tesser, 1986). In biographical contexts, self-focused attention is intensified when a person is faced with disruptive changes or critical developmental transitions that necessitate a readjustment of personal goals, projects, and behavioral routines: Self-attentive and self-corrective tendencies are generally more pronounced among people who are dissatisfied with themselves and their developmental prospects (Brandstädter, 1989). Self-critical reflection involves a temporary dissociation of the self into a criticizing and a criticized part, a condition that—since Aristotle (see Arendt, 1976)—has often been considered as pathological or pathogenic (e.g., Ellis, 1976). However, it seems more appropriate to consider self-attention not as the cause but rather as a symptom of an adaptive problem, or, more precisely, as a functional component in processes of coping and readjustment.

In a broader sense, self-attention may involve all external conditions that are relevant for personal goals and projects. Phases in the life course in which demands from different and potentially conflicting roles and tasks coincide may involve a particularly high attentional load; in everyday contexts, different goals and courses of action are often pursued simultaneously. The strain that results from simultaneously attending to different goals and tasks can be reduced by a decomposition and sequential arrangement of tasks. Thus, for example, the diversity of adaptive problems that characterizes physical and social development in adolescence is reduced to a manageable format by addressing the

problems sequentially and focusing on only one issue at a time (Coleman, 1980). A decomposition of multiple tasks through sequential focusing is to some extent automatically effected in the process of attention deployment itself (Dörner, 1984). Generally, attention centers on those contents and themes that constitute a person's "current concerns" (Klinger, 1987); with a change in life themes and identity projects, the focus of attention shifts accordingly, even if the individual is not explicitly aware of such changes (Csikszentmihalyi & Beattie, 1979; Erikson, 1959).

Protective and Defensive Mechanisms

Like other perceptual processes, but even more so, the process of representing ourselves is tinged by personal motives, needs, and subjective theories. The processing of self-referential information in particular is subject to constraints that serve to maintain as far as possible the integrity and continuity of the self-theories that we have devised and consolidated over the course of our lives, and that guide us in organizing our future development (Greenwald, 1980). Observations are generally open to multiple interpretations; from alternative explanatory and interpretative options, those will be preferred most readily that fit best with the person's actual motives and beliefs. Individuals tend to doubt the validity of data that are discrepant to prior beliefs; in extreme cases, a rejection or blatant denial of evidence may occur (Festinger, 1957; Nisbett & Ross, 1980; Wicklund & Brehm, 1976). Certainly, the perceptual system is primarily tuned to evaluating, rather than to preserving, the actor's beliefs. But even if evidence is strong enough to enforce a change in the subject's system of prior beliefs, these changes will obey a principle of conservatism that Quine (1951, p. 41), with regard to the dynamics of scientific theories, has put as follows: "... our natural tendency is to disturb the system as little as possible." A theoretical proposition can, at least in principle, always be defended against discrepant evidence by making adjustments elsewhere in the theoretical system, and the same is true for the hypotheses that people hold about themselves.

Apart from the consistency effects mentioned earlier, established self-referential beliefs are backed by tendencies of self-verification and self-enhancement. Evidence will generally be negotiated in ways that have positive implications for a self-concept and a personal view of the world, and self-enhancing interpretations will generally be more readily accessible than self-denigrating ones (Kunda, 1990; Steele, 1988; Swann, 1983). Mecha-

nisms of self-enhancement and cognitive consistency generally merge in the processing of self-referential information (C. R. Snyder & Higgins, 1988). However, both tendencies can conflict; for example, self-deprecating or threatening evidence may be so strong that negating it would violate other strong beliefs. There is some evidence that, in such cases, consistency principles dominate over tendencies of self-enhancement (Swann, Griffin, Predmore, & Gaines, 1987).

Concepts such as "self-serving bias," "denial," or "defense" connote a violation of rationality principles; the influence of self-protective mechanisms in information processing seems opposed to a "realistic" self-view, which has been traditionally considered to be a basic requirement of mental health and optimal development. However, even within the limits of rationality, there is generally broad scope to handle evidence in self-serving ways so that the functionality of such mechanisms must be assessed more cautiously (S. E. Taylor, 1989). From a developmental perspective, the potential adaptive value of self-protective mechanisms becomes particularly apparent. For example, as people age, the self-scheme formed in earlier phases of life is threatened by experiences of loss in various functional and social domains; protective and defensive mechanisms help to preserve self-esteem and personal continuity when individuals confront aversive and irreversible developmental changes. Though they operate largely on a nonintentional level, such mechanisms affect activities of intentional self-development in various ways. By dampening perceptions of loss and identity deficits, protective mechanisms may inhibit self-corrective tendencies, but they also serve to arrange priorities for self-corrective intervention and to canalize self-regulatory resources into domains that are amenable to change (Brandstädter & Greve, 1994; Brandstädter & Rothermund, 2002a).

Processes of Self-Evaluation

Self-evaluative reactions mediate between self-observation and self-regulative action. In the process of self-evaluation, the actual self-perceptions are contrasted with representations of desired self-aspects as manifested in the individual's goals, ambitions, moral orientations, and identity projects (Higgins, Strauman, & Klein, 1986). As mentioned earlier, both self-evaluative standards and observational data have to be represented on an appropriate level of specification for such an evaluative contrast.

During goal implementation, the focus of self-evaluation may shift to temporal, qualitative, or quantitative modalities of goal attainment (to reach a career goal in a certain biographical span, to maintain a given rate of progress toward a goal, and so forth). Such implementational standards are formed in the transition from intention to action, and they are to some extent necessary for such a transition to occur. When implementational standards become salient as reference points for self-evaluation, a new level of "metamonitoring" (Carver & Scheier, 1986) is established, which is reflected, for example, by the fact that emotions such as disappointment, pride, or shame are no longer determined by the perceived discrepancy or distance from the goal as such, but rather by the perceived rate, quality, or smoothness of progress toward the goal.

Self-evaluative standards can change over the life cycle; this once more highlights the reciprocal influence between action and development. For example, with advancing age, desired features such as health, intellectual efficiency, or professional success may assume partly different meanings, and the corresponding self-evaluative standards may be raised or lowered. Changes in action resources that result from the interaction of age-graded, sociohistorical, and nonnormative factors across the life course (Baltes, Cornelius, & Nesselrode, 1979) may affect the difficulty and, accordingly, the personal costs of realizing certain goals or maintaining certain standards. Shifts in personal goals and standards over the life course may also reflect implicit theories of development and normative age expectations. By defining what expectations persons of a given age should hold for themselves and their future development, normative expectations can legitimate or discredit personal goals and aspirations. Individuals differ with respect to the flexibility with which they adjust goals and standards to changed developmental prospects; as I discuss in more depth later, this accommodative flexibility plays an important role in coping with developmental losses and in securing a sense of personal continuity and efficacy over the life span (cf. Atchley, 1989; Brandtstädter & Renner, 1990; G. Brim, 1992).

Activation and Inhibition of Self-Evaluative Reactions

Self-evaluative reactions depend on how individuals construe the meanings and effects of their actions. It follows that self-evaluative processes, and the ensuing action tendencies, can be enhanced or weakened through destruction or alteration of such meanings and implications. Self-corrective tendencies may be dampened by

minimizing or downplaying negative implications of personal conduct or by balancing them against presumed positive effects; the beliefs, theories, or symbol systems that generate negative implications may be doubted or discredited; when the individual's behavior or development deviates from social norms, ascriptions of responsibility, self-reproaches, or feelings of guilt may be neutralized by construing the event as uncontrollable or by portraying it as morally legitimate (Bandura, 1989; C. R. Snyder & Higgins, 1988). Self-evaluation is also crucially affected by chosen comparison standards. For example, when evaluating their health or physical capacities, elderly people typically compare themselves to peers rather than to younger persons (or to themselves at a younger age); in this way, the salience of losses or functional impairments is reduced, and stability of self-descriptions—in the sense of positional stability within a reference group—can be maintained (Brandtstädter & Greve, 1994; J. Heckhausen & Krueger, 1993).

From an action point of view, however, the self-enhancing effects of "downward" comparisons must be balanced against their potential effect of dampening self-corrective intentions. In contrast, "upward" comparisons, such as comparisons with admired ideals or competitors of superior competence, may induce a negative self-evaluation, but they can also provide motivating goals for self-development, at least as long as the individual is confident of having the action resources and developmental reserves necessary for realizing these goals (e.g., Collins, 1996; Wills, 1991).

The cognitive and symbolic processes through which self-evaluations are engaged or disengaged are important targets in self-management; for example, mental simulation of positive or aversive outcomes can be an effective means to spur self-corrective tendencies and to maintain a given course of action against obstacles and temptations (C. Taylor & Schneider, 1989). It would be a mistake, however, to view the earlier-mentioned processes simply as intentional or strategic behaviors that may be activated at will. Rather, such processes basically hinge on the availability and personal accessibility of pertinent information. For example, biographical experiences determine which episodes are available as reference standards for evaluating actual developmental options, and thus can significantly influence the setting of aspiration levels and the individual's readiness to accept the situation (Strack, Schwarz, Chassein, Kern, & Wagner, 1990). Contrast effects of this nature might possibly account for the well-documented fact that older persons, who mostly have suffered wars and economic

crises, seem to be less vulnerable to depression than younger generations (Blazer, 1989; Seligman, 1990). Existential attitudes such as religious beliefs or a belief in a just world likewise can influence the accessibility of specific interpretations: for example, in coping with losses, such attitudes may enhance or impede the construction of palliative meanings, depending on responsibility attributions (Montada, 1992).

Developmental ecologies, in general, may differ as to the particular meanings and comparative standards they afford. Cultural and historical influences, as well as factors related to a person's position in the life cycle, shape and constrain the informational and symbolic space in which processes of self-evaluation operate. Social systems institutionalize conceptions of desirable development, and they tend to stabilize such conceptions through contriving legitimating stories and providing arguments and symbols that support them (Dannefer & Perlmutter, 1990). Furthermore, normative expectations and stereotypes about development and aging provide the backdrop against which views are negotiated as to what should be considered as normal, reasonable, or appropriate for individuals of a given age. It is obvious that such informational and symbolic constraints have a normative and directive influence on processes of intentional self-development.

Emotions in Self-Evaluation

The process of self-evaluation can activate a broad spectrum of positive or aversive emotions. An individual might look back on his or her life course with feelings of pride, anger, or gratitude, and future developmental prospects may evoke hope and confidence, or perhaps fear, worry, or despondency. When developmental prospects are ambiguous or polyvalent, a mixture of such feelings often occurs.

Emotions are linked to, and mediate between, cognitions and action tendencies (e.g., Averill, 1980). In contexts of intentional self-development, emotions signaling a mismatch between intended and actual developmental outcomes are of particular interest because of their inherent potential to enhance corrective action. Examples to consider include affective reactions of guilt, anger, and worry: As a future-oriented emotion involving the expectation of aversive events, *worry* typically engages preventive tendencies, and motivates efforts to acquire knowledge and skills that are deemed instrumental for coping with the aversive event. Feelings of *guilt* or *remorse* involve a belief of having violated specific norms, normative expectations, or moral principles; such emotional states may engage tendencies of self-punishment,

recompensation, or activities to stabilize threatened self-definitions through "symbolic self-completion" (Gollwitzer, Bayer, Scherer, & Seifert, 1999; Wicklund & Gollwitzer, 1982). Feelings of *anger* indicate an obstruction of personal goals; they typically involve a proclivity toward destroying the frustrating obstacles. Reactions of anger are particularly strong when positive contrasts are readily accessible (Kahneman & D. T. Miller, 1986; D. T. Miller, Turnbull, & McFarland, 1990). These examples should not be taken to imply that self-referential emotions are important only in self-regulation. Empathetic reactions of pity or sympathy, or feelings of awe or disdain that may be evoked by observing the conduct of other persons, can likewise affect intentional self-development through making salient facets of identity and morality (e.g., C. Taylor, 1989).

Through further analysis and cognitive elaboration of a perceived situation, emotional appraisals as well as the corresponding self-regulatory tendencies may be modified in intensity and quality (Lazarus & Smith, 1988; Parkinson & Manstead, 1992). Depending on how the person, upon further analysis, appraises the implications of a threatening situation as well as his or her capabilities of handling them, feelings of anger or worry may be converted into hope or happiness or either into emotional states of hopelessness and despair. When negative events such as developmental losses or impairments are perceived as global and irreversible, feelings of sadness and hopelessness are the typical result. Such feelings may arise, for example, in later life when the individual realizes that personally important projects cannot be achieved in the remaining lifetime. Feelings of hopelessness may eventually be transformed into more chronic states of depression when goals and ambitions that have drifted outside the feasible range are maintained tenaciously. Depressive reactions are often characterized by a feeling of not being able to be or become the person that one would like to be; such reactions may mark crises as well as turning points in personal development. Often, states of depression can be terminated only by disengaging from barren commitments and turning to new goals; feelings of helplessness may even spur processes of disengagement and reorientation (Brandstädter & Rothermund, 2002b; Carver & Scheier, 1998; Klingler, 1987).

From Goals to Action: Definition and Implementation of Developmental Goals

When people are asked to report the goals they pursue for their future, answers typically differ in abstractness

and globality. The scope of goal perspectives can range from highly abstract ideals (e.g., to actualize personal potentials, strive for professional competence, fight for peace and justice) to very concrete tasks and day-to-day projects (e.g., visiting a friend or running an errand). Such differences may be related to person-specific factors like value orientations or the range of future perspectives; in later life, the fading of time-yet-to-be-lived may reduce the commitment to long-term projects (e.g., Brandstädter & Wentura, 1994; Kastenbaum, 1982). Goals on different levels of temporal extension and generality are often pursued simultaneously so that concrete, short-term projects often serve more long-term or abstract purposes. The hierarchical organization of actions and action plans is reflected in the fact that questions about personal motives or reasons for a given activity ("why"?) typically prompt accounts in terms of higher level goals, whereas questions concerning the ways in which a particular activity is carried out ("how"?) tend to evoke low-level, instrumental goals (Kruglanski, 1996; Martin & Tesser, 1989). Differences in the "phrasing level" of goals (Little, 1989), however, may also point to the level of regulation in the transition from goal definition to implementation on which the individual's attention is actually centered (cf. Pennebaker, 1989; Vallacher & Wegner, 1987). Attention centers, preferably, on goals, plans, or steps within an action sequence that pose implementational problems. Pondering about basic personal goals and life themes is increased in situations of crisis and conflict: This converges with findings pointing to an association between depression and a predominant concern with high-level strivings (Emmons, 1992).

Developmental research has traditionally addressed life themes and developmental goals from a very global perspective only; the emphasis was on establishing a general pattern or sequence of basic motivational concerns during the life cycle. For example, Charlotte Bühler (1933; see also Bühler & Marschak, 1969) has posited five basic life tendencies ("need satisfaction," "adaptive self-limitation," "creative expansion," "establishment of inner order," "self-fulfillment"), which she assumed to govern behavior and personal development in different phases of the life cycle from early childhood to late adulthood. Elaborating Bühler's model, Erikson (1959) has portrayed eight stages of identity development across the life cycle, each with its salient psychosocial crisis and task (e.g., the dominant issues of adolescence and of middle and later adulthood were grouped under the labels of "identity," "generativity,"

and "ego integrity," respectively). In his model of developmental tasks, Havighurst (1948/1974) has made a similar attempt to define a basic pattern of priorities for self-development across the life span, which he thought to reflect the joint influence of biological changes and of age-graded cultural demands. These concepts undoubtedly had a seminal influence in developmental research, but they give short shrift to the variegation of developmental goals in content, complexity, and abstraction and to the processes mediating the definition and implementation of goals. Recent approaches in personality and action research provide a more differentiated treatment of these issues; for example, the concepts of "personal strivings" (Emmons, 1986, 1989, 1992), "personal projects" (Little, 1983, 1998), "life themes" (Csikszentmihalyi & Beattie, 1979; Schank & Abelson, 1977), or "life tasks" (Cantor & Fleeson, 1991; Zirkel & Cantor, 1990) are formulated with explicit reference to the regulative role of goals in personal development (see also Brunstein, Schultheiss, & Maier, 1999).

Goals of intentional self-development are reflected in the plans, projects, and courses of action into which the individual invests time and effort. Only rarely, however, are developmental goals represented from the outset in a format that already specifies the means and procedures necessary for goal attainment. Sociocultural developmental tasks (Havighurst, 1948/1974), too, are usually framed with a degree of abstraction that allows the implementation to be tailored to personal and situational circumstances. The implementation of goals basically depends on three types of constraints: (1) how the goal in question is interpreted, (2) which means are deemed necessary for goal attainment, and (3) whether the relevant means and resources are available on social and personal levels. In the following, I take a closer look at the translation of goals into intentions and of intentions into actions.

Levels of Regulation: Control-System Accounts

According to control-system accounts of action, the process of transforming goals into actions involves a hierarchy of feedback loops: goals on a superordinate level of regulation are converted successively into more specific plans or programs, and further into concrete behavioral sequences (cf. Carver & Scheier, 1986, 1998; Powers, 1973). Thus, for example, the abstract principle of "being helpful" may, depending on situational circumstances, activate specific programs such as "helping an elderly person to cross the street," which are then further specified and translated into behavioral sequences.

This top-down process is also constrained by perceptual input to generate situationally appropriate specifications. Within the hierarchy, the progression from lower to higher levels of regulation is mediated by subroutines such as cognitive scripts or production systems; each level sets subgoals or reference values against which activities on the next lower level are monitored.

Activities of intentional self-development may be easily analyzed in similar terms. The most abstract and general life themes and identity projects would then be represented on a superordinate level of regulation, and would be successively specified and transformed on subsequent levels into situationally appropriate plans and behaviors, as outlined earlier. The heuristic advantages of such hierarchical, top-down concepts of action control are obvious. Perhaps most important, the transition from goals to actions is portrayed as a creative, nondeductive process. For habitualized action patterns, this transition may be partly or fully automatized; in nonroutine situations, however, knowledge structures and heuristic procedures have to be activated to specify and implement goals and intentions. Accordingly, the hierarchic-sequential model also offers vantage points for analyzing disorders in action regulation; obviously, the functional interplay between levels of regulation may be affected if the actor's knowledge, competencies, or skills do not suffice to link abstract goals with concrete meanings, plans, and procedures.

However, it is necessary to add some reservations to this picture. As already mentioned, any plan or behavior may serve different goals simultaneously. Hierarchic-sequential models have notorious difficulties in accounting for the polyvalence of actions and for the conflicts and compromises that may result from it in the definition and execution of goals. Moreover, it often appears to us only in hindsight how our actions relate to superordinate goals and principles; in the ontogenetic sequence, too, the acquisition of certain action patterns can precede an understanding of their meaning and relevance. The most important objection, however, is that the streamlined format of hierarchic-sequential models gives a biased or inadequate picture of acting and planning in complex situations, in which priorities are often rearranged ad hoc, plans are concretized or revised during implementation, and goals may change in an overtly unsystematic and opportunistic manner. Such "planning in action" (Meyer & Rebok, 1985) is particularly characteristic for global, long-term, or vaguely defined goals. Due to its adaptive flexibility, such "muddling through" may be the most

reasonable strategy (if it is one) in situations fraught with uncertainty and complexity (Popper, 1961). Under such conditions, planning activities tend to exhibit an incremental, improvised quality rather than a linear, top-down format (Hayes-Roth & Hayes-Roth, 1979); planning about life is perhaps the prototypical case.

These reservations call for a more fine-grained analysis of the processes of goal definition and implementation in intentional self-development. In the following, I first address the semantic and procedural specification of goals, and then turn to issues related to the enactment and maintenance of self-regulatory intentions.

Goal Definition: Semantic and Procedural Specification

To serve as guidelines for intentional self-development, goals have to be specified with respect to their semantic implications, that is, as to their meanings and criteria, as well as with respect to procedural implications related to their implementation. It seems important to distinguish carefully between these two dimensions of the goal definition process because they generally involve different types of knowledge and heuristic procedures. The connection of semantic and procedural specifications of a given goal may be denoted as a *plan* (Friedman, Scholnick, & Cocking, 1987; Nuttin, 1984; J. Smith, 1996, 1999).

Whether we consider professional career goals, goals related to codevelopment in partnerships, or maintenance goals concerning the preservation of physical or mental competencies in later life, the formation of more concrete implementation intentions always requires the unfolding of the semantic implications of the given goal, that is, an explicit representation of criteria or prototypical features that define the intended outcomes. These interpretations may be available already in semantic memory; otherwise, they have to be construed through mediating heuristic activities. Social scripts and institutionalized definitions may aid and direct this interpretative process. Through semantic elaboration, goals are linked with a "recognizer pattern" (Schank & Abelson, 1977) of more explicit indicators, which guides the processing of information in the execution and evaluation of goal-related activities and which, in particular, facilitates retrieval of relevant procedural knowledge from long-term memory (S. E. Taylor & Crocker, 1981).

Semantic specification of goals, however, is not sufficient for regulating goal-related action; representations of intended goal states have to be fleshed out by linking

them to representations of the conditions and activities that are relevant for attaining a given intended state. Such operative links cannot be formed unless the pertinent procedural information is contextually available and cognitively accessible to the actor. When different and equally effective options for accomplishing a goal are available, actors will generally prefer the one that seems to afford the most favorable balance of desirable and undesirable side effects. For example, in accomplishing some career goal, individuals choose an option that appears most compatible with other personal goals and identity projects (such as personal principles of fairness, health-related or family related interests, and so forth). This highlights the important point that the specification and selection of goals for personal development is subject to optimality principles that take into account the whole system of personal goals and projects, or at least parts of it which are eventually affected by a given procedure of goal attainment. As a consequence, the procedural specification of goals often involves compromises that may be suboptimal with respect to the given goal, but promise a greater utility with respect to the more comprehensive array of personal interests. This more comprehensive perspective may even embrace the needs and interests of other persons. In contexts of marital co-development, for example, the life ambitions and developmental goals of partners often have to be mutually adjusted to preserve a stable and satisfying relationship (Brandstädter et al., 1986; Ickes, 1985). The degree to which an egocentric stance in the choice and procedural specification of goals is transcended also reflects the actor's sociomoral perspective; moral and ethical criteria have the essential function of constraining the selection and implementation of personal goals in ways that heed the interests of co-developing individuals.

Action Paths and Chronic Goals

The procedural specification of goals, and of long-term developmental goals and projects in particular, generally determines a temporal sequence of intermediate steps. The subgoals in a planned action sequence generally encompass a shorter time span than the superordinate or distal goals to which they relate (Carver & Scheier, 1981). The sequential structure of plans is also important from a motivational point of view; through reducing the complexity of the task, it enhances perceived control over the actional sequence and affords proximal reinforcements that contribute to the maintenance of in-

tentions over longer periods (Bandura, 1986; Harackiewicz & Sansone, 1991; Pervin, 1991).

Sequences of action steps or subgoals that are instrumentally related to a common overarching life theme or goal form what may be called an "action path" (Raynor, 1981). The individual's self-view and future perspective critically hinge on the temporal extension of and progress in action paths. The initial steps are motivated primarily through anticipation of further achievements in the path; with further advancement, retrospection on previous achievements becomes increasingly important as a source of self-evaluation. When paths are terminated by the attainment of a desired final outcome ("closed paths"; Raynor & Entin, 1982, 1983), a loss of meaning and purpose may be experienced (e.g., Baumeister, 1986). The emotional quality of personal developmental prospects thus depends crucially on how far the subject succeeds in keeping action paths open or avoiding closure through interlocking paths and creating new and meaningful commitments: "The open path . . . provides a means of understanding the difference between individuals who remain psychologically young through continued becoming and those who become psychologically old through exclusive dependence upon having been . . ." (Raynor, 1982, p. 274). Often, action paths may be extended by a motive to secure, further improve, or embellish what has been achieved (e.g., Schank & Abelson, 1977). The sequential arrangement of developmental tasks and normative social expectations across the life cycle may also facilitate a meaningful interlocking of goals and action paths. With advancing age, however, the shrinking of the temporal horizon tends to cut short and finalize action paths; accordingly, reminiscing about biographical achievements becomes increasingly important in later life as a resource of personal continuity and self-respect (Coleman, 1986).

As already mentioned, not all goals can be finally attained through a sequence of instrumental steps. Apart from the trivial fact that goals might be too difficult for the individual to achieve, some goals are chronic or persistent in the sense that they, by their very nature, cannot be reached conclusively. Goals may be rooted in enduring motivational dispositions for which no conclusive consummatory event can be defined, for example, a striving for health, social recognition, or professional success may (perhaps under continual accommodation of standards and criteria) shape and regulate intentional self-development during an entire life. Other goals may

function like general maxims or rules of conduct that we take into consideration whenever we act, decide, or make plans. For example, identity goals such as sincerity, fairness, altruism, or wisdom denote qualities of action that are manifested in, rather than achieved by, a particular conduct. In addition, competence goals such as professional expertise or artistic productivity, due to their vagueness and complexity, leave room for permanent renegotiation as to their contents and standards (e.g., Atchley, 1989). Chronic or insatiable goals of this kind essentially contribute to keeping action paths and developmental prospects open (Gollwitzer, 1987; Gollwitzer & Moskowitz, 1996; Srull & Wyer, 1986).

Enactment and Maintenance of Self-Regulative Intentions

The enactment of goals can be hampered by a variety of conditions, some of which have been addressed already. Deficits in the semantic and procedural specification of goals are one possible reason why individuals abandon action projects prematurely or fail to initiate them in the first place. In such cases, intentions remain in a rudimentary or degenerated state that may become the source of helplessness and depression (Kuhl & Beckmann, 1985), at least when the goals remain so important that individuals are unable to disengage from them.

The internal and external forces that direct and sustain action (motivational states, incentives, resources, constraints of action) are not stationary but typically change during the implementation of an action or plan. Distractions and enticements may interfere with intentions: unexpected obstacles can alter the subject's balance of costs and benefits; material and physical action resources may become exhausted prematurely. These difficulties arise particularly with long-term projects, and may be aggravated by the lack of concrete, tangible incentives and the considerable delay of gratification that such long-range goals typically involve.

To some extent, intentions are already automatically screened off against competing action tendencies. In predecisional or preparatory stages during which alternative goals and plans are considered, individuals tend to soberly weigh the pros and cons of impending decisions; in contrast, when the die is cast and the person has entered the phase of implementation, cognitions that support maintenance and execution of the plan will become more readily accessible (Gollwitzer, 1990; H. Heckhausen & Gollwitzer, 1987). Furthermore, difficulties encountered in the execution phase can lead to

an increase in the attractiveness of the goal, at least as long as the obstacles appear to be surmountable (e.g., Wright & Brehm, 1989); apparently, such reactant increases in goal valence serve to mobilize action resources and to neutralize or counteract inhibiting tendencies. Ambitions of a "just manageable difficulty" (G. Brim, 1992) often are experienced as more attractive than goals requiring low effort, in particular when they are perceived as an opportunity to actualize, and to obtain feedback about, personal competencies (see also Locke & Latham, 1990).

On the other hand, to maintain intentions can itself become an objective of intentional action (Kuhl & Beckmann, 1994). Terms such as *willpower* or *self-discipline* traditionally refer to the capacity to make one's intentions and volitions the target of intentional control. Sometimes, the construct of self-regulation is used to denote just such processes of directional maintenance (e.g., Baumeister, Heatherton, & Tice, 1994; Karoly, 1993). Self-regulation in the given sense comprises a broad gamut of strategies such as stimulus control and milieu selection (e.g., eliminating distractive influences, selecting facilitative environments), attentional resource allocation (e.g., focusing on intention-enhancing aspects of the situation, disregarding interfering stimuli), or emotion and motivation control (e.g., centering on proximal goals, imagining positive consequences). Basically, all these strategies serve to keep the balance between attractive and aversive valences within margins that are necessary for continuing an intended course of action. To some extent, strategies of self-control are already acquired in early socialization (Harter, 1983; W. Mischel, 1983; W. Mischel, Cantor, & Feldman, 1996; W. Mischel & Mischel, 1976); the acquisition of such strategies sets the stage for intentional self-development. The processes of self-control are functionally tied to the medium of language; processes of self-encouragement, self-reinforcement, and self-critique presuppose the capacity of symbolically representing oneself, which forms the basis for a conceptual self (Luria, 1979).

PERSONAL CONTROL OVER DEVELOPMENT: EMERGENCE AND DEVELOPMENTAL CHANGE

The question of how the processes of intentional development themselves develop and change over the life span

leads into an area that is seriously underresearched. The ontogeny of intentional action generally has not been a focus of developmental research, although it has drawn increasing attention during the last few years (e.g., Brandtstädter, 1999; Bullock, 1991; Lewis, 1991; Oppenheimer & Valsiner, 1991; Valsiner, 1987a). Even more conspicuous is the lack of research on the genesis and change of those competencies and activities through which individuals shape and organize their own developmental history.

Development-related action presupposes particular representational capacities. The individual must have formed goals and standards for personal development, and must be able to evaluate the current situation with regard to these self-guides; furthermore, he or she must have acquired some knowledge about probable and possible courses of future development and means and strategies for attaining personally and socially desired outcomes. Moreover, specific regulatory competencies are required for enacting self-regulatory intentions and maintaining them over longer intervals. Personal concepts of actual, desired, and possible selves (i.e., representations of how and what an individual is, should be, could be, and would like to be) provide the motivational basis for such processes (Cantor, Markus, Niedenthal, & Nurius, 1986; Higgins, Klein, & Strauman, 1985); these representations also change, and are socially expected to change in particular ways, over the life cycle.

These preliminary considerations suggest that in analyzing the ontogeny of intentional self-development, three basic lines of development should be considered: (1) the development of intentional action in general and of cognitive and representational processes related to intentionality; (2) the formation of beliefs and competencies related to personal control over development; and (3) the development of the self (or self-concept) as a more or less coherent structure of self-referential values, beliefs, and standards that guides and directs self-regulatory processes.

Intentional Action: Developmental Aspects

Intentionality is intrinsically tied to the capacity to recognize regularities in behavior-outcome contingencies and to anticipate possible effects of one's own behavior (Lütkenhaus & Bullock, 1991). Neonates already show instrumental learning and exhibit some degree of contingency awareness (Olson & Sherman, 1983). However, an

understanding of personal agency presupposes the epistemic separation of self and nonself that gradually evolves from the radically egocentric and syncretic mode of experience that characterizes the primordial phase of cognitive development (Kegan, 1983; Piaget, 1936/1952). It is this separation that is the developmental origin of a conceptually differentiated, categorical self (Butterworth, 1990; Case, 1991; Filipp, 1980; Harter, 1983; Lewis & Brooks-Gunn, 1979).

As hallmarks of emerging intentionality, we may consider early behavioral adaptations that obviously aim at producing or evoking particular consequences (Bell, 1974). In contexts of parent-child interaction, such signs can be observed already in the first months of life, for example, in the instrumental use of vocalizations to influence the parent's behavior (Papousek & Papousek, 1989):

How efficiently a 3-month-old infant can control parental behavior is readily observable, for example, in early interactive tickling games, when the child evokes the next repetition by an irresistible squealing. . . . The effectiveness of the contingency experience can be demonstrated easily by temporarily disrupting the child's expectations (e.g., by having the mother briefly close her eyes or turning unresponsively away from her child). . . . When this happens, even a 2-month-old child will activate a broad repertoire of facial, gestic, or vocal behaviors in an attempt to bring the mother back under his or her control. (Papousek & Papousek, 1989, p. 479; trans J. B.)

Recognition of regularities in behavior-effect contingencies is facilitated through the ritualization and mutual coordination of interactive exchanges between parent and child (Brazelton, Koslowski, & Main, 1974; Papousek & Papousek, 1987). The experience of transactional contingencies provides the raw material from which a working model develops that, initially in a rudimentary way, represents causal structures and instrumental relationships. Children in this early phase of development show exuberant emotional reactions when they become aware of their growing ability to produce interesting effects in a regular and reliable manner (Case, 1991; J. S. Watson, 1966). As mentioned earlier, caregivers arrange the child's action space to promote particular achievements, thus providing a scaffold for further development (Rogoff, 1990; Wood, Bruner, & Ross, 1976). Through affording facilitative means as well as through imposing external barriers and counterforces, the physical and social environment provides

feedback concerning actional potentials and limitations, thereby fostering the progressive differentiation of a conceptual or categorical self (e.g., Lewis & Brooks-Gunn, 1979).

As children come to separate self from nonself and to see external objects as distinct entities in their own right, they also recognize that actions can generate products that exist, and continue to exist, independently of productive activity, and that possess specific social valences. By the age of 18 months, children attentively monitor the products of their own actions: for example, in playing with building blocks, they pause when they have accomplished their task, and contemplate the result. Around this age, children begin to protest against and actively oppose interference with an intended course of action; this attests to a growing capability of goal-directed planning and an emerging sense of personal competence (Geppert & Küster, 1983; H. Heckhausen, 1984; Trudewind, Unzner, & Schneider, 1989).

An important step in the development of intentionality is the use of intermediary actions for achieving some goal, such as when a 10-month-old child removes an obstacle to recover a toy. Intentionality is manifested even more clearly when different means are employed to attain the same goal (Bruner, 1973; Piaget, 1936/1952). The material objects and means that are integrated more and more purposefully into sensorimotor coordinations during the first 2 years of life are not just "affordances" (Gibson, 1977) that expand the individual's action space; rather, it is in interaction with such means that experiences of success and failure are first made. The developmental significance of external objects of action has been stressed particularly in activity-theoretical approaches (Leont'ev, 1978; Oerter, 1991; Valsiner, 1987b; Vygotsky, 1978). The use of tools is the paradigm case: For efficient and successful action, the individual's behavior must accommodate to the functions and features of the tool. Being designed for, and in that sense objectifying, a particular type of problems, the mediating means of action—including external objects as well as "psychological tools" as defined earlier (Vygotsky, 1978)—also implicate particular developmental tasks: Achieving such tasks through adjusting to the functional demands of the tools is fostered by an intrinsic motivation for competence and self-agency (Harter, 1978; White, 1959). In early childhood, caregivers support the successful use of objects through structuring zones of activity; in later developmental stages, the guided acquisition of more complicated cultural prac-

tices and techniques typically takes the form of learning through apprenticeship (Rogoff, 1990). Thus, object-related and mediated action constitutes the basic process by which the individual comes to recognize the social nature of action and, gradually, to participate in social networks of knowledge and practice (Lave & Wenger, 1991; Valsiner, 1988a, 1988b; Vygotsky, 1978).

So far, we have addressed some first necessary steps in the genesis of intentional self-development. Further progress is crucially related to the acquisition of language, and to the development of self-related speech in particular. Speech-for-self is a potent means to overcome impediments and unexpected disruptions in an intended course of action and helps to control aversive emotions arising from these experiences (Kopp, 1989; Luria, 1969; Zivin, 1979). In self-referential dialogues, representations of desired and ought selves are actualized and translated into self-directive and self-corrective intentions (Lee, Wertsch, & Stone, 1983). Self-ascription of attributes denoting positively valued personal qualities (e.g., being good, strong, clever, polite) is necessarily tied to the medium of language; thus, emergence of first self-regulative intentions largely coincides and progresses in stride with the development of language. The acquisition of symbolic means to describe and evaluate oneself taps a centrally important source of self-regulatory motivation; as Kagan observes:

[A]round the world, two- and three-year olds begin to reflect on the correctness, the competence, and the appropriateness of their actions before, during, and after execution. They compare their behavior, thoughts, and feelings against the standards and try to keep in close accord with the standard, as a space vehicle's program corrects its course in flight. (Kagan, 1984, pp. 129–130)

Development of Control-Related Beliefs and Motivations

Intentions of self-correction and self-development emerge through the contrast of two anticipatory beliefs: expectations of how developmental prospects might be ameliorated by corrective intervention are contrasted to the initial or baseline expectation of what would happen without such intervention. Such contrasts between "initial" and "revised" expectations (Valle & Frieze, 1976) become particularly salient in critical transitions and choice points in the life cycle. Generally, the range of feasible developmental options that individuals envisage

for themselves depends on the degree of personal control and efficacy that the actor ascribes to him- or herself.

The extent to which a person has control over life circumstances is jointly determined by personal and situational factors: Specifically, it depends on contingencies of the individual's developmental ecology and on his or her potential to act on these contingencies, which, in turn, depends on the availability of pertinent procedural knowledge as well as on the personal accessibility of such knowledge. These diverse aspects or facets are addressed in differentiations of the control construct such as the distinctions between "contingency judgments" and "competence judgments" (Weisz, 1983; Weisz & Cameron, 1985), between "response-outcome expectancies" and "efficacy expectations" (Bandura, 1977; H. Heckhausen, 1989), between "strategy beliefs" and "capacity beliefs" (E. A. Skinner, 1991, 1995; E. A. Skinner, Chapman, & Baltes, 1988), or, with signs reversed, between "universal helplessness" and "personal helplessness" (Abramson, Seligman, & Teasdale, 1978). It should be noted that the formal relation between these facets of perceived control is not symmetrical, in the sense that universal helplessness (the belief that an outcome is generally uncontrollable) implies personal helplessness, but not vice versa. This asymmetry seems important both from a motivational and developmental point of view because individuals will not form an intention to expand their control capacities unless they recognize that goals that are beyond their actual span of control are not necessarily unattainable in a general or universal sense.

These conceptual distinctions suggest two lines of approach for analyzing the development of control beliefs: We may ask, first, how a sense of personal agency grows from the individual's transactions with his or her social and material environment and unfolds into a differentiated system of control beliefs. Second, we should consider how ontogenetic and age-graded changes in physical, temporal, and social resources of action may affect perceived control and efficacy.

Developing a Sense of Control and Personal Agency

The perception of having control over events in the immediate environment implies the cognitive separation between the acting self and the external objects and effects of action, which is an essential achievement in early sensorimotor development. The progressive integration of instrumental objects, as well as of other persons, into own action sequences promotes an early sense

of mediated agency or "proxy control" (Bandura, 1982b) and is germinal for the differentiation of means-end or contingency beliefs from efficacy beliefs. During early childhood, control experiences progressively gain an affective valence that not only stems from the pleasure experienced in the process of producing events but also increasingly reflects the valuation of outcomes in the wider social context. In the process of objectifying and instrumentalizing the physical and social environment, the child also comes to recognize his or her own body, and parts of it, as object and instrument. This is a cornerstone for the reflective processes through which the self as a physical and, later, as a psychological entity can become an object of intentional action.

Self-percepts of personal agency and control originate through the experience of behavior-event contingencies. Contextual factors such as the sensitivity and responsiveness of parents or the extent to which task environments or instructional contexts are adapted to the child's skill level and developmental potentials influence contingencies between actions, intentions, and outcomes and can become a source of interindividual differences in perceived control and self-efficacy (Gunnar, 1980; Lamb & Easterbrooks, 1981; E. A. Skinner, 1985, 1995). Again, generalization of contingency experiences and integration of them into a conceptual self is tied to language development. Between the ages of 2 and 3, children begin to grasp the semantic contents and symbolic qualities of their own behavior and to view themselves as having certain distinct qualities and traits. Preschoolers are motivated increasingly by anticipated self-evaluations, and they eagerly seek for occasions to test and confirm self-descriptions. Discerning competence and contingency as distinct constituents of personal agency, however, requires further cognitive and conceptual achievements; thus, it is not until middle childhood or, in Piagetian terms, until the stage of concrete operations has been reached that children acquire the distinction between alternative "internal" and "external" causes of performance such as ability, effort, task difficulty, and luck, and reflect such distinctions in self-evaluative reactions (Nicholls & Miller, 1984, 1985).

Although beginnings of a purposeful coordination of means and ends can be observed already by the 1st year of life, these early coordinations are practical and intuitive only. Attention is centered on immediate, concrete outcomes of actions; it is not until the emergence of "reflexive abstraction" in later stages of cognitive development (Piaget, 1976, 1978) that attention is turned to the

action processes themselves as well as the mechanisms that mediate between actions and outcomes. The representation of personal competencies and contextual contingencies typically attains the form of an implicit theory during preadolescence. The transition toward a hypothetico-deductive or formal-operational mode of thinking is characterized by a growing capacity to hypothetically project alternative courses of future personal development, which is the basic cognitive process that guides and motivates life planning and intentional self-development in adolescence and adulthood. However, concrete-operational children already begin to reflect about psychological functions such as memory, attention, or comprehension, and to use metacognitive strategies to control and enhance these functions (e.g., mnemonic strategies, techniques of attention control, comprehension monitoring; e.g., Flavell, Speer, Green, & August, 1981; Flavell & Wellmann, 1977; Markman, 1977; P. H. Miller & Bigi, 1979). Maintaining or boosting performance through metacognitive strategies remains an important concern of intentional self-development throughout life and becomes particularly focal in the elderly person's attempts to counteract, and compensate for, functional losses (Baltes & Baltes, 1990; Dixon & Bäckman, 1995).

Action Resources and Perceived Control

The development of action resources over the life span, in many areas at least, tends to follow a curvilinear function: in the earlier segments of the life span, the dominant trend is resource expansion, whereas later segments are characterized by maintenance and differential decrease in physical, temporal, social, and material reserves. A similar pattern of growth and decline has generally been expected for the experience of control and agency through life; however, empirical relationships have proved to be considerably more complex (e.g., Brandstädter, Wentura, & Greve, 1993; J. Heckhausen & Schulz, 1995).

Individual differences in perceived control become manifest already by preschool age: In achievement-related contexts, for example, such differences are displayed in risk preferences, in reactions to failure, or in differential persistence on difficult tasks (H. Heckhausen, 1984). In contrast, the question regarding how the age variable relates to quantitative or qualitative differences in perceived control is far from being settled decisively. Considering the expansion of physical, psychological, and social action resources as well as the loosening, and progressive internalization, of external

directives and regulations, one might expect an increase in internal-autonomous orientations of control from childhood to adolescence; this assumption gains plausibility in view of analogous shifts from heteronomous to autonomous perspectives in moral judgment (Rest, 1982; Selman, 1980). Although some findings seem to converge with this assumption, cross-sectional and longitudinal studies have not borne out a clear-cut and convergent trend (for overviews, see Krampen, 1987b; E. A. Skinner & Connell, 1986). I do not delve here into the methodological difficulties that plague this area of research (e.g., E. A. Skinner, 1995, for a discussion); obviously, an assessment of internality and externality beliefs poses serious conceptual problems as long as the child has not yet developed a corresponding analytic perspective. Generally, the assumption that perceived control or efficacy is a direct function of available action resources seems too simplistic. A personal sense of control and efficacy should depend primarily on the extent to which available action potentials are sufficient to realize personally important goals and developmental ambitions, or, conversely, reflect the extent to which personal goals and ambitions are adjusted to personal action potentials. We have to note at this juncture that after an expansion of action resources, goals and aspirations are often calibrated to a larger scale, which may involve new vulnerabilities. By the same token, a shrinking of action resources does not necessarily lead to losses in perceived control when goals are adjusted to changed developmental opportunities (e.g., Brandstädter & Renner, 1990; Brandstädter & Rothermund, 1994; J. Heckhausen & Schulz, 1995).

The theoretical significance of this principle becomes particularly evident when we consider later life. As I discuss in greater detail later, the accommodation of goals and plans to changed action resources is one of the key processes that helps the elderly person to preserve a sense of personal efficacy and a positive view of self and personal future.

Intentional Self-Development and the Developing Self

Activities of intentional self-development are related to the self in two senses. First, these activities as well as the processes of self-observation and self-evaluation on which they are based are reflexive; that is, they are directed back on the acting individuals themselves. Second, and this is a more complicated issue, such activities are also related to the person's self. These two meanings

are often confounded, and in the present context, they have to be distinguished carefully.

It has become customary to conceive the self—the conceptual or categorical self, or the “me” self as described by James (1890)—as a theory that the individual holds about him- or herself, and that grows out from the social requirement to give consistent and satisfying accounts for oneself and one’s behavior (Epstein, 1973; Kihlstrom & Cantor, 1984; Markus, 1977). However, not all perceptions and beliefs that individuals may hold to be true about themselves refer to attributes that characterize and individuate them in essential ways. It therefore appears that the self, in the stronger sense of personal identity, is less, and in some sense more, than the totality of self-referential beliefs. To count as constituents of personal identity, self-descriptive attributes have to satisfy particular criteria (Baumeister, 1986; Brandstädter & Greve, 1994; McGuire & McGuire, 1981). These attributes must be sufficiently enduring and constant: Only attributes that are sufficiently stable (or are construed by the individual as a stable self-descriptive feature) can warrant self-sameness over time. Furthermore, to be identity-relevant, attributes must also possess some distinctive relevance and contribute somehow to establishing the person’s individuality. Finally, the attributes must be linked in relevant ways to the person’s biography or life course and be seen by the person to form an essential particularity of his or her life. Activities of intentional self-development, as far as they serve to realize, stabilize, and maintain personal identity, will reach their full developmental expression when the individual is able to construe a self-schema of personal identity according to such criteria (Norem-Hebeisen, 1981).

The Ontogeny of the Conceptual Self and of Internalized Control

Objects that are seen by the child as belonging to him- or herself (toys or parts of the body) are the first distinctive markers of individuality (Kopp, 1982; Lewis & Brooks-Gunn, 1979). In early phases of development, identity is often construed by simple discriminative contrasts (child versus adult, boy versus girl); concrete, observable attributes are available earlier and more easily for self-description than abstract qualities (such as attitudes, dispositions, traits) that have to be inferred from observations (Broughton, 1978; Selman, 1980). Stable self-categorizations in terms of essential and invariant characteristics emerge in middle childhood in relationship with the comprehension of physical invariances at

the level of concrete operational thinking. A central aspect of self-description, which also assumes a pivotal role in the further elaboration of a stable identity, is gender (Guardo & Bohan, 1971; Harter, 1983; Kohlberg, 1966; Marcus & Overton, 1978); particularly in societies with marked sex-role stereotyping, conceptions of an “ought” self are often introduced as prescriptions of how a girl or boy should behave or typically behaves (e.g., rules concerning the public display of emotions; e.g., Case, 1991; Stangor & Ruble, 1987, 1989).

Self-regulatory activity is based on self-evaluative standards or “self-guides” (Higgins, 1988) that form the person’s desired and ought self. Self-evaluation and self-control originate from early, heteronomous states that are characterized by the external regulation of behavior through directives and physical constraints; with advancing representational capacities, children internalize external directives and apply evaluative and judgmental labels to themselves and their own actions. The emergence of internalized control is certainly one of the most central and significant achievements of early childhood (Diaz, Neal, & Amaya-Williams, 1991; Flavell, 1977; Kopp, 1982, 1987). The notion of internalization of normative orientations may be misleading as far as it connotes the simple transposing of external norms into an “inner” language of control. Rather, internalization should be seen as a constructive process by which external evaluations, standards, and norms are assimilated, interpreted, and realized in a manner corresponding to the child’s actual developmental state and potential (Lawrence & Valsiner, 1993).

The emergence of internalized control is marked by the appearance of self-affects such as pride, guilt, or embarrassment, which are typically observed in achievement situations around the ages of 3 to 4 (H. Heckhausen, 1984). Children at this age vehemently protest against self-discrepant attributions (“I’m not a bad boy!”). Such early forms of self-assertion foreshadow processes of self-enhancement and self-verification that later become central aspects of intentional self-development (Kagan, 1981a). It is not until middle childhood, however, that self-evaluative concepts or standards are represented in episodic and semantic memory with sufficient complexity so that children can explicitly describe situations in which they would be proud or ashamed of themselves (Harter, 1983). Self-evaluative concepts—for example, personal notions of what it means to be good, competent, fair, or responsible—are continuously redefined and endowed with partly new meanings as cognitive and sociomoral

development advances. This process does not come to a halt at a particular age, but continues throughout life. The capacity and readiness to step back and critically evaluate oneself, one's actions, and later eventually one's personal development and the contour of life from the perspective of the generalized other and with respect to general ideals, maxims, or principles characterizes an advanced level of sociocognitive and sociomoral development that presupposes a formal-operational level of thought (Selman, 1980). It is on this level of cognitive development that individuals first become able to construe a possible self in terms of self-ideals and general ethical principles. Such ideals and principles essentially refer to the relation between the acting subject and his or her social, institutional, and cultural context. As individuals develop a progressively more comprehensive and differentiated view of these relationships, new and broader perspectives become accessible for self-definition and self-evaluation (Damon & Hart, 1982); this change in evaluative perspectives also influences the selection and definition of life goals and identity projects.

Future Selves, Life Plans, and Cultural Scripts

In adolescence and early adulthood, visionary constructions of desired possible selves become the main motivational source of intentional self-development. In this transitional phase, constructions of the future self focus mainly on the domains of future occupation and beginning a family and partnership as well as on developmental tasks and prospects related to these domains (Dreher & Oerter, 1987; Nurmi, 1993; Pulkkinen, Nurmi, & Kokko, 2002). Elementary school children formulate ideas and plans about future roles in life, but these are often vague and fanciful. In adolescence, future goals become more elaborated; they reflect a broader range of realistic options and are linked with concrete procedural intentions and implementation goals (Rosenberg & Rosenberg, 1981; Russell & Smith, 1979).

During adulthood, personal projects and goals for the different segments of the life span eventually merge into a more or less comprehensive and coherent plan of life. Considering the ad hoc, incremental nature of planning about life, Rawls's (1971) contention that each individual "has a rational plan of life drawn up subject to the conditions that confront him" (p. 93) has to be taken with some skepticism. Most people have developed at least some ideas concerning the general contour of their life. These ideas are elaborated, adjusted, and reformulated according to actual constraints and affordances; condi-

tions that often arise in an unpredictable fashion. In shaping and elaborating life plans, parents, partners, and significant others in general play a significant role, both as models and as mentors (Goodnow & Collins, 1990; Levinson, 1978; J. Smith, 1996). As individuals come to participate in social role systems of partnership, family, and occupation, it becomes increasingly necessary to coordinate and synchronize personal life plans with those of other individuals; quality and stability of marital partnerships largely depend on the compatibility and mutual adjustment of life goals (Brandtstädter et al., 1986; Felser, Schmitz, & Brandtstädter, 1998).

As the individual comes to relate his or her personal development to the norms and role systems of family and occupational cycles, social representations of "normal" or desirable development gain further influence in personal life-planning. Age-graded societies constrain and canalize intentional self-development through prescriptions or normative expectations concerning the proper scheduling of developmental events and transitions; in interaction with biological changes, such norms constitute a cultural script of a life course (Hagestad, 1991; Neugarten & Hagestad, 1976). Deviations from this script arouse attention and a need for explanation or justification. However, the normative force of cultural scripts of the life course also stems from the fact that deviations from the "normal" pattern have particular symbolic and attributional valences. Divergence from prescribed timetables for developmental transitions may, depending on the particular domain, be taken as a sign of incompetence, irresponsibility, indifference, or carelessness (Kalicki, 1996). As the individual moves through the life cycle, such symbolic valences gain influence in self-evaluation and intentional self-development.

A sense of personal identity and individuality is to an essential degree tied to those elements in the personal life course that deviate from normative or typical patterns; apparently, the cultural standardization of the individual life course tends to reduce its discriminative and individuating value. This problem is somewhat toned down by the fact that developmental tasks and normative expectations about the life course afford some latitude for idiosyncratic interpretation and implementation; thus, it becomes a developmental task of its own to interpret and implement the cultural script of the life course in ways that are compatible with personal goals and identity projects (e.g., Dittmann-Kohli, 1986).

The formation of personal identity does not end with a final and stable outcome but involves continual revisions and readjustments (Gergen & Gergen, 1987). In

response to the biological transitions and role changes across adolescence and adulthood, themes of intentional self-development as well as the personal importance of self-descriptive attributes also change (e.g., Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Dreher & Oerter, 1986; Nurmi, 1992). The individual's position in educational, occupational, and family cycles influences the personal construal of desired, possible, and ought selves; during positional changes across the life cycle, different standards, rules, and comparative perspectives for self-evaluation become salient (Wells & Stryker, 1988). As individuals travel along the developmental and action paths that form their "thread of life" (Wollheim, 1984), they also tend to shift the temporal focus of self-definition; whereas young adults construe their identity primarily with regard to future possible selves, elderly people derive their self-definitions to an increasing degree from past achievements (Wong & Watt, 1991).

To some extent, however, these developmental adaptations also serve to stabilize and protect core elements of the self-system. As with scientific theories, adjustments in some parts of the structure can be necessary to deflect strain from other, more central parts. Generally, change in self-definitions across the life cycle is dampened by an inherent tendency of the self-system to preserve personal continuity and integration. Thus, the majority of longitudinal studies give testimony to an impressive stability of self-descriptions across adulthood (Bengtson, Reedy, & Gordon, 1985; Filipp & Klauer, 1985). This stability is particularly impressive in elderly individuals; the aging self appears to have powerful adaptive mechanisms at its disposal that defend the self-scheme against experiences of loss and limitation (Atchley, 1989). A comprehensive account of intentional self-development must certainly include some mention of the intentional and nonintentional processes that underlie the adjustment of self-evaluative standards and negotiation of gains and losses in the transition to later life. My final considerations address this issue.

Preserving Personal Continuity and Identity: Assimilative and Accommodative Processes

It has become obvious at this point that activities of intentional self-development must be viewed in the larger context of processes that serve to actualize and stabilize personal identity. During the entire life course, the individual is confronted with events and changes that he or she experiences as a gain or a loss, and as congruent or

dissonant with the self-schema consolidated in earlier phases of life. Personal continuity, as well as crises and transformations of self-definition, essentially results from the ways in which such changes, in mentation and action, are negotiated.

The transition to old age brings with it particular threats to self-continuity and integrity. The late phases of life are characterized by the accumulation of uncontrollable changes and irreversible losses. Although there is a considerable amount of interindividual variation in biological, psychological, and social parameters of aging (e.g., Baltes & Mayer, 1999; Birren & Schaie, 1990; Rowe & Kahn, 1987; Schneider & Rowe, 1991), the curtailment of physiological reserve capacities, chronic and disabling health problems, and problems of bereavement and social isolation increasingly take their toll. These adaptive problems are further aggravated by the narrowing of lifetime resources; becoming aware that important personal goals can no longer be achieved in the remaining time is a particularly aversive experience in later life (Breytspraak, 1984). The picture of a gradual worsening in the subjective balance of developmental gains and losses also emerges from self-reports of elderly people (Brandstädter et al., 1993; J. Heckhausen, Dixon, & Baltes, 1989). In sum, action resources tend to wane in later life, and questions regarding the projects and goals in which scarce resources should be invested take on an increasing significance.

Numerous research programs have centered on the plausible assumption that the experiences of loss, functional limitation, and social marginalization should have a negative impact on self-esteem, personal efficacy, and general well-being in later life. This assumption, however, has found surprisingly little empirical support. There is no general evidence that dissatisfaction, depression, or identity problems increase in later life, except perhaps in terminal phases in which severely disabling and life-threatening health problems loom large (Blazer, 1989; Newmann, 1989; Stock, Okun, Haring, & Witter, 1983). Likewise, there is no consistent evidence for reduced self-efficacy or perceived control. At every age, perceived control over personal development correlates positively with subjective and objective indicators of well-being such as health, life satisfaction, and optimism; however, individual differences in perceived control do not appear to be related systematically to the age variable (Fung, Abeles, & Carstensen, 1999; Lachman, 1986; Rodin, 1987).

This rather counterintuitive pattern of findings raises questions as to possible methodological artifacts.

With regard to the age-depression relationship, it has been argued, for example, that findings might be biased by a reduced motivation of depressed persons to participate in investigations; that relationships might be curvilinear; that elderly people might be more reluctant to report psychological problems; that symptoms of depression in old age often take on a masked or somatized form; or—considering the general predominance of cross-sectional over longitudinal investigations in these areas of research—that the empirical data are liable to confound genuine ontogenetic effects with generational differences (Blazer, 1989; Kessler, Foster, Webster, & House, 1992). These arguments are not examined in detail here, but it appears that they are not strong enough to explain away the phenomenal stability and integrity of the aging self; in fact, this phenomenon increasingly draws attention in developmental and gerontological research (Brandtstädter et al., 1993; Staudinger, Marsiske, & Baltes, 1995).

Here, the question arises as to what protective mechanisms the self-system engages to maintain personal continuity and a positive outlook on future development. From an action-theoretical perspective, two basic adaptive processes—or groups of processes—can be distinguished: On the one hand, individuals may try to alter the situation in an attempt to prevent or avoid undesired or self-discrepant outcomes, on the other hand, evaluative standards as well as underlying personal goals and ambitions may be adjusted to situational constraints. We denoted the former adaptive mode as assimilative and the latter as accommodative (Brandtstädter & Renner, 1990; Brandtstädter & Rothermund, 2002b). The present use of these concepts differs from the familiar Piagetian terminology because we are not referring here to modes of cognitive adaptation but rather to two complementary processes of achieving congruence between actual and desired situations or states.

Assimilative activities in the given sense essentially comprise all forms of intentional and problem-solving action that aim to keep developmental prospects in stride with personal goals and standards, or to alleviate goal discrepancies by actively changing situational conditions (personal life circumstances, behavioral patterns, or attributes). In old age, the preservation of personally valued physical, psychological, and social competencies becomes an important source of self-esteem and a dominant concern of assimilative efforts.

When assimilative actions fail to reduce actual discrepancies and losses, accommodative processes tend to

be activated. By facilitating disengagement from barren goals, the accommodative process enhances a reorientation and commitment to new goals and self-evaluative standards, which may then become new reference points for assimilative activities. The theoretical distinction between accommodative and assimilative modes partly converges with other action-theoretical models that also imply a dual-process conception of coping, such as the model of problem-focused versus emotion-focused coping (Folkman, 1984; Lazarus & Launier, 1978), the theory of the incentive-disengagement cycle (Klinger, 1975, 1987), or the model of primary versus secondary control (J. Heckhausen & Schulz, 1995; Rothbaum, Weisz, & Snyder, 1982); relationships with these conceptions have been discussed in greater detail elsewhere (Brandtstädter & Renner, 1992).

Here, I shall discuss the assimilative and accommodative processes with regard to functional relationships and underlying mechanisms (see also Brandtstädter & Greve, 1994; Brandtstädter & Rothermund, 2002a, 2002b; Brandtstädter, Wentura, & Rothermund, 1999). The discussion focuses on development in late adulthood, but the basic theoretical principles apply to all situations in personal development that involve developmental losses and threats to personal identity.

Preventing or Alleviating Developmental Losses through Assimilative Activity

Preventive or corrective actions that are explicitly and intentionally designed to maintain desired performance standards or skills may be considered as prototypical cases of assimilative activities in later life. Depending on subjective means-ends beliefs and competencies, the implementation of such maintenance goals can take many forms, like physical exercise, dieting, a careful arrangement of daily routines, using cosmetic or pharmacological tools, and so on. Such self-corrective tendencies generally increase as experiences of functional losses and deficits loom larger; the strength of these relationships generally depends on the degree of perceived control over one's development and aging as well as on the personal importance of the domain in question (Brandtstädter, 1989).

Compensatory actions are another variant of assimilative activities that become particularly relevant when some functional losses are already irreversible. Compensation as such is a basic category of mediated human action, and, in a very general sense, any activity that employs auxiliary strategies and means to achieve some

goal that otherwise could not be attained involves an element of compensation (Vygotsky, 1960/1979). In later life, acts of compensation specifically aim at maintaining some desired standard of performance in spite of losses in task-relevant functions or skills. Because performance in particular tasks is generally determined by different skill components and external factors, a deterioration of particular components can often be offset by selective use or strengthening of those components that are still functioning well; depending on the functional domain under consideration, compensation may also involve the use of particular metacognitive strategies (e.g., mnemonic aids) or of external prosthetic means (Bäckman & Dixon, 1992; Baltes & Baltes, 1990; Salthouse, 1987). Activities of compensation tend to be most pronounced in areas that have high discriminative and biological relevance and are of central importance to the person's identity. Like other activities of intentional self-development, compensatory actions depend on the availability of pertinent theoretical and technological knowledge as well as on its personal accessibility.

A further important category of assimilative activity comprises activities of self-verification (Swann, 1983). The self-verification construct refers to a general (but differentially expressed) tendency to preferentially select social or informational contexts that are likely to provide self-congruent feedback on those dimensions of self-description that are central or constitutive to personal identity (Greve, 1990; Rosenberg, 1979; Wicklund & Gollwitzer, 1982). To some extent, self-verification tendencies are already operative on automatic levels; for example, strong self-beliefs have an inherent tendency to reject or discredit discrepant information. This conservative effect may ward off self-discrepant evidence (at least as long as the evidence is not sufficiently strong to override the protective forces) and, in this case, would inhibit assimilative and accommodative responses equally. Only those activities of self-verification that intentionally aim at the purpose of reducing the salience of losses or avoiding self-discrepant feedback, however, should be considered as assimilative. For example, elderly people may strategically select social interactions to serve such self-enhancing intentions (e.g., Carstensen, 1993; Ward, 1984). People may even change their external appearance (e.g., through cosmetic surgery) in an attempt to elicit social feedback that conforms to their self-views (Swann, 1983).

A common feature of all assimilative activities is a tenacious adherence to certain goals, ambitions, or stan-

dards. Intensity and duration of assimilative activities essentially depend on perceived personal competence and efficacy; if initial control beliefs are strong, difficulties in executing assimilative intentions may incite additional assimilative effort, and even induce a reactant increase of the blocked goal's valence (Klinger, 1975; Wortman & Brehm, 1975; Wright & Brehm, 1989). When the individual is confronted with factually irreversible losses or impairments, however, this tenacity may lead to an inefficient use of resources and eventually aggravate feelings of helplessness and depression. Here, possible dysfunctional implications of control beliefs then become apparent, and these implications are gaining increasing attention in clinical and developmental research (Coyne, 1992; Janoff-Bulman & Brickman, 1982; Thompson, Cheek, & Graham, 1988).

As long as assimilative processes dominate, accommodative reactions are inhibited; if personal standards or ambitions can be maintained without difficulty, there is no need for revising them. However, when action resources decrease, assimilative activities may become increasingly difficult and taxing. To borrow terms from economics, the "production-possibility frontier" (Samuelson & Nordhaus, 1985) narrows with decreasing production reserves, so that a desired level of production in one domain can be maintained only by lowering levels in other domains. The shrinking of action resources in later life should have analogous effects: To maintain desired standards in some specific domain, the individual may be forced to downgrade standards in other domains. For example, in some fields of athletic activity, older individuals may successfully maintain performance levels through forced training and sophisticated use of physical reserves (Ericsson, 1990); with advancing age, however, such efforts become increasingly taxing. The psychological problems of aging largely stem from the fact that efforts to compensate for functional losses are subject to a principle of diminishing returns, so that the opportunity costs of maintaining particular standards eventually outweigh the benefits. Under such circumstances, the only way of avoiding or neutralizing feelings of permanent frustration and helplessness is by adjusting goals and ambitions to situational constraints and changed action resources.

Accommodative Processes: Adjusting Goals to Actional Resources

Notions of gain and loss in development involve evaluative elements; whether developmental outcomes or

changes are individually experienced as gains or losses depends on how they relate to the person's goals and projects. Accordingly, losses or goal discrepancies may be eliminated not only by changing the actual situation but also by accommodating goals and self-evaluative standards. Such processes largely operate on nonintentional levels. Thus, the consideration of these mechanisms take us partly beyond the scope of the paradigm of intentional action; it is nevertheless of central importance to understanding the dynamics of intentional self-development over the life course (see also E. A. Skinner, 1995).

Prototypical facets of the accommodative mode involve the devaluation and disengagement of blocked goals, the rescaling of aspirations, and the positive reappraisal of alternative options. Accommodative processes also include interpretative processes that lead to an acceptance of an initially aversive situation, and thus may facilitate disengagement from barren ambitions. Whereas assimilative activities imply a tenacious adherence to goals and standards, the accommodative process is characterized by the flexible adjustment of goals to situational constraints. Rescaling of standards and aspirations has often been considered to be an inferior form of coping, and has been associated with notions of hopelessness, resignation, or depression. Such connotations are misleading; in fact, feelings of hopelessness and helplessness indicate difficulties in letting go of blocked goals or deficits in accommodative flexibility.

Empirical findings from different lines of research hint at the importance of accommodative processes for neutralizing experiences of loss and stabilizing a positive sense of self in later life. Thus, people tend to devalue developmental goals that have drifted beyond feasible ranges; this tendency appears to be less expressed in depressive subjects (Brandstädter & Baltes-Götz, 1990). Similarly, persons suffering physical impairments tend to adjust to their handicaps by rearranging goals and ambitions (Schulz & Decker, 1985). Conversely, the difficulty in letting go of barren ambitions appears to be a characteristic of depression (Carver & Scheier, 1990); thus, in later life, continued pursuit of "youthful" goals and self-ideals may thus become a source of continued discontent (Miskimins & Simmons, 1966). Measures of accommodative flexibility have been found to predict coping with problems such as chronic pain, reduced health, or physical handicaps (Brandstädter et al., 1993; Schmitz, Saile, & Nilges, 1996). Moreover, the intriguing stability of generalized control beliefs in later life seems to depend es-

entially on the accommodation of goals to available resources (Brandstädter & Rothermund, 1994; G. Brim, 1992). With advancing age, preferred modes of coping shift from assimilative-offensive to accommodative forms; in view of the increase of uncontrollable and irreversible losses in later life, this shift is consistent with theoretical expectations.

The readiness or ability to accommodate goals to situational constraints depends on situational and personal conditions. Individuals will find it most difficult to disengage from goals that are central to their identity and for which substitutes or functional equivalents are not easily available. High "self-complexity" (Linville, 1987), that is, a highly diversified and multifocal self-structure may enhance disengagement from barren life projects and commitment to new goals. A further significant factor that may differ across situations and persons concerns the ability to shift the meanings of aversive states or losses so that these eventually become acceptable. In aversive mood states, accessibility of palliative meanings seems to be lowered by a tendency of the cognitive system to generate mood-congruent cognitions (Blaney, 1986). We should therefore expect that accommodative processes engage mechanisms that override such congruency effects (e.g., S. E. Taylor, 1991).

As suggested earlier, such auxiliary mechanisms presumably operate on a subpersonal, automatic level. Accommodation of goals and ambitions needs not to be and often cannot be actuated intentionally, although it may have a directive influence on the individual's intentions and decisions. The process of accommodation, however, does not start but rather ends with a decision to abandon a goal or dissolve a commitment. Disengagement from barren commitments can be enhanced to some extent by the planful use of self-management and self-instruction techniques, but, like other nonintentional or automatic processes, it can be brought under personal control only in such mediated, technical ways. Just as we cannot accept any beliefs apart from those that seem sufficiently plausible within the context of the beliefs we already hold, so too we are unable to discard a goal merely because it seems advantageous to do so (e.g., Gilbert, 1993; Kunda, 1990). Action-theoretical research increasingly pays attention to the role that such unintentional or subpersonal automatisms play in the regulation of action (Bargh & Chartrand, 1999; Brandstädter, 2000).

Among the automatisms that support the accommodative process, mechanisms of attention regulation are of prime importance. As already discussed, atten-

tion generally focuses on situational aspects that are relevant to an ongoing course of action: This suggests that scarce attentional resources tend to be withdrawn from problems that are perceived to be uncontrollable or have turned out to be so (Brandstädter & Renner, 1992). Decentering of attention from uncontrollable problems may be supported by a compensatory tendency to focus on affectively incongruent stimuli (i.e., on stimuli with positive affective valence) after negative feedback (Derryberry, 1993; Rothermund, 2003; Tipper & Cranston, 1985). Particular types of problems, however, may continue to bind attention even after repeated futile attempts to solve them; this is particularly true of problems that are personally so important that continued assimilative efforts have a high subjective utility even under very low probability of success. Under such conditions, problem-focused thinking may degenerate into ruminative thinking that cycles around the blocked goal and its implications (Martin & Tesser, 1989; Martin, Tesser, & McIntosh, 1993); in the dual-process model, such ruminative thought would be symptomatic of difficulties in shifting from assimilative to accommodative modes. However, ruminative thinking may also promote accommodation because it may enhance the finding of positive meanings, which, due to their palliative effects, should also have a greater chance to be accepted as valid (Brandstädter & Renner, 1992; Wentura, 1995). Generally, to deconstruct aversive implications of a problem, information has to be generated that invalidates or undermines the aversive conclusions or the underlying premises; this form of focused, preference-driven thinking involves a positivity bias because the search for further information tends to be stopped after the desired positive result has been reached (Kruglanski, 1990; Kunda, 1990).

The distinction between assimilative and accommodative processes that we have addressed in these final considerations may recall traditional distinctions between active and passive concepts of happiness (Tatarkiewicz, 1976); philosophical notions of wisdom have emphasized the importance of finding the right balance between these two stances. Wisdom, however defined, implies not only knowledge as to which goals are important in life and how these goals may be achieved but also involves a sense as to which limitations are unavoidable and how necessities can be accepted (Kamlah, 1973; Nozick, 1989). Intentional self-development across the life span is based on this interplay between engagement and disengagement, between tenacious goal pursuit and flexible goal adjust-

ment. From the theoretical analysis of these complementary tendencies, a better understanding is gained of how continuity and change both pervade and enable each other in personal development during the life span.

SUMMARY AND CONCLUSIONS

Cultural systems maintain and perpetuate themselves by regulating and controlling developmental processes during the life span; within the matrix of sociocultural affordances and constraints, the developing person builds and tries to optimize his or her personal course of development. Throughout life, individuals are actively engaged in keeping their development in stride with social and personal representations of "successful" development over the life span, and they strive to achieve a favorable balance of developmental gains and losses that conforms to their self-definitions and identity goals. Proceeding on these basic tenets, I have advanced the view that human ontogeny, in theory and research, cannot be understood adequately without taking into account the representational and regulative processes through which individuals control their own and others' development. Goal-directed action is both a driving force and an outcome of personal development over the life span, and the present chapter has made an attempt to integrate both facets.

In contrast to traditional programmatic debates, I hold the view that the merits of any developmental "paradigm" should not be judged on an a priori basis, but in light of its heuristic power and with regard to the quality of related research. In this sense, a general strength of action perspectives, which has been stressed throughout this chapter, lies in their potential to integrate cultural, historical, and personal aspects of human ontogeny. This integrative power essentially stems from the fact that the concept of action is inherently linked to these different analytical levels. Related to this point, action perspectives on development are distinctive in how they account for phenomena of stability and change, of diversity and universality in human ontogeny. An action perspective suggests that stability as well as diversity of developmental patterns are essentially related to the particular arrangement of developmental affordances and constraints prevailing in a given sociohistorical context and reflect the ways in which individuals, through constructive and selective activity, make use of and act on these contextual conditions. Thus, the action paradigm provides a framework for integrating theoretical

stances that emphasize the malleability and contextual relativity of developmental trajectories. This does not necessarily imply that the traditional issues of continuity, connectedness, and universality would be anathema to an action perspective on development. I have argued to the contrary that the consideration of the different types of constraints that shape and constitute development in cultural and personal contexts of action may help to gain a better understanding of these traditional issues. Though not discarding the notion of causal connectivity in development, an action perspective posits that coherence and continuity in development essentially depend on the way in which, on the cultural and personal level, causal mechanisms are exploited to construct and deconstruct developmental contingencies.

As has become evident throughout this chapter, an action perspective on development cannot be reduced to a single theory in the formal sense. Accordingly, it would be questionable to single out a particular research program as prototypically representative of this stance. The research examples given in the present chapter cover a broad spectrum of themes across the whole life span. With regard to child development, researchers have documented the role that co-constructive interactions between the child and the material and social environment play in the formation of skills and competencies, and in the genesis of self-representations from which activities of intentional self-development originate. In the field of adolescent and adult development, efforts have been made to elucidate how personal goals, values, and control beliefs interact in the processes of life-planning and intentional self-development, and how personal and contextual influences shape and modify these orientations as the individual moves through his or her developmental history. With regard to later life, increasing emphasis is laid on the activities and processes by which the aging person maintains personal continuity, counteracts developmental losses, and adjusts personal projects to changes in functional reserves. Action-theoretical constructs such as life tasks, personal strivings, self-regulation, future perspectives, self-efficacy, perceived control, life planning, self-verification, or compensation have served as guiding concepts in this research and have become the nuclei of productive theorizing. Although action-theoretical approaches traditionally have an affinity toward hermeneutic or interpretative methods, it is increasingly recognized that a comprehensive analysis of the functional interdependencies between development, culture, and action would be hampered by

any methodological parochialism. Current research freely uses, and often strategically combines, a broad gamut of methods ranging from experimental and micro-processual analyses to observational strategies and biographical interviews.

Beyond the theoretical issues on which this chapter has primarily centered, an action perspective on development has particular practical and ethical implications. As long as developmental processes are viewed from a narrow causalist or mechanist stance, they are not amenable to rational or moral evaluations. When we consider the personal and collective actions that shape and constrain development, then such evaluations become possible and legitimate. The assumptions, expectations, and theoretical premises that guide goal-directed activities may be evaluated for consistency and validity; goals and plans of action may be analyzed with respect to their realizability, intra- and interindividual consistency, and compatibility with ethical standards. This is equally true for activities related to the control of development; all the more so because developmental problems often reflect incompatibilities in the system of goals, values, affordances, and constraints that shape development on personal and social levels of action. An action perspective on development thus suggests that any effort at "optimizing" development should involve a critical analysis of the beliefs and normative expectations that, tacitly or explicitly, undergird the personal and social regulation of human ontogeny. It also may sensitize developmentalists to the fact that the results of their research and theorizing, when reintroduced into the contexts of socialization and intentional self-development, become part of the antecedent conditions of the processes that they are studying.

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