2. THEORETICAL CONSIDERATIONS

2.1. Goals, Action, and Development

Biological maturation and environmental forces do not entirely control an individual's development. Human beings themselves take an active part. They are, as Thoits (1994) termed it, "psychological activists." The idea that people shape their own development is not new. It can be traced back through history to ancient philosophy (for a historical overview, see Brandtstädter, 1998) and is commonly acknowledged in current developmental psychology as well (e.g., Bandura, 2001; Brandtstädter & Lerner, 1999; Ford, 1987; Ford & Ford, 1987; Lerner & Busch-Rossnagel, 1981). This perspective implies that human development cannot be adequately understood without considering ways in which individuals influence their own life course. Future-oriented motivation, that is, goals and goal-directed action, play an important role in this active "management" of life (cf. Freund, in press). Individuals, through the selection of goals, bring direction to their lives. Goal selection is only the first step in eventually accomplishing desired outcomes. Shaping one's life course in desired directions also requires goal-directed action. Experiencing the effects and limitations of action in turn shapes the individual and guides further goals and activities. Goals, action, and development are thus mutually related. Goals and action drive developmental change and, as a result, themselves change and develop. Brandtstädter (1998, p. 807) described this synergistic relation as follows:

> 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 by which we 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 monitoring and shaping of one's development requires a number of skills that emerge between early infancy and adolescence (see Brandtstädter, 1999; Brandtstädter & Rothermund, in press; Mascolo, Fischer, & Neimeyer, 1999): Infants as young as two or three months display first signs of intentionality. They can detect a contingency between a particular instrumental behavior (e.g., arm pulling) and an effect (e.g., onset of an audio-

visual display), express joy in the presence of the contingency, and anger and a reactant increase in the instrumental behavior in its absence (Lewis, Alessandri, & Sullivan, 1990). Somewhat later, during the third year of life, children acquire the cognitive capacities to develop an elementary representation of themselves. Self-evaluative emotions such as shame, guilt, or embarrassment emerge and indicate an awareness of discrepancies between the actual self and a normative "self-guide" ("ought-self," e.g., Higgins, 1987). Representations of the self as well as of self-guides are progressively differentiated and integrated in the course of further cognitive and socio-emotional development. During the preschool years, children develop a "theory of mind," which enables them to infer the perspectives of other persons and to integrate these into self-evaluations and goal-directed activities (cf. Flavell, Miller, & Miller, 1993). Furthermore, symbolic meanings are increasingly recognized and used. Children now may engage in particular activities because these symbolize certain desired traits or competencies. At ages 9 to 11, children begin to reflect on their own mental processes. This allows them to develop metacognitive strategies that enhance the efficiency and maintenance of goal-directed action, such as focusing attention on a particular goal and warding off distractions. These strategies are instrumental in maintaining future-oriented motivation over a longer period of time and delaying short-term gratification to the benefit of long-term goals (Mischel, 1996; Mischel, Cantor, & Feldman, 1996). At about that time, children also recognize themselves as having distinctive dispositional characteristics that persist across time and situations (Brandtstädter & Rothermund, in press). At about 11 or 12 years of age, individuals start to create hypothetical scenarios of themselves in the future. During adolescence and in adulthood, finally, they develop and continually modify identity goals and "life designs" (Brandtstädter, 1999). They choose or reject particular activities or "ways of life" to realize these. From this point on, they actively and intentionally shape their own life course.

This, of course, does not imply that adolescents and adults are "omnipotent" creators of their biographies. Biological and societal forces fundamentally shape and constrain their development (e.g., P. B. Baltes, 1997; Heckhausen, 1999). Furthermore, within this constrained range of development, individuals have only limited control over developmental outcomes (e.g., Asad, 2000; Dannefer, 1999). I will briefly discuss these two aspects next.

Biological constraints (e.g., limited motor and mental capabilities, genetic predispositions) determine the limits of developmental potential. Within these biological limits, the

individual's development is influenced by his or her environment. These contextual influences include (a) normative age-graded, (b) normative history-graded, and (c) nonnormative aspects (P. B. Baltes, 1987).

Normative age-graded influences correlate closely with an individual's age and are highly similar for many individuals. They are often biological (e.g., sexual maturity or menopause), but may also be societal. For example, societies "canalize" goal selection and pursuit through age norms and age-graded opportunity structures (e.g., Neugarten, Moore, & Lowe, 1965; Settersten & Hagestad, 1996a, 1996b). Age norms provide an age-graded agenda of "normal" development. Deviation from these norms, particularly delay, is often, though not always, negatively evaluated. Age norms, therefore, can influence an individual's goals at a given point in life. Furthermore, age norms are reflected in the amount of resources, support, and reinforcement a society provides for the pursuit of particular goals at a particular age. Consequently, some goals are much more difficult to attain if they deviate from age-related expectations (i.e., if they are "off-time" rather than "on-time," Heckhausen, 1999; for example, the goal of starting out a new career in older versus younger adulthood). Age-graded opportunity structures thus determine the likelihood of realizing particular goals in certain phases during the life span.

Normative history-graded influences are closely tied to the particular historical era in which an individual lives. Most members of a cohort experience these influences. Epidemics, wars, technological advances, or attitudes toward certain social groups are examples. Such historical influences may influence which goals people develop and pursue in their lives.

Nonnormative influences are events that do not happen to everyone, or that have no predictable timing. They contribute to the uniqueness of an individual's development. Examples are chance encounters with ideas, people, or places; serious injuries; or job transfers. These events contribute to the increasing diversity among people as they get older. They may have an immense impact on the life and goals of an individual.

Even within the biologically and environmentally constrained range, the conscious control individuals have over their own development is limited. First of all, there are forms of thought and action that are detached from intention and will, for example, the relatively enduring preferences for certain incentives (e.g., power, achievement, affiliation) that are typically referred to as motives or needs. Empirical evidence suggests that such preferences are acquired very early on the basis of prelinguistic affective experiences

(McClelland, 1987; McClelland, Koestner, & Weinberger, 1992). Because they develop independent of symbolic conceptualization in language, motives—in contrast to the self-attributed goals that play an important role in active life management—are often not consciously accessible (and hence, are frequently labeled "implicit" motives). There is evidence that such early acquired, unconscious motives guide thought and action later in life. For example, several studies showed that adult individuals with a high affiliation motive (assessed by projective picture-story tests) engage in more social contact activities, such as talking or writing letters, than those who are low in that motive (cf. McClelland, 1985).

Even with consciously accessible goals, individuals are not necessarily in full control over the pursuit of their goals. For example, counter-intentional thoughts and acts may occur as consequences of "ironic" failures of mental control (e.g., intrusion of thoughts one is trying to suppress or occurrence of behaviors one is trying to avoid, Wegner & Wenzlaff, 1996). Also, social environments may manipulate individuals to behave in ways that are inconsistent with their goals (e.g., Freedman & Fraser, 1966). Furthermore, environmental stimuli may activate goal-directed activities without the individual's conscious intention. Goals that an individual frequently and persistently pursues in a given situation may thus become capable of operating autonomously and without the individual's conscious guidance (Bargh, 1990, 1996; Bargh & Barndollar, 1996).

More important for the limitations of active life management is that individuals do not necessarily have complete control over the consequences of their consciously conducted behaviors. Often, individuals are not fully aware of contextual factors and causal relations that influence the outcomes of goal-directed activities (Brandtstädter, 1999). The effects of actions that influence the individual's development may often be unexpected, undesired, or even remain unrecognized (Dannefer, 1999). Furthermore, human agency is limited. Successful goal realization requires certain goal-specific skills and the investment of suitable resources (e.g., time, energy, support) of which only limited amounts are available to the individual (P. B. Baltes, 1987).

In sum, human development, particularly in adolescence and adulthood, cannot be adequately understood without paying attention to ways in which individuals themselves influence their life course. Such active life management coincides with processes beyond conscious awareness. It occurs in a reality of biological and societal constraints and limited human agency, and represents only one among many factors that influence an individual's development. An interest in this facet of developmental regulation guided the

present study: Given the limitations and constraints described, which behaviors do people apply in managing their lives? Can one identify behaviors, or certain behavioral characteristics, that people who manage their lives "successfully" use, but individuals who are less successful in their development do not? The model of selection, optimization, and compensation (P. B. Baltes & M. M. Baltes, 1990) provides a theoretical framework for understanding and investigating these questions. Before introducing this model, I will discuss another question that is inextricably linked with the search for adaptive behaviors: What criteria designate adaptive development? Or, how does one know that a given behavior is adaptive?

2.2. How Does One Know a Behavior Is "Adaptive"?

Lifespan developmental psychologists define development as a lifelong process of adaptation to physical, social, and psychological changes. They argue that development comprises growth (i.e., achievement of higher levels of functioning), maintenance (of functional levels in the face of new contextual challenges or potential losses), as well as regulation of loss (P. B. Baltes, Lindenberger, & Staudinger, 1998). On the basis of this conceptualization, "successful" (i.e., adaptive) development can be characterized as simultaneous maximization of developmental gains and minimization of developmental losses (M. M. Baltes & Carstensen, 1996; Brandtstädter, 1986; Labouvie-Vief, 1981). Two major questions arise with this abstract conceptualization of lifelong development: First, how does one know that development is successful? Second, what are the processes and conditions that foster an individual's developmental "success"? In this section, I will discuss criteria of adaptive development (for an overview, see Freund & Riediger, in press). Following that, I will introduce the model of selection, optimization, and compensation (SOC-model) that provides a metatheoretical framework for the study of processes underlying adaptive development.

The identification of criteria that designate an individual's adaptive development is fundamental to developmental psychology and theoretically as well as empirically challenging. As of yet, however, no generally accepted set of criteria exists. Given the complexity of the task and the research-pragmatic necessity of flexibility, a standard set of criteria may never be agreed upon. On a theoretical level, developmental psychologists generally accept that a comprehensive characterization of adaptive development should follow a multi-criteria approach using objective as well as subjective, domain-specific as

well as domain-general, static as well as dynamic, long-term as well as short-term indicators pertaining to multiple domains of life (M. M. Baltes & Carstensen, 1996; P. B. Baltes & M. M. Baltes, 1990; Lawton, 1983). Such a multi-criteria approach takes into account that an individual might develop differently in different life domains, that evaluations of developmental success can refer to different norms of judgement, and that development is not a static result, but an ever-ongoing process.

In empirical research, most studies employ subjective indicators, often the individual's sense of well-being, as the only criterion of adaptive development. Besides pragmatic considerations (subjective evaluations are easily accessible), this approach rests on the assumption that adaptation to life-stage specific challenges and a successful person-environment interaction results in subjective well-being (Havighurst, 1963; Lawton, 1983). An important argument supporting the inclusion of subjective indicators is that individuals in the process of life management often orient themselves according to their own subjective evaluations (M. M. Baltes & Carstensen, 1996). The exclusive reliance on subjective criteria, however, has a number of limitations: Human beings have considerable adaptive potential (Brickman, Coates, & Janoff-Bulman, 1978; Frederick & Loewenstein, 1999). For example, the subjective well-being of individuals living under objectively extremely different conditions differs only marginally or not at all (for a review, see Diener, Suh, Lucas, & Smith, 1999). Moreover, response tendencies (e.g., the tendency to respond in socially desirable ways) may affect the accuracy of self-reports.

Subjective criteria, thus, are important, but not sufficient criteria for the characterization of an individual's development. As indicators of adaptive development, the present study therefore included both subjective and objective indicators of progress toward a selected number of goals, as well as subjective measures of the individual's psychological well-being.[1] There are a number of theoretical accounts that support the utilization of these criteria. According to M. M. Baltes and Carstensen (1996), for example, successful development implies that individuals succeed in progressing toward the attainment of personal goals. Furthermore, several other researchers argued that individuals feel psychologically well when they have been able to progress toward or reach some desired state (e.g., Carver & Scheier, 1990; Maslow, 1987; McClelland, 1987). Steverink, Lindenberg, and Ormel (1998) proposed that people share the "universal" goal of maximizing their

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[1] I will use the terms "psychological well-being" and "subjective well-being" interchangeably.

overall psychological well-being, which in turn is the result of achieving the goals of physical and social well-being. The authors assume that these goals are invariant across individuals, but that people differ with respect to *how* they try to achieve them. Based on this assumption, they argue that developmental success can be operationalized in terms of psychological well-being and that "... the specific content of success comes in through the specification of ... instrumental goals for the achievement of physical and social well-being" (p. 453).

In the literature on subjective well-being, two broad categories of definitions, which vary with respect to the number of defining facets, can be distinguished—"broad" and "narrow" conceptualizations (Kunzmann, 1999). In broad definitions (Lawton, 1975; Neugarten, Havighurst, & Tobin, 1961; Ryff, 1989), a diversity of different facets constitute the concept of subjective well-being. An example is Ryff's conceptualization of positive psychological functioning (e.g., Ryff, 1989, 1995; Ryff & Keyes, 1995), which comprises the dimensions self-acceptance, environmental mastery, positive interpersonal relations, purpose in life, personal growth, and autonomy. Narrower conceptualizations distinguish three dimensions of subjective well-being—one cognitive dimension, which is often labeled life satisfaction, and two emotional dimensions, namely, positive and negative affect (Bradburn, 1969; Campbell, Converse, & Rodgers, 1976; Diener, 1984; Veenhoven, 1991). These dimensions, again, can be split into more specific areas of interest. Domain-general and domain-specific evaluations of life satisfaction, for example, seem to result from different judgement processes (Schwarz & Strack, 1999). Subjective reports of global life satisfaction reflect a holistic impression about how well one is doing (and might be closely associated with current context and mood). Thus, global life satisfaction is not equivalent to the "average" satisfaction in the various domains of the individual's life. Similar differences can be found in evaluations of habitual versus situation-specific emotional well-being (Larsen & Fredrickson, 1999). Furthermore, semantic studies have shown that affect is multidimensional. Valence (i.e., positive and negative affect) represents only one component. Positive and negative emotional states can vary on a number of additional dimensions (e.g., activation, Russell & Carroll, 1999).

In sum, a person's psychological well-being is an often used, subjective indicator of adaptive development. A comprehensive characterization of developmental success, however, should ideally include multiple criteria that characterize a person's development in different life domains, from different standpoints and temporal perspectives. The present

study included self-reported and objective goal progress, positive psychological functioning (Ryff, 1989), domain-general and domain-specific life satisfaction, goal-specific satisfaction, habitual and short-term emotional well-being, as well as enjoyment and dislike of everyday activities, and enjoyment from pursuit of one's goals as multiple indicators of adaptive development.

Another question that arises from interest in adaptive development pertains to the processes or behaviors that might foster an individual's adaptation to life circumstances. The model of selection, optimization, and compensation provides a theoretical framework to address this issue. I will introduce the model's main propositions in the following section.

2.3. The Model of Selection, Optimization, and Compensation

2.3.1. Theoretical Propositions

The SOC-model (e.g., M. M. Baltes & Carstensen, 1996, 1998; P. B. Baltes, 1997; P. B. Baltes & M. M. Baltes, 1990; Freund & P. B. Baltes, 2000; Marsiske, Lang, P. B. Baltes, & M. M. Baltes, 1995) proposes that successful regulation of lifespan development results from the interaction of three developmental-regulatory processes: selection, optimization, and compensation. According to the model, these processes are universal principles of developmental regulation. The model thus provides a general (or "metatheoretical," P. B. Baltes, 1997) framework for understanding adaptive development in different periods of the life span (e.g., childhood, adolescence, adulthood), on different levels of analyses (e.g., individual, family, society), and across different domains of functioning (e.g., cognitive development, active life management). At the same time, the SOC-model is "relativistic." As a metatheory, it does not designate any specific content or mechanisms to the three developmental principles. Selection, optimization, and compensation, which I will define in more detail below, are proposed to have a multitude of possible phenotypic realizations that may vary along the dimensions active – passive, internal – external, and conscious – unconscious. Specific implementations depend on the situation, the relevant domain of functioning, the socio-cultural context, the individual resources, and personal preferences (P. B. Baltes, 1997).

To understand individual manifestations of these three developmental-regulatory principles in particular developmental domains, it is necessary to embed the SOC-model

in more specific theories pertaining to a phenomenon of interest. Using an action-theoretical approach (e.g., Boesch, 1991; Brandtstädter, 1999), Freund and P. B. Baltes conceptualized the SOC-processes in the domain of active life management (Freund & P. B. Baltes, 2000; Freund, Li, & P. B. Baltes, 1999). Action theory is concerned with processes of active and conscious selection, pursuit, and maintenance of personal goals. In the discussion of the SOC-processes below, I will first give a general definition of each of the processes. Then, I will discuss the specific manifestations of each process in the domain of active life management and illustrate each with an everyday example.

Biological, social, and individual characteristics provide, and at the same time delimit, the variety of potential developmental pathways. For example, an adolescent with an interest in technology and science, but with a lack in artistic talent, who lives in a middle class family, in an industrialized country, may have the options of becoming a mechanic, a physicist, a nurse, or a physician, but may not have the options of becoming an actor or a painter. As in this example, the number of available options typically exceeds the amount of resources, such as time or energy, available to the individual (i.e., the adolescent will probably not manage to become a mechanic, a physicist, a nurse, *and* a physician). The SOC-model therefore posits that *selection* out of the pool of available alternatives is one of the main processes of developmental regulation. Selection implies focussing one's resources on a subset of potentially available options.

The SOC-model distinguishes two forms of selection each with different developmental-regulatory functions: *elective* and *loss-based* selection. Elective selection occurs in response to new demands or tasks, such as the task of learning a profession that the adolescent in the example faces. Loss-based selection occurs as a consequence of actual or anticipated loss of resources. In the event of a dramatic financial setback, for example, the adolescent might refrain from a university education and instead choose a less expensive course of professional training. The essential developmental-regulatory purpose of the selection principle is the efficient utilization of limited resources. Focused investment of resources gives development its direction. Selection thus functions as a precondition for developmental specialization. It is in this sense that selection is a necessary prerequisite for achieving higher levels of functioning. Selection, however, may have its costs because options that were not selected at a particular point in life may be irreversibly eliminated.

What are manifestations of selection in active life management? Freund and P. B. Baltes (2000) argue that the selection principle becomes evident in the process of devel-

oping, choosing, and committing oneself to personal goals. Goals are "desired states that people seek to obtain, maintain, or avoid" (Emmons, 1996, p. 314). Since the 1980s, personal goal constructs have become an increasingly popular topic in various disciplines of scientific psychology (for overviews, see Austin & Vancouver, 1996; Brunstein & Maier, 1996; Emmons, 1997; Gollwitzer & Bargh, 1996; Pervin, 1989). A number of different goal concepts have been proposed, such as personal projects (e.g., Little, 1983), personal strivings (e.g., Emmons, 1986), life tasks (e.g., Cantor, 1990), or current concerns (e.g., Klinger, 1977).[2] Although slightly different in their theoretical formulation (for detailed comparisons, see Brunstein & Maier, 1996; Emmons, 1997), the various perspectives on personal goals rest on a number of common assumptions (Emmons, King, & Sheldon, 1993): (a) Each individual possesses his or her idiosyncratic set of goals. These idiosyncratic goals can be characterized along a number of nomothetic dimensions (e.g., difficulty, importance, commitment). (b) Goals represent reference values. Discrepancies from goals initiate and organize thought, behavior, and ongoing emotional reactions. (c) Goals exist within a hierarchy of superordinate and subordinate goals. A small set of life goals represent the "upper end" of a hierarchy. These higher level goals provide general organization and orientation for life. Underneath these higher level goals are subgoals with a shorter time frame of realization. Lower level goals in turn have subgoals and so forth. (d) Goals are available to conscious awareness (can thus be reported). They need not, however, be consciously represented while the person actively pursues them.

In the domain of active life management, *elective selection* denotes developing goals directed at the achievement of higher levels of functioning and committing oneself to them. *Loss-based selection*, in contrast, occurs as a response to losses in previously available goal-relevant resources. It involves changes in goals or the goal system. Examples are reconstructing one's goal hierarchy by focusing on one's most important goals and abandoning less important ones, changing goals by lowering aspiration levels, or substituting no longer achievable goals with more realistic ones. Loss-based selection represents an adaptive strategy of focusing or redirecting resources when compensatory efforts (see below) to maintain one's goal(s) in the face of resource loss are either not possible or would be invested at the expense of other, more promising goals.

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[2] Omodei and Wearing (1990) reported that an inspection of examples given for various goal concepts revealed striking similarities: "It would appear that despite differences in the theoretical characterization ..., subjects will generate the same information when asked for instances of any one of these ... constructs" (p. 764).

The selection of goals promotes adaptive life management in a number of ways. To have goals and to feel committed to them is a necessary requirement for perceiving a purpose and meaning in life (Klinger, 1977; Wong & Fry, 1998). Furthermore, goals organize behavior across situations and time. They reduce complexity by guiding attention to those of the numerous stimuli and behavioral options in a given situation that are goal-relevant (e.g., Gollwitzer, 1991). Goals, thus, help people to interact efficiently with a complex environment.

The second universal principle of developmental regulation, *optimization*, reflects the growth aspect of development. In its general conceptualization, optimization is defined as the acquisition, refinement, and coordinated application of resources directed at the achievement of higher functional levels. Simply choosing a particular profession, for example, is only the first step to eventually becoming, let's say, a nurse. Becoming a nurse also requires the acquisition of specific knowledge and skills through effortful learning and practice.

Compensation, the final developmental-regulatory principle, addresses the regulation of loss in development. Compensation involves efforts to maintain a given level of functioning despite decline in, or loss of previously available resources. It represents an alternative to loss-based selection, which implies a reorganization of life and functioning around the loss. Compensatory efforts in our example of financial setback could involve the acquisition of new, or the activation of previously unused resources for financing a university education, for example, applying for a grant or taking on a part-time job (instead of choosing a less expensive course of professional training as an instance of loss-based selection).

Whereas, with respect to active life management, the selection principle is reflected in developing, choosing, and committing oneself to goals, compensation and optimization are reflected in behaviors involved in goal pursuit. The distinguishing characteristic, as mentioned before, is the presence or absence of loss in previously available goal-relevant resources. Compensation, in contrast to optimization, aims at counteracting or avoiding losses rather than at achieving higher levels of functioning. The phenotypic expression of both processes, optimization and compensation, overlaps theoretically—investing effort and other resources in the interest of progress toward one's goals. The strategies and resources best suited for that purpose vary, depending on the specific goal domain, personal characteristics, and the socio-cultural context. Examples are acquiring and practicing

skills, investing effort and time, seizing the right moment, modeling successful others, or activating new or unused resources (e.g., help or technical aids).

2.3.2. Empirical Evidence

Empirical evidence suggests that people have intuitive knowledge about the life-management strategies selection, optimization, and compensation. Such studies have used proverbs as a means to communicate this intuitive knowledge. Proverbs contain "historically accumulated experience ... that is transmitted from one generation to the next so that it is available to the individual in defining and attempting to solve the problems he (or she) encounters in everyday life" (Rippere, 1994, p. 248). Drawing on two comprehensive collections of German proverbs, Ostrop (1996) identified a large number of proverbs that reflected selection, optimization, or compensation, were easily comprehensible, and applicable to various life domains. The existence of those proverbs indicates that cultural knowledge about pragmatic aspects of human life includes representations of the SOC-strategies.

P. B. Baltes and Freund (2001) used these proverbs in a series of studies investigating intuitive knowledge about the SOC-processes. In two independent studies, younger and older adult participants were presented proverb pairs, each containing one target proverb (reflecting selection, optimization, or compensation) and one proverb representing an alternative, non-SOC-relevant life-management strategy.[3] Proverbs in each pair were matched with regard to familiarity, comprehensibility, and perceived meaningfulness. Participants were asked to indicate as quickly as possible which of two simultaneously presented proverbs better matched a situational sentence stem. The sentence stems described general life-decision situations (e.g., "When one needs to make a decision ..." or "When things don't go as well as they used to ..."). Participants chose proverbs reflecting selection, optimization, and compensation significantly more often than alternative proverbs. This shows that people hold intuitive knowledge about the SOC-relevant life-management strategies. When SOC-relevant proverbs were chosen, the responses were faster than to alternative proverbs. This suggests that knowledge representing selection, optimization, and compensation is well-elaborated. Despite an often documented decline

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[3] English examples: "Those who follow every path never reach any destination" (selection), "Practice makes perfect" (optimization), "When there's no wind, grab the oars" (compensation), "Everything comes to he who waits" (non-SOC alternative)

in speed of response for older persons, the response times of older participants in these studies did not differ from those of younger participants. This result may be due to an even better elaboration of SOC-related knowledge in older adults. A third study, conducted with younger adults only, ruled out that this response pattern was due to a semantic relationship between the specific sentence stems and the SOC-related proverbs. In this study, participants chose between a SOC-related proverb and an alternative proverb in response to the question "In general, which proverb gives better advice?" Again, participants chose the SOC-proverbs more frequently than by chance and faster than they chose the comparison proverbs.

What empirical evidence is there for the proposed adaptiveness of the SOC-processes? A number of studies investigated the association between various subjective indicators of positive functioning and a person's self-reported tendency to engage in SOC-relevant behaviors. These studies utilized various versions of the SOC-questionnaire (P. B. Baltes, M. M. Baltes, Freund, & Lang, 1999). Each item in this questionnaire consists of two statements. One of these statements describes a prototypical instance of elective selection, loss-based selection, optimization, or compensation ("target"). The other statement describes an alternative, non-SOC-related behavior ("distractor"). Both statements are framed as self-descriptions of fictitious persons. Participants decide to which person they are more similar. The number of target statements chosen is interpreted as indicating the person's tendency to engage in SOC-relevant behaviors. In a series of studies, this self-report measure demonstrated satisfactory psychometric properties (P. B. Baltes et al., 1999; Freund & P. B. Baltes, 2001). Specifically, it was shown to have high internal consistency, a sufficient retest stability over one month, and a clear four-factor structure reflecting the SOC-processes.

Freund and P. B. Baltes (1998) found in a sample of older adults aged 72 to 102 years that the self-reported engagement in SOC-relevant behaviors was positively associated with subjective indicators of successful aging, namely, positive affect, satisfaction with aging, lack of agitation, as well as the absence of emotional and social loneliness. Similar associations were found in a heterogeneous sample aged 14 to 87 years (Freund & P. B. Baltes, 2001).[4] Participants who reported engaging in SOC-relevant strategies

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[4] The questionnaire versions employed in this and the study by Wiese et al. (reported next) assessed the facets elective selection, optimization, and compensation. Loss-based selection was only relatively recently incorporated in the model. This facet was therefore not assessed in earlier studies.

evinced higher levels of positive emotions and of positive psychological functioning on the dimensions autonomy, environmental mastery, personal growth, positive relations with others, and purpose in life (cf. Ryff, 1989).

In a sample of young professionals aged 25 to 36 years, Wiese, Freund, and P. B. Baltes (2000) applied a domain-general, a work-specific, and a partnership-specific version of the SOC-questionnaire. In the domain-specific versions, participants responded to the items on their typical behavior in the work or partnership domain. The overall SOC-scores in all three questionnaire versions were again positively associated with various indicators of general well-being, namely, positive psychological functioning (Ryff, 1989), emotional balance (i.e., preponderance of positive over negative affect during the last year), and self-esteem. There were also significant positive associations between self-reported SOC-behaviors in the work domain and work-specific well-being (i.e., work satisfaction, emotional balance in the work domain, subjective success in the work domain), and between self-reported SOC-behaviors in the partnership domain and partnership-specific well-being (i.e., satisfaction with partnership, emotional balance in the partnership domain, and subjective success in the partnership domain).

In all three of the above reported studies, the associations between the SOC-composite score and the various indicators of subjective well-being proved to be robust under controls for a diversity of potential rival predictors, such as age, subjective health, personality traits, or control beliefs. Furthermore, when the associations were determined separately for the single processes, optimization and compensation proved to be more powerful predictors than selection in all three studies.[5]

In sum, the SOC-model provides a general heuristic framework for understanding and investigating development. There is empirical evidence of cultural and individual knowledge about the SOC-strategies. In addition, individuals who report engaging in activities reflecting prototypical instances of selection, optimization, and compensation tend to evince higher levels of psychological well-being than individuals who are less inclined to engage in those activities.

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[5] The majority of the selection items in these studies reflected the aspect of focusing on few important goals. Even very selective persons typically have several goals at a time. The present study, therefore, focused on the nature of the relations among a person's multiple goals as another facet of the selection principle that might be more strongly associated with indicators of adaptive development.

But not all expressions of selection, optimization, or compensation are per se "good" or adaptive (cf. Freund & P. B. Baltes, 2000; Freund et al., 1999; Marsiske et al., 1995): Selecting too early or too few goals, for example, might impair one's flexibility, a characteristic necessary for continued growth and development (Heckhausen, 1999). Such "overselection" might also prematurely preclude options that might lie within one's potential. Similarly, optimization and compensation can take inappropriate forms and have negative consequences. Not investing enough resources, investing resources that do not have the desired effect, or overinvesting resources at the expense of other life tasks or one's own health or well-being are examples. The utility of the general framework provided by the SOC-model therefore lies primarily in its guiding the search for, and investigation of specific characteristics of adaptive behaviors in particular life domains or developmental contexts. In this vein, the general purpose linking the present study with the SOC-framework pertains to characteristics of adaptive goal selection.

2.4. Characteristics of Adaptive Goal Selection

As discussed above, goals fulfill important functions in the regulation of human development. They give meaning and purpose to life and organize thought and behavior across time and situations. To fulfill these functions, the mere fact of "having goals" is probably not sufficient. As the SOC-model points out, people also have to invest effort and other resources into the pursuit of their goals. Are there characteristics of goals that facilitate or hinder successful goal pursuit and an individual's successful adaptation to life circumstances? The purpose of the present study was to investigate one of such potential characteristics—the nature of the relations among a person's multiple goals (conflict, independence, facilitation). The study thus complemented and extended previous research that, proceeding from diverse theoretical backgrounds, addressed various goal characteristics and their associations with psychological well-being, physical well-being, as well as the efficiency of goal pursuit. Before introducing the specific empirical background and research questions of the present study, I will give a brief overview of this broader research field. Specifically, I will briefly discuss research addressing three groups of potential characteristics of adaptive goal selection: (a) those related to goal content, (b) those related to goal representation, and (c) those related to structural attributes of the goal system.

2.4.1. Goal Content

Does adaptive development depend on the content of goals people choose and pursue? In the tradition of humanistic psychology, a number of researchers proposed that personal goals must be in accord with "innate" or "organismic" needs—such as competence, autonomy, and relatedness—in order to foster positive functioning and adaptation (Maslow, 1987; Rogers, 1963; Ryan, Sheldon, Kasser, & Deci, 1996). Research in this tradition has often distinguished between "intrinsic" goals (e.g., aiming toward self-acceptance, emotional intimacy, or community involvement) and "extrinsic" goals (e.g., aiming for financial success, physical attractiveness, and popularity). A number of studies have demonstrated that adolescents and adults who are oriented toward extrinsic goals evince less psychological adjustment than those oriented toward intrinsic goals (Kasser & Ryan, 1993, 1996; Sheldon & Kasser, 1995, 1998). Kasser and Ryan (1993), for example, showed that more materially-oriented persons were higher in depression and anxiety, and showed less self-actualization and vitality. Furthermore, these persons were rated by interviewers as higher in behavioral disorders, and lower in global functioning and social productivity. The authors interpreted these results as indicating that individuals striving toward intrinsic goals tend to have more experiences that satisfy their psychological needs, whereas people striving toward extrinsic goals tend to have more unsatisfying experiences, characterized by pressure, tension, or irritation.

Taking a different theoretical approach, Emmons and colleagues conducted a number of studies that yielded a similar pattern of results. They showed that the proportions of intimacy, affiliation, and generativity strivings within a person's lists of strivings were positively, and the proportions of achievement and power strivings negatively related to psychological well-being (for an overview, see Emmons, 1996).

Also in the humanistic tradition, a number of studies focused on the perceived reasons for having goals to investigate to what extent these goals satisfy the proposed need for autonomy. Such research typically employed four self-reported reasons for pursuing a goal ("perceived loci of action," Ryan & Connell, 1989). These four reasons are assumed to vary along a continuum ranging from nonself-determined (or "controlled") to self-determined (or "autonomous"). They are labeled as follows: "external" (i.e., having a goal because of extrinsic reward, praise, approval), "introjected" (i.e., having a goal because of otherwise feeling ashamed, guilty, or anxious), "identified" (i.e., having a goal because of the belief that this is an important goal), and "intrinsic" (i.e., having a goal because of the

fun and enjoyment that it provides). Several studies showed that pursuing goals for more autonomous (i.e., identified and intrinsic) reasons is associated with higher engagement and success in the pursuit of that goal (i.e., greater behavioral effectiveness) and greater psychological well-being (for reviews, see Deci & Ryan, 1985; Ryan & Deci, 2000; see also Sheldon & Houser-Marko, 2001).

A less evaluative stance toward the association between goal content and adaptive development is reflected in the argument that successful life management requires the investment of resources. Individuals differ not only in the amount, but also in the kind of resources available. Hence, successful adaptation would depend on choosing those goals that can be attained with the resources that are accessible to the individual (Freund & P. B. Baltes, 2000; Heckhausen, 1999). A study reported by Diener and Fujita (1995) empirically supports this assumption. The authors define resources as those "material, social, or personal characteristics a person possesses that he or she can use to make progress toward his or her personal goals" (p. 926). A sample of college students were asked to indicate how relevant each of 21 different resources (abilities, traits, social support, and material possessions) was for each of 15 self-reported goals. Information on the degree to which each participant possessed each resource was obtained from knowledgeable informants. The more the goals of a person were congruent with the resources possessed by that person (i.e., the more the person selected goals for which he or she possessed adequate resources), the more global well-being, life satisfaction, and pleasant affect, and the less unpleasant affect the person tended to experience.

2.4.2. Goal Representation

Is adaptive development associated with the way in which goals are represented or described by the individual? Two different dimensions of goal representations have been found to be related to the individual's psychological and physical well-being: the level of abstraction (ranging from "magnificent obsessions" to "trivial pursuits," Little, 1989) and the framing of goals as either striving toward positive, appetitive states (i.e., approach goals) or striving to avoid negative, aversive states (i.e., avoidance goals).

Level of goal abstraction. Various studies showed that people differ in the level of generality or abstraction with which they tend to phrase their goals (Emmons, 1992; Little, 1989; Vallacher & Wegner, 1989). Some people tend to describe their goals in relatively broad and expansive ways (e.g., "do good for others with my strengths"), whereas others

describe their goals in a more concrete and specific way (e.g., "visit my grandfather once a week"). Such individual differences in the level of abstraction are related to psychological and physical well-being. Emmons (1992), in a series of studies, found a consistent pattern of results that he labeled the "depression versus sickness tradeoff." People who tended to describe their goals in abstract terms ("high-level strivers") tended to experience more psychological distress, whereas people who tended to describe their goals in concrete terms ("low-level strivers") tended to be more prone to physical illness.

Control theory of self-regulation (e.g., Carver & Scheier, 1990) provides a potential explanation for the greater risk of psychological distress in high-level strivers. This theory assumes that people strive to minimize the discrepancy between their present condition and some desired standard or goal. Affect is assumed to be part of a "negative feedback loop." Negative affect signals failure to progress toward desired end states at an appropriate speed. The more abstract a goal, the less clear it is what outcomes are acceptable as indicators of goal progress (e.g., it is relatively clear when one visited one's grandfather, but when did one do good with one's strengths?) Accordingly, it could be more difficult to monitor one's progress toward high-level strivings. Findings confirm that abstract goals are perceived as more difficult, as requiring more effort, and as being less likely to be attained than concrete goals (Emmons, 1992; Little, 1989).

Similarly, research on goal setting (Locke & Latham, 1990) showed that challenging, specific goals tend to be associated with higher goal performance than challenging, vague goals (i.e., "do-your-best" goals). These researchers also stressed the importance of the performance feedback that specific goals permit. People who work on challenging, specific goals tend to be more persistent (i.e., to work longer at the task at hand) and to focus their attention more on behaviors that lead to goal attainment (i.e., to ignore possible distractions more effectively). If the time to be spent working on the task is limited, people tend to work with greater intensity and effort.

Setting specific goals, however, might also have its costs. Little (1989) referred to this as the "manageability" versus "meaningfulness" tradeoff. Progress toward low-level goals might be easily recognizable, but those goals might at the same time appear trivial and lack the meaning and life purpose that high-level goals imply. Also, as mentioned before, low-level strivers in Emmons' studies tended to have a higher risk of physical illness. The author interpreted this finding by hypothesizing that low-level strivers might share characteristics with the repressive personality type (Weinberger, 1990). A characteristic of

the repressive type is denial of being distressed, even in the face of objective evidence. Due to a chronically aroused autonomous nervous system, these individuals are believed to be susceptible to developing psychosomatic illnesses. Indeed, low-level strivers in the studies by Emmons showed a characteristic pattern: They did not differ from high-level strivers in their self-reported physiological symptoms, but, based on objective indicators (i.e., peer or spouse reports and hospital visits), were more prone to physical illnesses.[6]

Altogether, the answer to the question whether having concrete or abstract goals is more adaptive is not so simple. After all, it might not be a question of one or the other, but of a suitable "mixture." Bandura (1996), for example, argued that successful life management is best achieved by combining meaningful, abstract goals ("long-range visions") with concrete subgoals that are instrumental in achieving the higher order goals.

Approach versus avoidance goals. A second dimension of goal representation in which people might differ is the degree to which they strive toward positive, desired states (e.g., "spend lots of time with other people") as opposed to striving to avoid negative, aversive states (e.g., "not be alone so often"). In comparison to persons with a high proportion of approach goals, persons with a higher proportion of avoidance goals tend to experience lower psychological and physical well-being (i.e., to report lower positive mood, less life satisfaction, more anxiety, lower self-esteem, less optimism, higher depressivity, more physical symptoms; e.g., Coats, Janoff-Bulman, & Alpert, 1996; Elliot, 1999; Elliot & Sheldon, 1997; 1998; Elliot, Sheldon, & Church, 1997; Emmons, 1996).

Elliot and Sheldon (1998) argued that these associations might be due to a lower perception of competence and self-determination in the selection of goals. They proposed that the permanent awareness of potential aversive outcomes associated with an avoidance orientation is likely to elicit and sustain appraisals of threat, anxiety, and self-protection processes. They furthermore argued that avoidance regulation is likely to be associated with a sensitivity to, a heightened accessibility of, and a biased search for negative information, which in turn could result in lower perceptions of one's own competence. They also assumed that the pursuit of avoidance goals has little inherent or intrinsic appeal. Indeed, they found in a series of studies that the association between avoidance orientation and physical symptomatology was mediated by perceived "competence" (i.e.,

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[6] Unfortunately, Emmons did not elaborate why persons with a repressive personality type should tend to frame their goals in concrete, rather than in abstract, terms.

participants' evaluations of how well they were doing with respect to their goals), perceived external "controlledness" (i.e., the degree to which participants mentioned external and introjected reasons for their goals, see discussion on "perceived loci of action" above), and perceived "autonomy" (i.e., the degree to which participants mentioned identified and intrinsic reasons for their goals).

With few exceptions, these studies were conducted in samples of college students. Taking a lifespan developmental perspective, Freund and P. B. Baltes (2000) argue that the overall dynamic between approach and avoidance goals might change with age. Given the increase in losses and the decrease in gains over the life span (P. B. Baltes, 1997), goals might shift from being predominantly approach goals in earlier phases of the life span (e.g., "become a nurse"), to maintenance goals (e.g., "stay mentally fit"), and avoidance goals (e.g., "not become dependent") in later life. Heckhausen (1997) found that younger adults, as compared to middle-aged and older adults, reported more goals reflecting a striving for gains and less goals reflecting avoidance of losses. A similar result was reported by Ogilvie and Rose (1998). They found that approach goals represented the highest percentage of self-generated goals in younger, middle-aged, and older adults. Older adults, however, reported significantly lower proportions of approach goals, and significantly higher proportions of maintenance goals than did younger and middle-aged adults. In contrast to the finding reported by Heckhausen, the three age groups in Ogilvie and Rose's study did not differ with respect to the prevalence of avoidance strivings.[7]

2.4.3. Structural Attributes of the Goal System

Individuals typically have multiple goals at a time. Structural attributes of such goal systems might therefore have implications for the efficacy of life management. One such attribute—the nature of intergoal relations—is the main research interest of the present study. Other structural attributes of goal systems as well have been addressed in empirical research. These involve various aspects that can be subsumed under the notion of "selectivity."

Staudinger and colleagues (Staudinger & Fleeson, 1996; Staudinger, Fleeson, & P. B. Baltes, 1999a; Staudinger & Freund, 1998) regard the overall intensity and the pattern

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[7] To my knowledge, so far no studies have been conducted to investigate whether the association between approach or avoidance orientation and psychological or physical well-being changes with age.

of an individual's involvement in various goal domains as main aspects of life management. They conceptualize an individual's "life investment" as his or her average self-reported mental and behavioral engagement in a number of different life domains (i.e., "to what degree do you think or do something about your ...," e.g., health, hobbies and interests, relations to friends and acquaintances, well-being of family members, etc.). The assessed life domains include those that are potentially important for the population being studied. Without directly eliciting a person's goals, the authors interpret the life-investment construct to indicate "the energetic aspect of goal pursuit" (Staudinger et al., 1999a, p. 315). In a cross-sectional sample of old and very old adults (70 to 100+ years), Staudinger et al. (1999a; Staudinger & Freund, 1998) found that life investment moderated the relationship between aging satisfaction and somatic constraints (as indicated by a composite score including number of diagnoses as well as impairments in vision, hearing, and activities of daily living). As expected, somatic constraints and aging satisfaction were negatively correlated. This negative association, however, was particularly pronounced in persons with high personal life investment and significantly smaller in persons with low personal life investment. A similar result was obtained with the association between chronological age and aging satisfaction. With increasing age, low life investment became increasingly strongly associated with higher aging satisfaction. Such low overall life investment can be due to a relatively low investment in all the life domains under study. It can also result from a very low investment in some, and a very high investment in a (selected) number of other life domains. According to the SOC-model, it is selectivity of the latter type that would be particularly adaptive in conditions of pronounced resource limitations. To specifically address this aspect, the authors regarded the number of life domains with self-reported very low investment scores as an indicator of such an "investment selectivity." Again, they found the same pattern of results. High selectivity (i.e., focusing one's mental and behavioral involvement on a small number of life domains) appeared to buffer the negative effects of somatic risks and chronological age. Selectivity in this sample of old and very old adults thus appeared to be particularly adaptive under increasingly constraining life conditions.

Wiese (2000) adapted the procedure for use in a sample of young professionals by including life domains that might be central to their life contexts (e.g., relation to parents, partnership, founding a family). She used the individual variance of the life-investment ratings in the assessed life domains as an indicator of investment selectivity. Young pro-

fessionals with high investment selectivity (i.e., who reported high mental and behavioral involvement in some, and low involvement in other life domains) were emotionally more balanced (i.e., the intensity of self-reported positive affect outweighed that of self-reported negative affect during the preceding year) and reported higher levels of positive psychological functioning (Ryff, 1989) than less selective individuals. Wiese did not report whether investment selectivity here also functioned to buffer the negative side of particularly pronounced resource constraints.

Specifically focusing on the work and family domains, Wiese (2000; Wiese & Freund, 2000) investigated the adaptiveness of two other aspects of selectivity in young professionals—setting priorities and temporally sequencing the pursuit of resource-demanding goals. Asking participants to indicate the relative weight they currently give to the family and work domains and to indicate the weight they plan to give these domains in the future, she identified three types of "goal structures:" The largest group of participants (44%) were equally engaged in both goal domains and planned to stay equally engaged in the future ("parallel goal structure"). A second group of participants currently prioritized the work domain, but planned to invest more in the family domain in the future ("sequential goal structure," 25%). Nine percent of the participants, finally, indicated that they currently prioritized the work domain and planned to do so in the future ("monothematic goal structure"). Currently more selective participants (i.e., those with sequential and monothematic goal structures) evinced higher levels of general as well as of work-related well-being (e.g., they reported higher emotional balance, higher self-esteem, higher work-related satisfaction) than participants with a parallel goal structure. In the family domain, however, participants who currently prioritized the work domain felt less satisfied than individuals with a parallel goal structure. This association between type of goal structure and family-related well-being was significantly reduced after controlling for the absolute level of partnership commitment. Wiese and Freund (2000) concluded that developmental success in a particular life domain is not possible without an appropriate level of personal investment.

Sheldon and Emmons (1995) addressed still another structural aspect of a person's goal system, the degree of *goal differentiation*. They define goal differentiation as the extent to which goals are dissimilar or functionally independent of each other. Using two different operationalizations, namely, the degree of self-reported dissimilarity of ten personal goals and an index of how differentially participants evaluated these goals on a number of

dimensions (e.g., difficulty, commitment, progress), they found that participants with more differentiated goals tended to report lower degrees of past goal attainment and current goal progress. They interpreted these findings as indicating that goals are more difficult to coordinate effectively when they are very different from one another.

This study bears similarities to research addressing a somewhat different construct, namely, self-concept differentiation. This construct refers to the degree to which people tend to see themselves as having essentially the same characteristics across various social roles or as being quite different depending on the particular context. Research by Donahue, Robins, Roberts, and John (1993) showed that participants who tended to see themselves as having different personality characteristics in different social roles tended to have lower self-esteem, to be more depressed, and to be more neurotic than individuals who saw themselves as similar across roles. They argued that these results show that a "fragmentation" of the self is maladaptive because it represents a lack of integration and cohesion within the self-concept.

In contrast, Linville (1985, 1987) showed in a series of studies that a greater degree of self-complexity (i.e., a greater number of distinct aspects of the self) functioned as a buffer against negative effects of stressful life events on psychological and physical well-being. She argued that the negative effects of events pertaining to one self-aspect (e.g., self as partner) might tend to spill over and affect other self-aspects as well (e.g., self as professional) if the individual has only few and overlapping self-aspects (for a similar hypothesis, see Thoits, 1983). In individuals who have a large number of aspects of the self, the impact of threatening events might be more likely to stay confined to the respective self-aspect. These individuals might thus be able to maintain positive thoughts and feelings about some aspects of the self, despite the negative event. Consequently, greater self-complexity might not be generally maladaptive (as Donahue et al., 1993, assumed), but rather fulfill a buffering function in situations where the occurrence of negative events threatens one's self-esteem. Returning to the domain of future-oriented motivation, one could hypothesize that higher levels of goal differentiation might have buffering effects in situations where the successful realization of (some) goals are blocked. To my knowledge, such an assumption has not yet been empirically investigated.

To conclude, a variety of studies have addressed characteristics of adaptive goal selection. These studies showed that people who successfully manage their lives tend to select intrinsic goals for self-determined reasons, select goals for which they possess ade-

quate resources, possibly have an instrumental hierarchy of a few abstract goals providing meaning in life and specific goals that are instrumental in getting them there, tend to frame their goals more in terms of approaching desired positive states than as avoiding aversive negative states, and to be selective in their involvement in various goal domains (although being overly selective might have its costs in situations where goal pursuit is blocked). Overall, the research discussed shows that the study of personal goals is a fruitful enterprise when one is interested in understanding how people successfully manage their lives. With few exceptions, the reviewed studies were conducted in samples of younger adults (often college students). The developmental aspect of the selection and framing of personal goals and their impact on one's adaptation to life circumstances is widely unresearched. The present study therefore aimed at more explicitly linking motivational research and a developmental perspective. It did so by addressing another structural aspect of a person's goal system—the nature of relations among multiple goals.

2.5.   Relations Among Multiple Goals

The following sections introduce the specific theoretical and empirical background of the present study. I will first define the various qualities that relations among a person's goal can have. Following that, I will relate the topic of intergoal relations to the multifarious research that the notion of intraindividual conflict has stimulated in psychology. Following a summary of available research on the association between intergoal relations and psychological as well as physical well-being, I will delineate the research questions of the present study.

2.5.1. Independence, Facilitation, and Conflict

Theoretically, three different qualities of relations among an individual's goals (or, more precisely, the impact of pursuing one goal on the pursuit of another goal) are possible: (a) independence, (b) facilitation, and (c) conflict (e.g., Argyle, Furnham, & Graham, 1981).

Goal independence refers to a constellation in which the pursuit of one goal has no impact, neither positive nor negative, on the pursuit of a particular other goal of the individual.

Intergoal facilitation occurs when the pursuit of one goal simultaneously increases the likelihood of success in reaching another goal. An example is participation in a profes-

sional development program that might simultaneously offer opportunities to advance one's career and to get to know new people. Such favorable intergoal relations have also been labeled goal coherence (e.g., Sheldon & Kasser, 1995), integrity (McGregor & Little, 1998), congruency (Brunstein, Schultheiss, & Grässman, 1998), or integration (Sheldon & Emmons, 1995). I prefer the term "facilitation" because it emphasizes more the functional aspect (i.e., the cooperative and facilitative nature) of this property of intergoal relations.

Intergoal conflict refers to a situation in which the pursuit of one goal interferes with the achievement of another of the individual's goals (Emmons & King, 1988) as, for example, when the pursuit of a career goal takes away time from a goal in the leisure domain.[8] In general, conflict is ubiquitous in everyday life, not only between one's goals. As Emmons et al. (1993) put it:

> [A]ction can be seen as a compromise between the broad range of an individual's needs and situational and self-imposed constraints. Behavioral impulses must be controlled or inhibited when they are at odds with a person's overarching goals and values or with societal constraints. We cannot have or do all that we desire because often our desires, themselves, conflict. Implicit in self-regulated action, then, is conflict. (p. 528)

Because of its prominent role in human experience, the theme of intrapsychic conflict has a long history in philosophy and the arts (for a brief overview, see McReynolds, 1991), as well as in certain approaches in empirical psychology and psychoanalysis. A variety of terms have been coined for it, for example, discrepancy, disregulation, disconnection, contradiction, incongruity, incompatibility, imbalance, or discontinuity (see Emmons et al., 1993). Regardless of the terminology, these approaches all deal with opposing tendencies within the individual.[9] Below, I will briefly illustrate the diverse approaches in psychology to intraindividual conflict by giving selected examples. Following that I will

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[8] The term goal conflict has also been used to refer to ambivalence, that is, an approach-avoidance conflict an individual might have about the attainment of one particular goal (i.e., wanting and at the same time not wanting to attain that goal). The present study aimed at investigating implications of goal configurations for adaptive life management. I will therefore restrict the usage of the term goal conflict (and its investigation) to the relation among *different* goals of the individual (for empirical investigations of goal ambivalence, see Emmons & King, 1988; Emmons et al., 1993).

[9] Another form of conflict that has inspired much psychological theory and research involves opposing tendencies *between*, rather than within, individuals. Because it was not the topic of this study, the following discussions will not address this issue (but see, e.g., Argyle et al., 1981; Laursen, in press; Wilensky, 1983).

describe research that specifically addressed conflict and facilitation among a person's goals.

2.5.2. Excursus: The Notion of Intraindividual Conflict in Psychology

On a very general level, two different perspectives on intraindividual conflict in psychology can be distinguished: One perspective, predominantly represented by developmental psychologists, stresses the beneficial aspects of conflict. The second perspective, predominantly represented by clinical psychologists, emphasizes the detrimental effects of chronic or unresolved conflict. The vast majority of empirical research on intraindividual conflict stems from the latter perspective.

2.5.2.1. Beneficial Aspects of Intraindividual Conflict

Riegel (1975), in his "dialectic interpretation of development," argued that stability and conflict are mutually dependent, though contradictory, conditions that only through their interaction make development possible. In his conception, the notion of conflict is broad and refers to any kind of contradictions, doubts, or ambiguities. The recognition of those conflicts enables individuals to resolve them by inducing change. Conflicts, thus, are opportunities for development.

This conception represents a lifespan generalization of the developmental mechanism proposed by models restricted to early phases in the life span, such as Piaget's theory of cognitive development (Piaget, 1985) or Kohlberg's theory of moral development (Kohlberg, 1969). Turiel (1974), in an analysis of transition processes leading to higher stages of moral judgement, for example, argued that if the individual becomes aware of the inadequacies and contradictions of his or her current moral reasoning, the resulting state of conflict (or confusion) can lead to corrections and, thus, to the achievement of a more advanced stage of reasoning.

This argument—that the experience of conflict might be beneficial because it provides impulses for developmental progress—has been proposed in varying forms by a number of other developmental psychologists (e.g., Brim & Kagan, 1980; Erikson, 1959; Vaillant, 1977). To date, this line of argumentation remains mostly theoretical (i.e., has not been subjected to systematic empirical investigations; Laursen, in press).

2.5.2.2. *Detrimental Aspects of Intraindividual Conflict*

In a variety of different theoretical and therapeutic approaches in clinical psychology, intraindividual conflict is regarded as crucial factor in pathology. Particularly when conflict is not resolved over a longer period of time and occurs in domains central to the individual, it contributes to the development and maintenance of psychopathology and physical illness (for overviews, see Emmons & King, 1988; Epstein, 1982; Hoyer, 1992).

An example is Miller's classic conflict theory (1944), which integrates work by Lewin (e.g., 1931), Smith and Guthrie (e.g., 1921), Kantor (e.g., 1926), Hovland and Sears (e.g., 1938), Hull (e.g., 1938), and others (see Epstein, 1982). Miller distinguished four basic types of conflict between behavioral impulses: approach-approach (i.e., the individual has to decide between two equally desirable alternatives), approach-avoidance (i.e., the individual is faced with an ambiguous stimulus that is both desirable and undesirable), avoidance-avoidance (i.e., the individual has to decide between two equally undesirable alternatives), and double approach-avoidance (i.e., the individual has to decide between two ambiguous alternatives). On the basis of complex assumptions about the dynamics of approach and avoidance tendencies ("gradients"), Miller proposed that such conflict situations, and particularly approach-avoidance conflicts, lead to sustained levels of fear and arousal (stress reaction) and are thus potent elicitors of psychopathology. This model long served as a theoretical basis for the development of intervention techniques in psychotherapy (see Grunwald, 1976) and stimulated much experimental research, often in nonhuman populations. Sawrey and Weisz (1956), for example, demonstrated that rats subjected to an approach-avoidance conflict were more likely to develop gastric ulcers than controls. They induced an approach-avoidance conflict through an experimental setting in which the rats could only obtain food and water by crossing an electrified grid floor. Lawler, Barker, Hubbard, and Allen (1980) showed that genetically predisposed rats developed tonic levels of hypertensive systolic blood pressure when subjected to an avoidance-avoidance conflict, whereas genetically equally vulnerable controls did not.

Such conflict between behavioral impulses represents just one expression of intrapsychic conflict. To date, it is generally recognized that the most prevalent kind of conflict in humans is conceptual, that is, it involves incompatible cognitive representations (e.g., attitudes, values, or goals). Research by Lauterbach and colleagues, for example, provided empirical evidence that such conceptual conflict is associated with psychopathology and physical symptoms (e.g., Hoyer, 1992; Hoyer, Frank, & Lauterbach, 1994;

Lauterbach, 1987, 1991, 1996). In line with social psychological inconsistency theories (e.g., dissonance theory, Festinger, 1957; balance theory, Heider, 1946, 1958; or congruity theory, Osgood & Tannenbaum, 1955), these researchers define intraindividual conflict as "the contradiction or incompatibility of attitudes, values, and opinions pertaining to personally relevant concepts in the significant areas of a person's life" (Lauterbach, 1991, p. 85). For the assessment of intraindividual conflict, they use a method based on Heider's balance theory (see Lauterbach, 1987, 1996): Individuals report their attitudes toward each of a number of a priori specified concepts (covering a "cognitive field") as well as of their beliefs on the nature of the pairwise relationship between the concepts. The degree of conflict in the assessed cognitive field is defined as the percentage of imbalanced triads. A triad consists of the individual's attitudes toward each of two concepts and his or her evaluation of the interrelation between these concepts. A triad is imbalanced if the number of negative relations is odd, and balanced if it is even. For example, in order to assess intraindividual conflict associated with pregnancy, two concepts could be "having a child," and "career." If a woman indicates that she thinks having a child is a positive experience and also indicates that a career is desirable, but feels that having a child hinders a career, the triad is imbalanced—having a child and career represent two positive values that conflict with each other. If, however, she does not care about a career (or having a child), the triad would be balanced. Using this assessment procedure, the degree of intrapersonal conflict was higher in a sample of psychosomatic patients than in a psychologically healthy control group (Hoyer, 1992). Furthermore, it was highly positively correlated with negative mood in depressive patients, alcoholics, as well as in two nonclinical samples (Lauterbach, 1991), and was positively associated with the severity of psychological and somatic symptoms in alcoholics and psychosomatic patients as well as in accident patients (Hoyer, 1992; Hoyer et al., 1994; Lauterbach, 1996). In addition, the degree of intrapersonal conflict was lower in alcoholic patients at the end versus the beginning of six months in group psychotherapy, and considerably lower in a nonclinical control group of long-term abstinent alcoholics (Lauterbach, 1996).

These examples are from research that emphasized the detrimental side of conflict from a *clinical* perspective. Other approaches in psychology address associations between intraindividual conflict and negative experiences in a nonpathological range. Two examples are research on role conflict and on conflict between beliefs about the self.

Role theory concerns an important characteristic of social behavior, namely, that people behave in ways that are different and predictable depending on the situation and context. The theatrical metaphor "role" refers to the assumption that individuals hold social positions, and that those positions are associated with behavioral expectations: "If the performances in the theater were differentiated and predictable because actors were constrained to perform 'parts' for which 'scripts' were written, then it seemed reasonable to believe that social behaviors in other contexts were also associated with parts and scripts understood by social actors" (Biddle, 1986, p. 68). Individuals may be confronted with situations in which they may be required to "play" a role that conflicts with their values or to play two or more roles that conflict with each other (Van Sell, Brief, & Schuler, 1981). A vast number of studies that investigated job-related role conflict showed positive correlations with job dissatisfaction, job-related tension, unsatisfactory work-group relationships, slower and less accurate performance, lower commitment to and confidence in the employing organization. Reported associations between role conflict and more personally dysfunctional outcomes included positive correlations with fatigue, complaints about somatic symptoms, depression, irritation, and a sense of futility, as well as a negative relation to happiness (for reviews, see Fisher & Gitelson, 1983; Van Sell et al., 1981). Furthermore, studies about interrole conflict between work and family showed consistent negative relationships to job and life satisfaction (for reviews, see Allen, Herst, Bruck, & Sutton, 2000; Kossek & Ozeki, 1998). Similarly negative relationships were found between subjective well-being and conflict associated with other roles, for example, care of elderly parents (e.g., Doress-Worters, 1994; Stephens, Franks, & Atienza, 1997).

Before turning specifically to conflicts among a person's goals, I want to give a final example illustrating the breadth of research addressing the "detrimental side" of intraindividual conflict, namely, the example of conflict among (or incompatibilities of) self-beliefs. Three basic types of incompatible self-beliefs have been shown to be associated with emotional distress (for an overview, see Higgins, 1987): (a) inconsistency between a person's self-concept (i.e., one's self-perceived characteristics) and one's behavior or external behavior-related feedback, (b) contradictions among one's self-perceived attributes, and (c) discrepancies between one's self-perceived characteristics and some standard or "self-guide."

Self-discrepancy theory (Higgins, 1987; Higgins, Klein, & Straumann, 1987) addresses the third type of conflict. It postulates two cognitive dimensions underlying self

representations—"domains of the self" (i.e., the actual self, the ideal self, and the ought self) and "standpoints of the self" (i.e., the person's own standpoint versus the standpoint of some significant other person). Combining each domain with each standpoint yields six types of self-representations: how one thinks one actually is, one would ideally like to be, and one ought to be; as well as beliefs about how a significant other person thinks one actually is, would like one ideally to be, or thinks one ought to be. Beliefs about how one actually is and also about how other persons think one actually is reflect the person's self-concept. The four remaining self-representations are self-directive standards or self-guides (i.e., ideal and ought self from the own and the other's standpoint). The theory predicts that discrepancies between the self-concept (actual self-states) and the self-guides are associated with specific types of discomfort. According to the theory, actual-ideal discrepancies imply the "absence of positive outcomes" (i.e., own or other's hopes or wishes) and would therefore be associated with a vulnerability to emotions like sadness or discouragement. Actual-ought discrepancies, in contrast, imply a "presence of negative outcomes" (e.g., expectation of sanctions because of nonfulfillment of one's obligation) and therefore would be associated with a vulnerability to emotions like fear or guilt. Various studies provided correlational and experimental evidence supporting these differential predictions (e.g., Higgins, 1987, 1989; Higgins et al., 1987; Higgins, Loeb, & Moretti, 1995; Moretti & Higgins, 1999; Straumann & Higgins, 1988). Furthermore, a study reported by Van Hook and Higgins (1988) showed that conflicting self-guides (e.g., contradictions between how one ideally wants to be and beliefs about how another person thinks one should be) were positively associated with feeling muddled, indecisive, distractible, unsure of one's self or goals, rebellious, and confused about one's identity.

In conclusion, the notion of intraindividual conflict has stimulated a broad range of theoretical formulations and empirical research. To illustrate this, I have referred to a (for the sake of brevity necessarily fragmentary) selection of examples. Overall, the role of intraindividual conflict appears to be somewhat paradoxical. On the one hand, from a developmental perspective, it has been argued that experiencing and solving conflicts is necessary for development and growth. On the other hand, empirical research impressively demonstrated that conflict, particularly when chronically unresolved, has detrimental effects on the individual's psychological and physical well-being. What about conflict between a person's *goals*? Does it stimulate development and the realization of untapped potential, or does it result in emotional distress, or both? And what about facilitative in-

tergoal relations? In the next session, I will present an overview of available research addressing these questions.

2.5.3. Previous Research on Intergoal Relations

Research on intergoal relations can be categorized into two groups. One group of studies addressed relations between a person's self-reported goals and broader motivational themes (e.g., possible selves, life tasks, motives, needs). Assuming a hierarchical structure in which current goals are located on a lower level and broader motivational themes on a higher one, relations between the two can be conceived of as *"vertical"* (Sheldon & Kasser, 1995). Another group of studies addressed interrelations among a person's self-reported goals. Assuming that each study elicited goals at about the same hierarchy level, these relations can be conceived of as *"horizontal"* (Sheldon & Kasser, 1995). The following is an overview of available research on associations between intergoal relations and other goal characteristics (e.g., progress, commitment), and psychological as well as physical well-being. A few studies addressed associations between goal relations and other outcome variables (i.e., smoking cessation and exercise). I will introduce these studies in a later section.

2.5.3.1. *Vertical Relations Within a Person's Motivational System*

Sheldon and Emmons (1995) investigated the relationships between personal goals ("strivings") and possible selves. Possible selves are higher level goals that represent, in relatively general terms, what people want to become (or avoid becoming) in the future (Markus & Ruvolo, 1989). Sheldon and Emmons asked students to report 10 current personal goals. The students furthermore selected, from a list of options, those 10 possible selves they thought about most often (e.g., good-looking, respected, likable, in touch with one's feelings), and rated the effect that each of the self-generated goals had on each possible self. Response options ranged from –2 (strong negative impact) to 0 (no impact) to +2 (strong positive impact). A sum score of these ratings was interpreted as indicating the degree of "goal integration." (Note that, despite the positive connotation of this label, this index potentially included evaluations of conflict, independence, and facilitation.) Students who had reported more helpful connections between goals and possible selves reported more current progress and more past attainment in their goals, and rated themselves as being more committed to their them.

Sheldon and Kasser (1995) also had students generate 10 current personal strivings. These participants rated each striving as to how much it helped take them toward six "culturally endorsed value domains" (e.g., being happy and have a meaningful life, having many close and caring relationships with others, financial success, looking good and being attractive to others). Response options ranged from 0 (no help) to 9 (very much help). The authors interpreted the sum across all ratings as indicating the degree of "vertical goal coherence." They found a significant association between vertical goal coherence and the participant's subjective well-being. Students who reported more helpful connections between their strivings and the assigned value domains tended to experience more positive affect and to report higher vitality than students with less favorable relations between goals and value domains. These associations were particularly pronounced when the higher order goals reflected intrinsic (e.g., having a meaningful life) rather than extrinsic values (e.g., financial success).

Brunstein and colleagues addressed the nature of the relations between a person's self-reported goals and his or her predominant motive disposition. Motive dispositions reflect relatively enduring preferences for broad classes of incentives and operate outside of conscious awareness. Examples are having impact on others (power motive), being successful (achievement motive), being with other people (affiliation motive), or having close relationships (intimacy motive). Using projective picture-story tests, Brunstein, Lautenschlager, Nawroth, Pöhlmann, and Schultheiß (1995) assessed the predominance of intimacy versus power motivation in a sample of college students. Trained coders rated the degree to which each of six self-reported goals reflected an orientation toward "agency" (e.g., achieving independence, self-assertion, mastery) or toward "communion" (e.g., forming friendly and warm connections with others). Students with motive-congruent goals (i.e., predominantly intimacy-motivated students with highly communion-oriented goals and predominantly power-motivated students with highly agency-oriented goals) reported higher levels of emotional well-being than did students with motive-incongruent goals (i.e., predominantly intimacy-motivated students with highly agency-oriented goals and predominantly power-motivated students with highly intimacy-oriented goals).

In a second series of studies, Brunstein, Schultheiß, and Grässmann (1998) asked university students to report personal goals in each of various specified content domains reflecting the themes agency and communion. The student's predominant motive dispo-

sition was again determined using projective picture-story tests. Perceived progress toward motive-congruent goals, in contrast to motive-incongruent goals, was related to affective well-being during a period of two weeks following the assessment. Furthermore, an increase in emotional well-being over one semester was found in agency-motivated students who felt strongly committed to agentic goals and also reported favorable conditions for attaining these goals, as well as in communion-motivated participants who felt strongly committed to communal goals and reported favorable conditions. Unfavorable conditions for attaining motive-congruent goals, in contrast, tended to predict a decline in emotional well-being over one semester. Also, high commitment to motive-incongruent goals was associated with longer term decrease in emotional well-being.

Omodei and Wearing (1990) investigated the relationships between self-reported goals and higher order needs they assumed to be shared by all humans (e.g., creativity, self-esteem, achievement, affiliation). A nonstudent sample of adults ranging from 18 to 61 years of age reported 10 personal goals, and rated each goal as to how much it satisfied each of 15 needs. Participants who reported goals that were highly relevant for the satisfaction of these needs tended to experience significantly higher levels of positive affect than participants with less need-satisfying goals. No significant associations were found between the degree of need satisfaction and negative affect.

King, Richards, and Stemmerich (1998) investigated relationships between students' self-reported low-level "daily" goals, and high-level "life" goals and "worst fears." External raters coded the low-level goals for their relevance to the high-level goals and fears. The degree to which daily goals were relevant for avoiding worst fears was significantly negatively related to life satisfaction and self-esteem, and positively related to depression. The degree to which daily goals were instrumental in the attainment of life goals was unrelated to the participants' subjective well-being. Similar to the results reported by Brunstein et al. (1998), however, subjective well-being was associated with the degree of progress toward daily goals that served life goals. Progressing towards daily goals that were relevant to accomplishing one's life goals was significantly more strongly related to subjective well-being than progressing toward daily goals that were irrelevant for one's life goals. Furthermore, results showed that students who experienced little progress toward goals that served to avoid their worst fears experienced the lowest levels of subjective well-being.

In summary, research on vertical intergoal relations has predominantly focused on *positive* relationship qualities (i.e., the degree to which self-reported lower level goals facilitate the fulfillment of various higher order motivational themes). Empirical evidence suggests that—provided the high-level motivational themes reflect positive, desired states—favorable vertical intergoal relations are associated with higher levels of progress and commitment to one's lower level goals. This in turn is associated with higher levels of psychological well-being. Often, the higher order motivational themes were either theoretically assumed or indirectly determined to be important to the individual and, thus, were mostly not equivalent to a person's consciously selected goals. Research on horizontal relations among a person's self-reported goals might therefore be more fruitful in providing insight into strategies of adaptive life management.

2.5.3.2. *Horizontal Relations Among a Person's Goals*

Assuming that a person's goals are reflected in his or her activities, Perring, Oatley, and Smith (1988) examined horizontal intergoal relations by investigating conflict between major activities in a person's life. Participants in five different samples (three student samples and two adult nonstudent samples) used a scale ranging from 1 (no conflict) to 5 (pervasive conflict) to assess the extent to which activities pertaining to work or study, personal relationships, and leisure interests conflicted with other activities in their lives. All three student samples reported higher levels of conflict as well as more severe psychiatric symptoms (including anxiety, depression, somatic symptoms, and social dysfunction) than did the nonstudent adults. Furthermore, in the three student groups, participants reporting higher levels of conflict also tended to experience higher levels of psychiatric symptoms. This, however, was not true for the samples of nonstudent adults (faculty members and community residents). One of the student samples included "mature" students in the same age range as the community residents (25 to 55 years of age). On the basis of this result, Perring et al. speculated that the "unsettled" life position of being a student might bring with it difficulties in resolving conflicts, which are expressed in symptoms.

Emmons and King (1988) assessed the relations among a person's goals more directly. They asked their student participants to report 15 personal goals ("strivings"). Participants then labeled the rows and columns of a 15 by 15 table with these goals. Using a scale ranging from –2 (very harmful) to 0 (no effect) to +2 (very helpful), participants

rated for each goal pair the impact that being successful in one goal had on the other. Because participants had entered their responses into the respective cells of the table, the authors labeled the instrument "Striving Instrumentality Matrix." After recoding responses so that higher scores indicated more unfavorable intergoal relations, the authors interpreted the sum of all ratings as an indicator of the degree of conflict among the participant's 15 goals. (Note however, that this sum score might also include evaluations of favorable intergoal relations and of goal independence.) In the first reported study, this indicator of goal conflict was significantly positively associated with negative affect, depression, and anxiety. It was also positively associated with self-reported concurrent physical symptoms (e.g., headaches, chest pains, nausea, dizziness) as well as with an increase in self-reported physical symptoms over the course of one year. A second study showed that students with more conflicting goals were more prone to physical illnesses as indicated by objective measures, namely, the number of health center visits and the number of illnesses diagnosed. This study, however, did not replicate the finding that students with more conflicting goals tended to experience more negative affect. In a third study, participants with higher levels of goal conflict tended to act less, but to think more about their goals. The amount of time participants spent thinking about their conflicting goals ("rumination") and the tendency not to act on their conflicting goals ("inhibition") were positively associated with negative affect, anxiety, depression, and somatic symptoms. The authors interpreted these results as suggesting a generalization of Pennebaker's inhibition model of psychosomatic illness (Pennebaker, 1985; Pennebaker & Beall, 1986). This model was originally developed as an explanation for the observation that inhibiting the desire to confide in others about traumatic events is associated with an increased risk of developing physical illnesses. Emmons and King proposed that conflict among a person's goals leads to the simultaneous occurrence of a desire to act and a desire to inhibit goal-directed action. This, in turn, would result in increased rumination about one's conflicting goals, chronic autonomic arousal, and eventual physiological distress.

Using the same method (i.e., the Striving Instrumentality Matrix), King et al. (1998) found no concurrent associations between the degree of conflict among their student participants' 15 self-reported goals and life satisfaction, self-esteem, and depression. They did, however, find that students with more conflicting goals reported less progress toward their goals than did participants with less conflicting strivings.

Sheldon and Kasser (1995) also used the Striving Instrumentality Matrix (with a more differentiated response scale) to assess the degree of what they termed horizontal "coherence" among their student participants' self-reported goals. (Note that the various authors using bipolar scales proposed very different interpretations of the resulting composite scores.) In this study, the composite score of the Striving Instrumentality Matrix was unrelated to various facets of psychological well-being (i.e., self-esteem, positive and negative affect, and vitality).

Palys and Little (1983) asked university students to report up to 10 personal goals ("projects") and to indicate for each pair of goals whether pursuing goal A facilitated, conflicted with, both facilitated and conflicted with, or was irrelevant for the pursuit of goal B. This approach is unique in goal conflict research because it takes both conflict and facilitation into account and does not, in contrast to the Striving Instrumentality Matrix, assume that these are opposite poles of a single dimension. Unfortunately, however, the authors restricted their (reported) analyses to unipolar information pertaining to goal conflict. In this study, students with low life satisfaction reported more conflict among their reported goals than did students who were highly satisfied with their lives.

To summarize, empirical studies on horizontal relations among a person's self-reported goals have, at least in the terminology, focused on the *negative* side of intergoal relations (i.e., goal conflict). A closer look at assessment procedures, however, reveals that only few studies used unipolar scales (i.e., assessed degrees of conflict only). Most studies applied bipolar assessment scales in which conflict represented the pole opposite to facilitation. Such assessment procedures are based on a strong theoretical assumption, namely, that intergoal conflict, independence, and facilitation represent different zones along a *single* continuum. Because this assumption is intuitively so appealing, it has not yet been empirically tested. Only Palys and Little (1983) employed an instrument that included the possibility that a goal might both conflict with and facilitate another goal. In their analyses, however, Palys and Little only included a single, unipolar index that reflected ratings of goal conflict exclusively.

The available empirical evidence suggests that conflict among a person's goals is associated with an increased risk of physical symptomatology. Processes of rumination and action inhibition may play a mediating role in this association. The empirical evidence pertaining to the association between goal conflict and psychological well-being is less consistent. One can, however, observe an interesting co-occurrence of assessment

method and result. Studies using bipolar assessment scales found inconsistent or no associations between goal conflict and psychological well-being (Emmons & King, 1988; King et al., 1998; Sheldon & Kasser, 1995). In contrast, studies employing unipolar assessment scales consistently found that higher levels of goal conflict were associated with impairments in psychological well-being (Palys & Little, 1983; Perring et al., 1988). The only exception to this was observed in the nonstudent samples of the study by Perring et al. This also points at a major limitation of the research discussed: With this one exception, the studies all investigated student samples (i.e., young adults). Overall, previous research has demonstrated that intergoal relations provide an interesting field for studying characteristics of adaptive goal selection. Many questions, however, remain open. I will summarize those in the next section.

2.5.4. Implications for the Present Study

Previous research has shown that the study of horizontal intergoal relations could provide insight into processes of adaptive life management. The specific research aims of the present study resulted from consideration of the following methodological and theoretical aspects of the previous research:

1. Assessment procedures in previous research either emphasized negative intergoal relations (and disregarded intergoal facilitation), or assumed that intergoal conflict and facilitation represent opposite poles of a single dimension with independence at its center (i.e., that there is a strong negative relationship between conflict and facilitation). The associations between intergoal conflict and facilitation have not yet been empirically examined, although, theoretically, other relationships are possible (cf. Palys & Little, 1983). Furthermore, previous assessment procedures obtained unspecific and holistic evaluations of intergoal relations. The question *why* people evaluate a goal as being in conflict with, independent of, or facilitative for another goal remains open. The first aim of this study was to theoretically elaborate potential sources of intergoal conflict and facilitation, and to develop a method for their assessment. Separate measurement of conflict and facilitation allows empirical exploration of whether these qualities are indeed opposites on a single dimension.

2. Previous research on intergoal relations was conducted primarily in student samples of young adults. The second aim of this study was to investigate the question whether younger and older adults differ in the nature of the relations among their goals. In a

later section, I will explain why the comparison of these two age groups is particularly interesting.

3. Previous research emphasized potential consequences of goal conflict, but did not address its potential antecedents. A third aim of this study, therefore, was to investigate person as well as goal characteristics that might influence the degree of conflict among a person's goals.

4. Previous research yielded inconsistent results about the association between horizontal intergoal relations and psychological well-being. These inconsistent results might be due to different assessment procedures (unipolar versus bipolar, see discussion above). A fourth aim of this study was to clarify this association using a newly developed procedure that separates the assessment of facilitative and conflicting intergoal relations.

5. Studies showing a possible association between intergoal relations and psychological well-being did not address the question why this is so. A final aim of this study was to investigate events and processes that might mediate this association.

2.6. Toward an Expanded Assessment of Intergoal Relations: Potential Sources of Conflict and Facilitation

Why do people perceive a goal as facilitating or conflicting with other goals? Empirical research on intergoal relations has not yet addressed this question. Two approaches in somewhat related research fields provide some useful theoretical insights. The first approach originated in role theory research. Greenhaus and Beutell (1985) proposed a systematization of sources of conflict between work and family roles. The second approach stems from the field of artificial intelligence. To model human planning in everyday situations, Wilensky (1983) theoretically analyzed different forms of positive and negative goal relationships. Below, I will briefly summarize these two theoretical approaches and discuss their relevance for the study of horizontal intergoal relations. The rationale underlying the extended procedure of assessing horizontal intergoal relations in the present study is based on these considerations. In the methods section, I will describe this instrument in more detail.

Greenhouse and Beutell (1985) emphasized that work and family roles can be mutually supportive. Their primary focus, however, was the identification and systematization of antecedents of work-family role conflict. They suggested three major forms of

such conflict: (a) time-based conflict, (b) strain-based conflict, and (c) behavior-based conflict.

Time-based conflict can take two forms. Time requirements associated with one role may either make it physically impossible to comply with expectations arising from the other role, or may produce a preoccupation with one role when one is attempting to fulfill expectations associated with the other role (and thus impair one's efficacy in doing so).

Strain-based conflict arises when stressors experienced in one role produce strain symptoms (e.g., tension, anxiety, fatigue, irritability) that affect one's performance in the other role.

Behavior-based conflict results when behavior patterns expected in one role context are incompatible with behavior expectations in another role context (e.g., self-reliance, objectivity, aggressiveness in a work context versus warmth, emotionality, and openness in a family context). If the person is not able to adjust behaviors effectively to the current role context, conflict between both roles might arise. Whereas the authors reviewed a number of empirical investigations that support the notions of time and strain-based conflict, they acknowledged that little research had directly assessed the importance of behavior-based conflict.

Wilensky (1983), in his "computational approach to human reasoning," distinguished the following three forms of conflict among a person's goals: (a) resource limitations, (b) mutually exclusive states, and (c) causation of a preservation goal.

Resource limitations lead to goal conflict if the realization of different goals require a common resource, and if there is an insufficient quantity of this resource available to successfully achieve all goals. Wilensky defines resources as being "something needed to perform a plan" (p. 60) and distinguishes four classes: time, consumable functional objects, nonconsumable functional objects, and abilities. He argues that time has unique characteristics among resources because it is necessary for the realization of all goals, and because it is reduced regardless of whether one makes use of it or not. Consumable functional objects refer to those resources that are necessary to realize a goal, but that are reduced through usage (e.g., money). Nonconsumable functional objects are not reduced through usage, but nevertheless have a limited capacity (e.g., a car with five seats). Abilities, finally, reflect the extent to which a person can perform an action. Like nonconsumable objects, abilities are not reduced through usage (to the contrary, usage often enhances abilities). People, however, only have limited capacities to execute certain activities.

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The second form of goal conflict refers to situations where the successful realization of an individual's goals would require that *mutually exclusive states* come simultaneously into existence (e.g., having the cake and eating it, too).

Finally, the third form of conflict occurs in situations in which the realization of one goal *causes a preservation goal*. To illustrate this point, Wilensky gives the example of planning to take the day off to go fishing. If the realization of this goal might cost one one's job, it might evoke the preservation goal of remaining employed. This preservation goal in turn conflicts with the original goal.

Both approaches, although coming from different research fields, converge in two recurring themes: resource limitations and logical incompatibility (see Table 1): Time-based and strain-based conflict in the taxonomy by Greenhouse and Beutell reflect resource limitations. In strain-based conflict, examples of relevant resources are energy (such as in the case of fatigue) or the ability to regulate emotions (such as in the cases of tension or anxiety). Behavior-based conflict, in contrast, reflects an instance of logical incompatibility (in this case, of role-relevant behaviors). In the taxonomy by Wilensky, resource limitations are elaborated in great detail and labeled as such. Mutually exclusive states and causation of preservation goals reflect logical incompatibilities. In the latter case, it is the preservation goal that is incompatible with the original goal.

Table 1. *Recurring Themes in two Taxonomies of Conflict Sources*

Recurring Theme	Greenhouse & Beutell (1985)	Wilensky (1983)
Resource limitations	Time-based conflict Strain-based conflict	Resource limitation
Logical incompatibility	Behavior-based conflict	Mutually exclusive states Causation of preservation goal

The relevance of these two sources of goal conflict is also supported by examples of conflicting goals in publications of empirical studies on intergoal relations. "To keep my relationships on a 50-50 basis" and "to dominate, control, and manipulate people and situations" are examples of two conflicting goals cited by Emmons and King (1988) that imply an inherent logical incompatibility. Emmons et al. (1993), in a side clause, furthermore mentioned the possibility that time and other resource limitations might be the rea-

son why two goals conflict and cited the goals "getting a 3.0 GPA" and "keeping up on the chores" as examples.

Let me now turn to the positive side of intergoal relations. Why do people perceive a goal as facilitating another goal? Wilensky (1983) referred to such positive relations among a person's goals as "goal overlap." He defines goal overlap as occurring when a person is able to carry out activities that are beneficial for several goals at once and distinguishes two forms: mutual inclusion and plan overlap. *Mutual inclusion* of goals denotes that an individual's goals overlap because of an inherent relationship between the states that constitute their realization. For example, a person might have the goal of buying a car and of taking on a job 50 miles away. In this case, the state of having a car fulfills a precondition for realizing the other goal.[10] *Plan overlap* refers to situations where the execution of a single action fulfills a number of distinct goals simultaneously. Examples are the goals "having a meal" and "being with friends" that are simultaneously fulfilled if one meets friends in a restaurant.

Relations between a given pair of goals are not necessarily symmetric. For example, pursuing the goal "learning to dance" might simultaneously facilitate "getting in touch with new people." Pursuing "to get in touch with new people," however, might not promote the goal of "learning to dance" to the same degree. Asymmetry in intergoal relations might also reflect an individual's prioritization of one goal over the other. For instance, a young father might allow professional affairs to interfere with his "being a caring father" goal. The reverse, however, need not be the case. This phenomenon is well-known in role theory and is referred to as *asymmetric permeability* of role domains. Here, the permeability of two domains is defined as the extent to which the demands of one role domain (e.g., family role) are permitted to intrude into the other role domain (e.g., work role) and vice versa (Pleck, 1977). Eagle, Miles, and Icenogle (1997), for example, found that family boundaries seem to be more permeable than work boundaries. Demands of the work role are typically permitted to intrude more in one's family role than vice versa. The potential

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[10] This example reflects an instance where the relationship between goals is established over time. Wilensky refers to this as *goal subsumption*. His conceptualization also includes forms of simultaneous goal inclusion, namely, *goal identity* (i.e., the person has the same goal for several reasons, such as, "to be a vegetarian" because one thinks killing animals is morally wrong and because one thinks eating vegetables is healthy) and *goal entailment* (i.e., the realization of one goal is implied by the realization of another goal, such as "to stay home," which is implied in the goal "to prepare a meal in the kitchen").

asymmetry of intergoal relations implies that a comprehensive assessment of the interrelations among a person's goals has to take both possible relational directions into account.

As mentioned before, one purpose of the present study was to develop a questionnaire that assesses potential sources of intergoal conflict and facilitation (see Table 2). Consistent with the theoretical elaboration above, the new questionnaire includes resource constraints and logical incompatibility as potential sources of goal conflict. The resource constraints that the instrument addresses are prototypical: *time*, *energy*, and *money*. With respect to logical incompatibility, I assumed that people relatively infrequently select goals that intrinsically imply logically incompatible states. More often, I assumed, it is the strategies people employ to attain their goals that are incompatible. The new questionnaire therefore assesses logical incompatibility in terms of the occurrence of *incompatible goal attainment strategies*. In order to assess potential sources of intergoal facilitation, the questionnaire includes two aspects that correspond to those proposed by Wilensky (1983). *Instrumental relationships* exist in constellations in which progressing toward goal A already represents a step in progressing toward goal B (e.g., when being successful in establishing a professional career sets free resources for financially supporting one's parents). *Overlap in goal attainment strategies* refers to situations in which strategies for pursuing goal A represent a subset of strategies that are potentially effective for the pursuit of goal B (e.g., attending ballet lessons might be instrumental for pursuing both the goal "learning to dance" and the goal "getting in touch with new people"). The assessment procedure and the various newly developed items are described in detail in section 3.1.3.2.

Table 2. *Overview of Sources of Intergoal Conflict and Facilitation Assessed by the New Questionnaire*

Potential Sources of Intergoal Conflict	Potential Sources of Intergoal Facilitation
- Resource constraints (time, energy, money)	- Instrumental relations between goals
- Incompatibility of goal attainment strategies	- Overlap in goal attainment strategies

2.7. A Preliminary Working Model

In the remainder of the theoretical part of this thesis, I will present the theoretical and empirical background specific to the empirical predictions. In line with previous research on horizontal intergoal relations, most hypotheses address the negative side of in-

tergoal relations (i.e., intergoal conflict). Because the assumption that intergoal facilitation represents the opposite to intergoal conflict is generally accepted, I did not specify differential hypotheses with respect to intergoal facilitation.[11]

Figure 1 illustrates the working model of the present study. This illustration is simplified and includes only the main concepts of the hypotheses described in detail below. Furthermore, other associations and recursive relationships (that are not part of the hypotheses) are theoretically possible but not depicted in the figure.
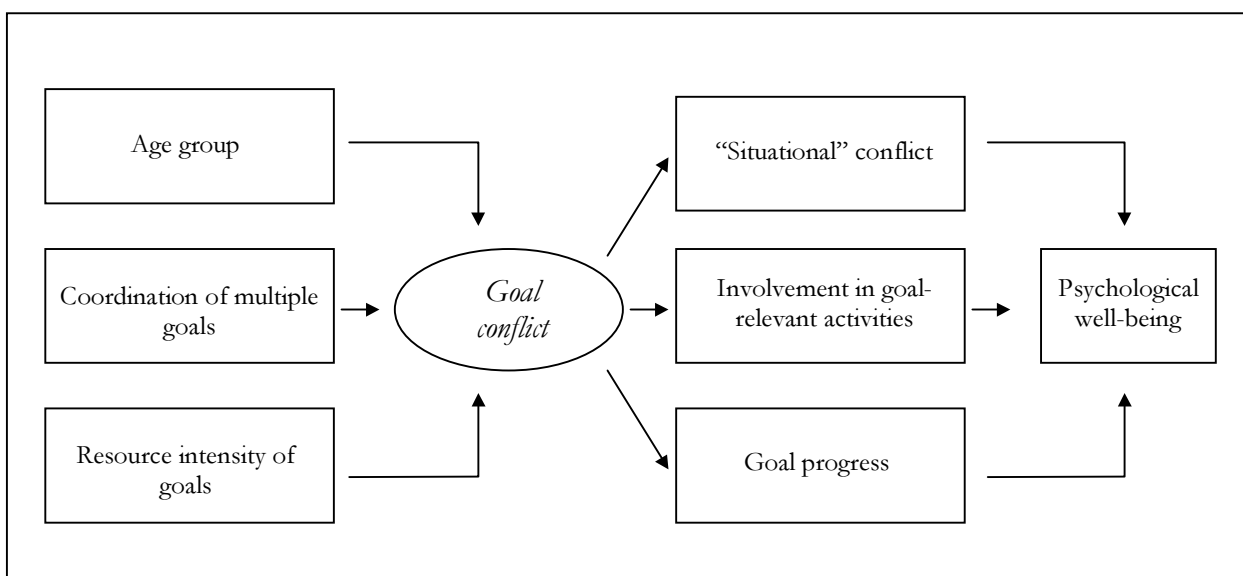

Figure 1. *A Preliminary Working Model: Overview of Main Hypotheses*

This working model reflects the prediction that older adults, as an expression of their greater life experience and life-management competence, select less conflicting goals than younger adults. It also illustrates the hypothesis that strategies in the coordination of multiple goals (i.e., prioritizing, sequencing, compromising, distancing) as well as the resource intensity of selected goals are antecedents of goal conflict. Finally, it illustrates the expectations that goal conflict impairs psychological well-being, and that the experience of conflict situations, the involvement in goal-relevant activities, and the degree of longer term goal progress mediate this relationship.

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[11] Note that the newly developed instrument allowed to test the unidimensionality assumption by separating the assessment of intergoal conflict and facilitation. Because of the lack of previous empirical investigations of this relationship, this test was exploratory in nature.

2.8. Intergoal Relations in Younger and Older Adults

As I discussed in detail above, empirical research showed that conflict among personal goals is a relevant phenomenon in younger adulthood. Little, however, is known about its relevance in other age groups. The first research question of this study therefore pertains to potential age-group differences in the nature of intergoal relations. The hypothesis was that people, as they grow older and accumulate life-management experience, tend to select less conflicting and more facilitative goals than younger adults. This prediction is based on three related considerations: (a) Development across adulthood comprises both developmental "losses" (e.g., increasing vulnerability for disease and disability) and "gains" (e.g., increasing life experience). Improved competence in self-regulation and the ability to commit oneself to goals that are organized into an integrated structure (i.e., that do not conflict with, but ideally facilitate one another) might be one characteristic of the latter (i.e., of developmental growth throughout adulthood). (b) Later adulthood is characterized by a decrease in social structuring. Older adults might thus have a greater "freedom" in the selection of their goals. (c) As people grow older, the finitude of available resources becomes more salient. It might therefore become increasingly necessary to invest one's limited resources "economically" into noncompeting, ideally facilitative goals. I will discuss these three arguments in turn.

2.8.1. "Developmental Gain" in Adulthood

Research on (as well as lay conceptions of) adult development often emphasize the deleterious changes associated with growing older (e.g., decrease in cognitive processing speed, increasing vulnerability to disease and disability, increasing likelihood of losing close social partners). Indeed, such losses are prevalent in later adulthood, and particularly in very old age. An exclusive emphasis on loss, however, does not provide a complete picture of adult development. Development across adulthood also comprises the potential for developmental gains. This growth potential is closely tied to a certain critical level of basic biological functioning. If the biological capacities of a person fall below this critical threshold (e.g., because of serious illness or frailty in very advanced age), they delimit the overall capability of the individual and thus continuing psychological growth as well (cf. the literature on cognitive "de-differentiation," Li & Lindenberger, 1999; Lindenberger & Reischies, 1999).

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The potential for developmental gain in adulthood has been addressed in developmental theory as well as in empirical research. The *theoretical* view is exemplified, for instance, in Heinz Werner's (e.g., 1967) notion of the "orthogenetic principle," classic theories of psychosocial development (e.g., Erikson, 1959; Jung, 1933), Labouvie-Vief's (e.g. 1998) conceptualization of enhanced cognitive complexity in older adulthood, and the work by Carol Ryff (e.g., 1985). After a brief (and necessarily incomplete) discussion of a selection of such theoretical perspectives, I will present examples of *empirical* research that demonstrated continued growth potential into later adulthood in one specific domain of functioning—the management of life problems.

2.8.1.1. *Theoretical Perspectives on Developmental Gain in Adulthood*

Theoretical perspectives on developmental growth agree that development across adulthood is characterized by the potential to achieve higher levels of functioning. The different perspectives vary in their proposed generality (i.e., whether they are confined to a specific domain of functioning or not) and their theoretical assumptions of what characterizes a "higher" level of functioning. Many of them assume that developmental growth is characterized by *structural* changes toward states of higher "integration" or harmony of various aspects of the individual.

Heinz Werner (e.g., 1967), for example, is a proponent of a general theory of development that explicitly stresses the notion of structural change. He postulated that a universal "orthogenetic" principle characterizes the nature of *all* development (i.e., regardless of the level of analysis, the stage in the life span, or the functional domain involved). Lerner (1986) illustrated this principle with the example of the development of the concept of "animals" in young children. Early in their development, children have a relatively global concept of animals. This is observable when a young child uses the same name (e.g., "doggie") to refer to all animals he or she encounters. The development of the animal concept comprises differentiation (i.e., the child comes to differentiate between cats, dogs, horses, and other animals) and hierarchic integration (i.e., the child comes to know that there are different breeds of dogs, cats, and horses; that they all are animals and thus are different from plants; that animals and plants are living things and thus are different from nonliving things; etc.). In short, the development of the concept of animals is a change from one relatively global, undifferentiated concept to many differentiated concepts that are organized into a hierarchical structure. As mentioned before, Werner pro-

posed that this orthogenetic principle is universal and characterizes all developmental processes throughout the life span. Accordingly, Werner's view implies, on a very general and abstract level, the potential for continuous growth (through structural changes) into adulthood and old age.

In contrast to this general principle of development, classic theories of psychosocial development more specifically address the notion of a psychological growth potential into adulthood. One of the strongest theoretical traditions in developmental psychology is that of stage theory. Proponents of stage theories maintain that all people, at about the same time in their lives, experience the same events, problems, or challenges. Consequently, they propose that there are universal stages of change. These stage theories can be traced to Sigmund Freud (e.g., 1917/1981a, 1933/1981b) whose primary emphasis was on the first five to six years of life. He described the development of children as progressing through five universal stages that are primarily biological (or psychosexual) in nature. Adulthood for Freud was not a time of continued development, but basically a reenactment of earlier experience. Carl Jung (e.g., 1933) disagreed with Freud's restricted focus on childhood development and his neglect of the role of culture in development. Jung focused particularly on the second half of life, which he viewed as being dominated by a striving toward psychological growth (or "illumination of the self"). In his conception, beginning at the age of 40 ("the noon of life"), adult development is characterized by a potential for continuing "individuation" (as an expression of psychological growth). The definition of individuation reflects the notion of structural change. Jung emphasized that individuation is characterized by an integration of self (i.e., a harmony or balance among all aspects of the self) and the resolution of innate inner conflicts (between polar opposites, such as masculine-feminine, creation-destruction, youth-age, separation-attachment). Other characteristics include, for example, self-knowledge, self-expression, acceptance of self, and acceptance or tolerance of human nature (cf. Ryff, 1985).

Erik H. Erikson (for an overview, see Erikson, 1985) both extended Freud's stage concept and incorporated Jung's ideas by including the adult life and emphasizing the role of society. His theory has often been regarded as being one of the most important theories of adult development (Lemme, 1995). According to Erikson, age-graded changes in social roles require that people master specific tasks during particular phases of their lives. His theory comprises a series of eight universal and hierarchically structured stages. Each of Erikson's eight stages focuses on a psychosocial crisis. Crisis in this sense denotes a

challenge or turning point that offers both danger (of stagnation) and opportunity (for further growth). Each stage is preceded by specific internal psychological developments as well as by external social role expectations. The theory proposes an "epigenetic principle," that is, a predetermined maturational "timetable" at which point in life a person has to deal with a specific psychosocial crisis in order to acquire new capabilities. A fully developed personality is made up of the various capabilities that he or she sequentially acquired throughout life. Consequently, each stage is seen as contributing to the others (and, thus, to psychological growth).

Erikson posited for each of the eight stages one adaptive and one maladaptive way of dealing with the crisis. According to Erikson, development is enhanced when the individual resolves the crisis in the direction of the adaptive alternative.[12] Success or failure depends on experiences in earlier stages and on the individual's current life situation. The psychosocial crises in adulthood are, in ascending order, "intimacy versus isolation" (young adulthood), "generativity versus self-absorption" (middle adulthood), and "integrity versus despair" (old age). The mastery of intimacy represents the "gateway" to adult development. The main task in young adulthood is the search for an intimate partner with whom one is willing to share one's life without the fear of losing one's identity. Generativity, or assuming sustained responsibility for others, is the main task of middle adulthood. Integrity, the issue for old age, refers to the ability to see one's life as satisfying and meaningful, and to understand it as embedded in the broader processes of the world and history. According to Erikson, each new task is based on the successful solution of the prior task. Thus, each of these successive tasks represents an increased level of maturity.

Stage theories have been very influential in developmental psychology. Major criticisms, however, have been that they are predominantly organismic in nature (i.e., that they presume a predominance of innate maturation processes over contextual influences on development). Current developmental psychologists generally agree that development is the product of a complex, reciprocal interaction between biological/genetic influences ("nature") and individual's various environmental contexts during the given historical pe-

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[12] Erikson also stated that some experience of the negative alternative may be beneficial as well. For example, the psychosocial crisis in the first stage (first year of life) is "trust versus mistrust." Positive development in later life presupposes that the infant learns that the world and the people are safe and dependable. However, while it is desirable for infants to acquire an overall sense of trust in others, it can at times be adaptive to mistrust some people (who may be unreliable or dangerous).

riod ("nurture," e.g., P. B. Baltes et al., 1998; Bronfenbrenner, 1988; Lerner & Busch-Rossnagel, 1981). Other weaknesses of stage theories are the overemphasis on chronological age, which may mask variations in individual lives, and the neglect of possible cohort, historical, or cultural variations. Stage theories have also been criticized for a lack of specificity (Lemme, 1995). These theories do not provide clear markers that define the beginning and ending of a stage. Similarly, the question remains open as to what behaviors or characteristics indicate a successful solution of a particular stage's challenge. Finally, the proposed unidirectionality of development is not in line with the currently accepted assumption that development is multidirectional, that is, comprises both growth and decline (cf. Freund & P. B. Baltes, 2000).

The theoretical view that lifelong positive development (or "psychological growth") is possible, at least in physically and psychologically healthy individuals, can be found in a number of other theoretical approaches as well. For example, in the humanist tradition, Maslow's (1954) theory implies that lifelong personality growth can occur as people satisfy increasingly higher level needs. Maslow proposed that all people share universal, hierarchically ordered needs. As long as a particular need remains unsatisfied, it is the primary determinant of behavior. When it is satisfied, the next higher order need becomes the primary motivation. When physiological, safety, belonging/love, and esteem needs are satisfied, the person becomes motivated by the highest level need for self-actualization (i.e., for full development of one's capacities). Whether self-actualization is achieved depends on the individual and on social forces that promote or inhibit self-actualization. In defining self-actualization, Maslow emphasized, among other things, the structural aspect of "an unceasing trend toward unity, integration or synergy within the person" (Maslow, 1955; cited in Ryff, 1985, p. 58). Although Maslow's theory is not explicitly developmental, he suggested that self-actualization is more prevalent in older age.

Another theoretical perspective stressing a growth potential in adulthood is Gisela Labouvie-Vief's (1985, 1998; Labouvie-Vief & Blanchard-Fields, 1982) conception of cognitive-emotional integration in later adulthood. Let me briefly discuss this theoretical stance as a final, more recent example. Labouvie-Vief suggests a qualitative difference in the cognitive competencies of younger and older people. Piaget's stage theory of cognitive development in childhood and adolescence proposes a development toward cognitive maturity characterized by abstract, hypothetical reasoning free of subjectivity ("formal operational stage," Piaget & Inhelder, 1969). This ability to think abstractly and to use

scientific reasoning develops in adolescence. Older adults typically do not perform as well as younger adults in tasks that are designed to measure such formal reasoning. They tend to be subjective, to personalize the tasks by using their life experience, to consider the affective dimension involved, to take alternative interpretations of the task into account, and to suggest multiple answers. This has been interpreted as indicating an erosion of competence in formal logic, and a return to concrete operational reasoning. Labouvie-Vief proposes an alternative interpretation by arguing that subjective, intuitive reasoning and objective, rational reasoning balance and enrich each other. She proposes that the apparent decline in formal-logical reasoning in older adulthood is a consequence of the growth of more complex and mature cognitive skills, namely, an integration of logic and emotion. Accordingly, she also emphasizes structural change as characterizing developmental growth (in this case, toward more mature reasoning). The affective contextualization of formal logic found in older adults, in her view, represents a more mature level of cognitive skills because it is characterized by an autonomous, socially oriented, dialectical mode of reasoning.

In sum, a number of theoretical views emphasize that adult development is not only characterized by developmental losses (e.g., cognitive slowing or increased susceptibility to illnesses), but also by a potential for continuing psychological growth. For brevity's sake, the above discussion included only a selection of examples (for other examples, see Ryff, 1985; Schultz, 1977). The theoretical positions discussed raise two related lines of reasoning that support the prediction that older adults select goals that are less conflicting, and, ideally, more facilitative: (a) The proposed higher levels of psychological maturity should be reflected in a higher *efficiency in managing one's life.* A main hypothesis of the present study was that the selection of personal goals that do not conflict with, and, ideally, facilitate each other contributes to successful life management. The greater life experience and life-management competence of older adults would become apparent in less conflict and, ideally, more mutual facilitation among their goals as compared to the goals of younger adults. (b) This prediction is further supported by the emphasis in many of these theories on the notion of *structural changes*—i.e., on an increasing integration of various aspects of the individual—as an expression of psychological growth. The expectation of a more integrated goal system in older adults is in accord with such a position.

Is there empirical evidence supporting the assumption that older adults become more efficient in dealing with life problems (as an expression of "psychological growth")?

In the following, I will briefly address this question by discussing empirical research on the development of defense mechanisms and coping strategies across adulthood.

2.8.1.2. *Empirical Examples: Development of Defense Mechanisms and Coping Strategies*

Working within a psychoanalytic framework closely related to Erikson's theory, Vaillant (1977, 1993) proposed a "maturation" of defense mechanisms across the life span. Defense mechanisms are responses to environmental or internal demands that operate outside of conscious awareness. Vaillant postulated an incremental developmental process that is characterized by a shift from immature and neurotic defense styles in early adulthood to more mature defense styles in middle adulthood. Immature defense mechanisms comprise, for example, passive-aggressive behavior and acting out. Neurotic defenses include such mechanisms as intellectualization (i.e., isolation of affect) and repression. Examples of mature mechanisms, finally, are anticipation (i.e., realistic and emotive planning to minimize future discomfort) and humor. In a longitudinal study of male Harvard alumni, Vaillant (1977, 1993) derived defense mechanisms from responses in open-ended interviews. He found that, with advancing age, most (though not all) men used less immature and neurotic, and more mature defense mechanisms. Furthermore, the use of more mature defense mechanisms was associated with greater adjustment as indicated by length of marriage, upward mobility, number of children and so forth.

Vaillant's conceptualization relies heavily on the assumption of innate, maturational processes beyond the individual's conscious awareness. He does not consider the complex, reciprocal interactions between individual and environment that shape development, and the person's active role in that process. What about strategies that people consciously apply to manage life problems? Studies on age differences in coping strategies addressed this question. In general, one would intuitively assume that with age, as a result of increasing life experience, people become more competent in dealing with life problems. Throughout adulthood, people are exposed to a multitude of more or less serious life problems. Through this process they could learn which types of coping strategies are generally ineffective, and which types are effective in particular situations. Thus, through experience, people could increase their life-management potential.

Although not unequivocal, a number of studies on coping strategies and aging support this assumption (for overviews, see Aldwin, 1994; Diehl, Coyle, & Labouvie-Vief, 1996; Folkman, Lazarus, Pimley, & Novacek, 1987; Staudinger, Freund, Linden, & Maas,

1999b). Several studies showed that older adults tend to use less impulsive and outwardly aggressive reactions, less escapism and avoidant coping, and more strategies that involve impulse control and cognitive reassessment of problems than do younger adults. Older adults also appear to be more accepting of the fact that problems can and will happen, and seem to be better able to not let themselves be bothered by minor problems. That is, older adults may be better able to differentiate between problems that are uncontrollable, those that will probably resolve themselves, and those for which the investment of effort is worth while. There are also indications that they actually may engage in less (but more appropriate) coping, because they learned which strategies "work" in a given situation. These observed age-group differences do not appear to be entirely due to the different problems that younger and older adults encounter (Folkman et al., 1987). Indeed, there is preliminary evidence that the reason there is no decline in psychological well-being associated with the greater likelihood of experiencing stressful events in older age is due to the fact that older adults appraise and cope with stress differently than do younger adults (Aldwin, 1994).

In sum, developmental theories stress the potential of continued psychological growth throughout adulthood (e.g., increasing life experience and life-management competence). Empirical evidence on the development of defense and coping mechanisms supports this assumption. Many of these theoretical positions emphasize structural changes (i.e., greater integration of various aspects of the self) as one characteristic of such psychological growth. Accordingly, the greater life experience and life-management competence of older adults may become apparent in structural attributes of their goal systems, namely, in less intergoal conflict and, ideally, more intergoal facilitation as compared to the goal systems of younger adults.

2.8.2. The Role of Social Expectations

In the early phases of the life course, the social expectations of what goals are important and appropriate to pursue are relatively clear (Neugarten et al., 1965; Nurmi, 1992; Settersten & Hagestad, 1996a, 1996b). Such socio-cultural expectations are reflected in age-normative conceptions and opportunity structures (Heckhausen, 1999; Wrosch & Heckhausen, 1999). In older adulthood, social expectations are less clear and roles less explicitly defined (e.g., Atchley, 1982; Maddox, 1994; Riley, Kahn, & Fohner, 1994). This does not imply that older adults exist outside of socio-cultural expectations and norms. In

older adulthood, however, these influences regulate goal selection and pursuit to a lesser degree than in younger age groups (Freund et al., 1999). Accordingly, older adults have in principle a larger "freedom" in deciding what goals to pursue and which ones to abandon. Consequently, it might be easier for them to disregard potentially conflicting impulses and, ideally, to select facilitative goals.

2.8.3. The Role of Resource Limitations

Adult development is characterized by an increasingly negative ratio between resource gains and losses (e.g., P. B. Baltes, 1987, 1997; Steverink et al., 1998). Although individuals might gain, for example, in social status, material belongings, or practical knowledge, aspects associated with the biological potential of the individual, such as physical fitness, health, sensory acuity, or mobility, decrease during adulthood. Furthermore, the likelihood increases with age that significant sources of emotional and instrumental support are lost, for example, parents, partners, relatives, or friends. Consequently, the need for culture-based compensations (e.g., for material, technical, social, or economic help) increases with age in order to ensure high levels of functioning (Mayer et al., 1999). There is, however, also an age-related decline in the effectiveness of cultural compensations. For example, as compared to younger adults, older persons need more time, practice, and cognitive support to attain the same learning gains (P. B. Baltes, 1997). Under such conditions of an increasingly negative ratio of resource gains and losses, it should become particularly necessary to invest one's resources "economically" into realistic goals.

Indeed, there is empirical evidence showing that throughout adulthood, people tend to become increasingly flexible about their goals. They tend to more easily give up goals that are clearly unattainable and to redirect their resources to more realistic goals given the available resources (e.g., Brandtstädter & Renner, 1990; Heckhausen, 1997). As I discussed in more detail earlier, competition for limited resources is a source of goal conflict. Pursuing goals that mutually facilitate each other, in contrast, may reflect a strategy of efficient resource usage, because resources invested into one goal simultaneously benefit the advancement of other goals.

In short, an assumption of the present study is that the selection of nonconflicting and, ideally, facilitative goals gains importance in older adulthood. This is because resource limitations increase with age. At the same time, because of a decrease in age-

normative structuring in older adulthood, and a presumable increase in life-management competence, the freedom and competence to select exactly such goals should increase. Consequently, I hypothesized that older adults, on the average, have less conflicting, and more facilitative goals than do younger adults. This hypothesis agrees with theories that stress the notion of structural change (i.e., an increased integration of various aspects of the person) as a characteristic of psychological growth in adulthood.

2.9.   Potential Antecedents of Intergoal Conflict

Which factors influence the degree of conflict among a person's goals? Potential determinants of goal conflict might exist both in the characteristics of the *person* and in the characteristics of the selected *goals*. (a) On the person level, I assumed that in the coordination of the pursuit of multiple goals there are habitual strategies that are effective in preventing and resolving goal conflict. (b) On the goal level, I expected that the amount of resources persons need to invest into the realization of their goals influences the conflict potential among their goals.

Habitual strategies in coordinating multiple goals. The model of selection, optimization, and compensation proposes that focused investment of resources (selection) is a main principle underlying adaptive development (see 2.3). Based on this assumption, (a) setting priorities among multiple goals, and (b) temporally sequencing the pursuit of multiple goals (i.e., pursuing one goal after the other) might be effective strategies in *preventing* goal conflict. This hypothesis agrees with a strategy that Dodge, Asher, and Parkhurst (1989) theorized as being effective in the co-ordination of multiple goals. They referred to this strategy as "deferring goals" which implies to "pursue one goal at a time by focusing on one immediate goal and deferring others" (p. 121).

Furthermore, (c) seeking and accepting compromises (i.e., lowering aspiration levels), as well as (d) distancing from (certain) goal(s) might be effective strategies for *resolving* goal conflict. Similar strategies were proposed by Wilensky (1983; "goal abandonment" and "partial plan fulfillment") and Dodge et al. (1989; "goal modification"). In the model of selection, optimization, and compensation, both strategies represent instances of loss-based selection (e.g., Freund & P. B. Baltes, 2000; Freund et al., 1999). These strategies are also reflected in other theoretical conceptualizations of adaptive regulation of lifespan development, such as in the notions of "flexible goal adjustment" (e.g., Brandtstädter &

Renner, 1990) and of "secondary control" (e.g., Heckhausen & Schulz, 1995; Rothbaum, Weisz, & Snyder, 1982).

To my knowledge, no studies have thus far investigated the link between habitual tendencies to engage in these four strategies (i.e., prioritizing, sequencing, compromising, distancing) and the amount of conflict people perceive among their goals.

Resource intensity of selected goals. Competition for limited resources presumably represents a major source of goal conflict (see 2.6). I therefore hypothesized that individuals with highly resource-intensive goals (i.e., who have to invest a high amount of resources such as time, energy, or money in order to realize their goals) tend to perceive their goals as more conflicting than do individuals whose goals are less resource intensive. Again, to my knowledge, so far no studies have empirically investigated this prediction.

2.10. Intergoal Conflict and Adaptive Life Management

A general hypothesis of the present study was that committing oneself to nonconflicting goals is characteristic of adaptive goal selection and, thus, contributes to adaptive life management. In this section, I will discuss in more detail the various indicators used to examine this general hypothesis (see 2.2).

Psychological well-being. A generally accepted indicator of successful adaptation to life circumstances is a person's subjective sense of psychological well-being. A specification of the hypothesis above is that persons with more conflicting goals would tend to experience lower levels of psychological well-being than persons with lower levels of goal conflict. As I discussed in detail in section 2.5.3, previous research on the association between the degree of goal conflict and psychological well-being yielded ambiguous results. Most studies employing a unipolar assessment strategy (i.e., assessing varying degrees of conflict only) did indeed find that higher levels of goal conflict coincided with impairments in psychological well-being. Studies employing a bipolar assessment strategy (i.e., assessing the nature of intergoal relations on a scale ranging from conflict to independence to facilitation) did not observe such a relationship. This could be due to the assessment procedure used: Totaling responses across bipolar items ignored potential differential effects of differing configurations of intergoal relations. For example, people who evaluate their goals as being predominantly independent of each other would receive the same total score as individuals who perceive some of their goals as facilitative and others as conflicting. This could obscure the association between intergoal relations and psychological

well-being. I circumvented this problem in the present study by using the new assessment procedure that assesses intergoal conflict and facilitation separately.

The hypothesis that committing oneself to nonconflicting goals is a characteristic of adaptive goal selection implies that intergoal relations function as an *antecedent* to psychological well-being. A (perhaps intuitively less appealing) alternate explanation for a cross-sectional association between goal conflict and psychological well-being is that a certain level of subjective well-being may be necessary for one to commit oneself to non-conflicting goals. This would mean that intergoal relations are a *consequence* of the level of psychological well-being.[13] Another possible explanation, based on the assumption that participants have an implicit theory that goal conflict and low psychological well-being share a common valence (e.g., are "undesirable"), is that a co-occurrence of self-reported goal conflict and self-reported well-being simply reflects the participants' tendency to present a coherent picture of themselves (i.e., that it is an artifact resulting from method overlap in a cross-sectional design; cf. Schwarz, 1999).

A strict test of the assumption that goal conflict is an *antecedent* of impairments in psychological well-being would require a well-controlled experiment. This was outside the feasibility of the present field study. However, a relationship between goal conflict and psychological well-being *assessed at a later point in time* would provide more conclusive indication of potential causality than mere cross-sectional co-occurrence. It is logical that something occurring earlier in time is more likely to have caused a subsequent situation than vice versa. Thus, I expected that a negative association between goal conflict and psychological well-being would be observable both cross-sectionally and longitudinally, and with respect to a variety of facets of psychological well-being.

A question that arises immediately from the above hypothesis is: *Why* would goal conflict coincide with impairments in subjective well-being? Three aspects might function as mediators: Persons with high levels of goal conflict (a) could be more likely to be in conflict about the activities they pursue in their everyday lives, (b) could be less likely to engage in activities that further their goals and more likely to engage in activities that hinder them, and (c) could be less likely to progress toward their goals during a given period of time than persons whose goals are less conflicting. These three aspects, in turn, could

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[13] Other explanations are also possible, for instance, that both intergoal conflict and psychological well-being are caused by (an)other variable(s), or that they mutually cause each other (Bortz, 1993).

influence the person's subjective sense of well-being. Below, I will describe each of these potentially mediating instances in more detail.

The experience of situational conflict in everyday life. People organize their daily lives around their personal goals. Goals serve as a guide in the choice of activities and in the interpretation of everyday experiences and events (Cantor, Norem, Langston, Zirkel, & et al., 1991; Emmons, 1991; Fleeson & Cantor, 1995; Lavallee & Campbell, 1995). Conflict among a person's goals could therefore increase the likelihood of conflicts about which activities to pursue and which ones to abandon. Such conflict about everyday activities, which I will call "situational conflict," can take several forms. For example, one might realize that a particular activity furthers one or more of one's goals, but simultaneously hinders at least one of the remaining goals.

Another form of situational conflict involves situations in which the individual's "wishes" (or search for pleasure) and his or her "sense of duty" conflict (cf. the notions of "ideal" and "ought" goals, Higgins, 1996). Such situations require a decision between engaging in activities that one wants to do (because they are pleasant) and activities that one ought to do (because they serve one's duties). Depending on what one decides to do (i.e., the motivation that was followed), two possible conflicts may arise: Persons might feel that they either *want* to do something other than what they are doing (because it would be more pleasant), or that they rather *ought* do be doing something else (because it would be more responsible).

People with highly conflicting goals might tend to experience these various forms of situational conflict more often than individuals with less conflicting goals would. Experiencing such situational conflict could impair the persons' concurrent affective well-being and thus act as a mediating mechanism through which goal conflict affects well-being. To my knowledge, these predictions have not yet been examined empirically.

Goal conflict and involvement in goal-relevant activities. The degree of goal conflict might also affect a person's involvement in goal-relevant activities. Activities can be positively related, that is, *further* the pursuit of one's goals, or they can be negatively related, that is, *hinder* the pursuit of one's goals. Assuming that the pursuit of a conflicting goal would be associated with "costs" for the person's other striving(s), I expected that people with highly conflicting goals would tend to be less involved in activities furthering their goals and more involved in activities hindering their goals than people with less conflicting goals would be. This could result in a reduced willingness to engage in activities directed

towards one's goals. In the event that a person nevertheless engages in goal-directed activities, this would bear the risk of hindering the person's other goal(s).

An experience-sampling study reported by Emmons and King (1988) provides empirical support for part of this hypothesis. Student participants in this study reported their current main activity at four random times each day for a period of three weeks. They then judged whether each of the reported activities was (positively) related to any of 15 previously generated personal goals. Emmons and King found that these participants were less likely to engage in activities relevant for highly conflicting goals (according to the Striving Instrumentality Matrix) than they were to engage in activities that were relevant for less conflicting goals. To my knowledge, no empirical investigations have related the amount of conflict among a person's goals to his or her tendency to engage in activities that *hinder* these goals.

Involvement in goal-relevant activities might have implications for a person's concurrent affective experiences and, thus, mediate the predicted relationship between goal conflict and a person's well-being. Specifically, I expected that involvement in activities furthering one's goals would to be associated with experiencing positive affect, whereas involvement in activities hindering one's goals would be associated with negative affect.

This hypothesis receives preliminary support from several studies demonstrating that people show more pronounced affective reactions to events related to their goals than to goal-unrelated events. Emmons (1991), for example, asked student participants to report 15 personal strivings and to complete a 21-day diary phase. During the diary phase, participants rated their positive and negative affect twice a day and listed two positive and two negative events that had occurred during that day. External raters classified strivings and events into content domains. Emmons found that the impact of positive and negative events on the person's affective experience was stronger if the event was relevant for the person's strivings than if it was not. For example, persons with a high proportion of achievement strivings tended to report higher levels of positive affect on days with positive achievement-related events and higher levels of negative affect on days with negative achievement-related events.

In a study by Cantor and colleagues (1991), college students described their activities and rated their emotional state at five random times during a period of 15 days. At the end of each day, the students rated the extent to which each reported activity was related to seven life tasks (goals) that had been identified as being representative for college stu-

dents (e.g., doing well academically, making friends, finding intimacy-dating). Cantor et al. found that students were more emotionally involved in events that they perceived as highly relevant to the life tasks than in less task-relevant events (e.g., felt more active, involved, excited). In this study, however, affect valence (i.e., positive and negative affect) was not significantly associated with the task relevance of reported activities.

In a study by Lavallee and Campbell (1995), however, mood valence was associated with goal relevance. Here, student participants reported up to 10 personal goals and participated in a 14-day diary phase. In the diary phase, participants reported twice per day their mood during the previous hours and the most bothersome event that had occurred during that time. Raters subsequently coded the relation of the reported negative events to the participants' reported goals. Participants in this study showed higher levels of negative affect during periods in which they had experienced a goal-relevant negative event than during periods in which they had experienced a goal-unrelated negative event.

Goal conflict and longer term goal progress. People with highly conflicting goals might progress less toward their goals during a given period of time than people with less conflicting goals. This prediction is supported by a study by King et al. (1998) who found that student participants with highly conflicting goals (according to the Striving Instrumentality Matrix) reported less progress toward their goals than did participants with less conflicting goals. This lack of goal progress could, in turn, result in impaired psychological well-being and thus be a third mediator in the predicted negative association between goal conflict and well-being.

Both theoretical propositions and empirical evidence support the assumption that goal progress is associated with psychological well-being. Many theoretical models emphasize the relationship between emotions and goal progress (e.g., Bagozzi, Baumgartner, & Pieters, 1998; Carver & Scheier, 1990; Frijda, 1986, 1993; Oatley & Johnson-Laird, 1987; Stein, Liwag, & Wade, 1996). Summarized and simplified, these models ascribe affect a regulatory function in action processes. They propose that positive affect occurs when the individual makes successful progress toward his or her goals. Positive affect signals that the present goal-directed activities should be continued. Negative affect, in contrast, proposedly signals failure of such goal progress and enhances activities directed at the resolution of this problem. Several empirical studies have shown that goal progress is not only associated with affective but also with other aspects of psychological well-being (for overviews, see Brunstein & Maier, 1996; Diener, 1984; Diener et al., 1999). For

example, it has been shown that goal progress is positively related to affective well-being and life satisfaction (e.g., Affleck et al., 1998; Brunstein, 1993), and that lack of goal progress is associated with rumination and depression (e.g., Martin, Tesser, & McIntosh, 1993; McIntosh & Martin, 1992).

In short, I hypothesized that the level of conflict among people's goals affects the degree of conflict they experience about their everyday activities, and how effective they are in pursuing and progressing toward their goals. These aspects, in turn, I expected, would impact their sense of well-being and thus mediate the predicted negative relation between goal conflict and well-being. These hypotheses relate the present study to the theoretical framework of the SOC-model described in section 2.3. The model asserts that selecting personal goals is only a first step to goal attainment and successful life management. Effortful goal pursuit (i.e., optimization and compensation) is also necessary. That is, to successfully realize one's goals, one needs to seize good opportunities to act, ward off distractions, invest effort and resources, and compensate for losses in goal-relevant resources. Adaptation to life circumstances, thus, results from the *interplay* of all three developmental-regulatory principles. The above hypotheses address one potential phenotypic expression of this proposed interplay: The selection of nonconflicting, ideally facilitative goals could enhance the efficiency and success of pursuing the selected goals. Such successful life management, in turn, could be reflected in the person's subjective sense of well-being.

2.11. A Shared Goal: Intention to Start Regular Physical Exercise

Participants in the present study shared a common goal, namely, the intention to start regular physical exercise. Below, I will explain this aspect of the study design and then discuss available theoretical and empirical findings on intergoal relations in this context.

2.11.1. Why a Shared Goal and Why this Goal?

An exclusive reliance on self-report data bears the risk of observing statistical associations that are artificially enhanced because of shared measurement variance (i.e., response tendencies within participants). Such an explanation of observed relationships can be ruled out if objective (i.e., not self-reported) information yields the same pattern of results. One aim of the empirical investigation was to obtain objective information about

longer term goal realization. For that purpose, all participants in the present study shared an a priori selected goal, the goal of starting regular physical exercise. This goal was particularly suited for the purpose of the present study because of the following characteristics: (a) Longer term goal realization (i.e., exercise adherence) is accessible to objective observation. Such objective information is available in sports facilities that keep attendance lists or otherwise monitor exercise attendance. (b) Because of its time requirements, doing regular exercise is a potentially conflicting goal. (c) Starting to exercise is a comparatively frequent goal that is potentially relevant for younger and older adults (although their reasons for exercising might differ). (d) Persons who start exercising show a sufficiently high variation in their exercise adherence within a relatively short time. Several studies have found that most persons who drop out of exercise programs do so during the first 12 to 14 weeks (for an overview, see Wagner, 1999).

2.11.2. Intergoal Relations in the Context of Starting to Exercise

The prediction that people with highly conflicting goals are less successful in realizing their goals can now be specified in terms of the participants' exercise behavior: Individuals whose exercise goal conflicts with their other goals should be less likely to exercise over a period of several months than individuals whose exercise goal is less conflicting.

Lack of physical activity is a risk factor for the development of cardiovascular diseases (in addition to a number of other risk factors such as smoking, obesity, hypertension, or high blood cholesterol). The high prevalence of physical inactivity in Western countries makes processes influencing the adoption and long-term maintenance of regular physical activity a highly relevant topic for preventive health promotion. Consequently, in health psychology, a large variety of theoretical models aim to explain such health behaviors. Two broad theoretical perspectives can be distinguished. The main emphasis of one group of theories is on the determinants of the *intention* to engage in a certain health behavior (e.g., theory of planned behavior, Ajzen, 1988; health belief model, Becker, 1974; theory of reasoned action, Fishbein & Ajzen, 1975; protection motivation theory, Rogers, 1983). These theories regard the decision to act as primary prerequisite of behavior change. Empirical evidence, however, shows that the relation between intention and behavior is typically rather weak (for a review, see Fuchs, 1997). A second group of theories takes a more dynamic perspective on the process of behavior change. These theories consider the initiation and maintenance of behavior change (i.e., the *implementation* of inten-

tion) as the endpoint of the process. Many of these theories propose various stages of behavior change (e.g., relapse prevention theory, Marlatt, 1985; transtheoretical model, Prochaska & DiClemente, 1986). Recently, health psychologists have started to integrate the perspectives on intention *formation* ("motivation") and intention *realization* ("volition") into more comprehensive models of behavior change (health behavior goal model, Gebhardt, 1997; health action process approach, Schwarzer, 1999). These models explicitly acknowledge the role that setting and pursuing personal goals plays in the process of adopting and maintaining health behaviors. One of these recent models, the *health behavior goal model* (Gebhardt, 1997; Maes & Gebhardt, 2000) explicitly conceptualizes conflict of the target health behavior with the person's other goals as a determinant in the process of health behavior change. I will briefly describe this model below. Note, however, that this model is only one of many theoretical approaches to health behavior change (for overviews, see Fuchs, 1997; Wagner, 1999).

The health behavior goal model states that a fundamental prerequisite for effective behavior change is that the individual adopts the target health behavior as a personal goal. In this way, the target health behavior is related to the individual's other goals. Incompatibility with the person's other goals is expected to render progress toward the health behavior unlikely. The model furthermore integrates predictors that have been traditionally used to study health behavior. Specifically, it includes expected consequences of the target health behavior (i.e., perceived health costs and benefits, perceived emotional costs and benefits, and appraisals of social support and social pressures) and beliefs about one's own capacity to execute the target behavior even in the presence of internal or external barriers (self-efficacy) as additional determinants of health behaviors.

According to the health behavior goal model, changes in the relations between the target health behavior and the individual's other goals can occur through changes in environmental and personal characteristics. *Environmental* changes, such as introduction or abandonment of an exercise program at the work place, might, for example, affect the degree of time conflict between the target behavior and the person's other goals. Examples of *personal* changes might include the recognition of symptoms or changes in threat appraisals through learning processes, which could increase the subjective importance of the health behavior goal.

The model (in accordance with other process models in health psychology) furthermore proposes that the change process includes at least four sequential stages. Indi-

viduals in the precontemplation stage do not wish to change their health behavior. In the contemplation stage, the health behavior is still unchanged, but individuals are now motivated to progress toward the target health behavior. During the initial behavior-change stage, individuals start to change their behavior in the direction of the target health behavior.[14] Finally, during the maintenance stage, the health behavior is sustained for a long period of time.

During each of these stages, relapse is possible. At each stage, individuals are assumed to evaluate whether it is worthwhile to continue the target behavior, and to adjust their behavior accordingly. Reduction or abandonment of the health behavior occurs when individuals evaluate the attainment of the health behavior goal to be unlikely or to be less important than the attainment of other (potentially new) personal goals. Again, at each stage of behavior change, these evaluations are based on the degree of compatibility of the target behavior and the person's other goals, on the perceived immediate consequences of performing the target health behavior, and on subjective evaluations of the person's capacity to perform the health behavior.

In short, the health behavior goal model proposes that people progress less toward a target behavior when this conflicts with other valued goals of the individual. Two studies investigating physical activity (Gebhardt & Maes, 1998) and smoking cessation (McKeeman & Karoly, 1991) provided preliminary, though indirect, empirical support for this assumption.

Gebhardt and colleagues (Gebhardt, 1997; Gebhardt & Maes, 1998) investigated determinants of exercise behavior in a sample of 980 members of the care staff in several nursing homes. On the basis of self-reported exercise behavior, three groups of participants could be identified: participants who did not exercise at all, participants who exercised less than three times per week for at least 20 minutes at a time, and participants who exercised at least three times a week for at least 20 minutes a time. All participants indicated whether exercising at least three times a week for at least 20 minutes a time would interfere with 16 activities in four activity domains: activities outside the home (e.g., going to a movie or play), activities in the home (e.g., doing housework), social activities (e.g., having visitors), and self-development activities (e.g., studying). Participants also reported how much it would disturb them if the activity could not be conducted because of exer-

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[14] Participants in the present study were recruited in this stage.

cising. The authors interpreted responses of being at least "somewhat" bothered if an activity was hampered by exercising as indicating a "goal" of the participant. Consequently, they regarded the number of those "valued" activities that would be hampered by exercising as an indicator of the goal conflict associated with exercising.

Note, however, that this indicator is a rather indirect approximation. First of all, it remained unclear whether participants regarded exercising at that norm (i.e., three times a week for at least 20 minutes) to be a goal at all. Furthermore, the list included 16 relatively trivial activities. It seems questionable whether these activities covered the diversity of idiosyncratic goals that were relevant to the sample.

Despite these limitations, the authors found that the three exercise groups differed in their reported exercise-specific conflict. Sedentary people expected exercising to conflict significantly more with valued activities in the home than did those who belonged to the two exercise groups. Furthermore, nonexercisers and those who exercised less than three times a week assumed that exercising at least three times a week for at least 20 minutes a time would interfere more with valued social activities than did those who already exercised at that norm. Finally, nonexercisers reported more exercise-specific conflict with respect to self-development activities than did participants who exercised at least three times a week. No differences between the three groups were found concerning the degree of conflict associated with outside-home activities.

Gebhardt (1997) also reported results of a follow-up study of 515 of these participants. The degree of conflict (aggregated across the four activity domains) was predictive of changes in the participants' self-reported exercise behavior during the course of one year. Specifically, participants with relatively high original levels of exercise-specific conflict were more likely to reduce their exercise frequency from at least twice a week to once a week. They were also more likely to relapse to a sedentary lifestyle than participants who originally reported less exercise-specific conflict. Also, originally nonactive participants with relatively low levels of exercise-related conflict were more likely to start exercising in the course of this year than did nonexercisers with originally high levels of exercise-related conflict.

McKeeman and Karoly (1991) retrospectively assessed goal conflict associated with attempts to quit smoking in a sample of college students. The sample consisted of three groups: participants who smoked at least 15 cigarettes per day and had not seriously attempted to quit during the preceding eight months ("smokers"), participants who cur-

rently smoked at least 15 cigarettes a day and had made an attempt to quit within the preceding four months ("relapsers"), and participants who had stopped smoking for at least one and not more than four months and who had smoked at least 15 cigarettes a day prior to quitting ("self-quitters"). All participants reported their five most important current goals. They furthermore rated the degree to which each goal might have interfered with their attempt to stop smoking. These conflict ratings were weighted with the relative importance of the respective goal and aggregated across all five goals. Self-quitters reported significantly lower goal conflict than did both current smokers and relapsers. Smokers and relapsers did not differ from each other with respect to the reported goal conflict. These results further support the hypothesis that the relations between a target health behavior and the person's other goals might have implications for health behavior change. The retrospective assessment procedure is, however, a major methodological shortcoming in this study. Because smoking and particularly one's apparent inability to quit is commonly viewed as relatively undesirable, a "sour-grapes" (i.e., excuse-making) explanation of the observed association cannot be ruled out.

In sum, the health behavior goal model theoretically supports the hypothesis that goal conflict might have implications for longer term exercise adherence in exercise beginners. Two studies that have provided preliminary empirical support for this prediction were characterized by methodological limitations. The study by Gebhardt and Maes included a rather indirect measure of goal conflict and relied exclusively on self-reported information about the participants' exercise behavior. The study by McKeeman and Karoly used a more direct goal conflict measure, but applied this instrument retrospectively. The present study, in contrast, employed a prospective design and obtained objective as well as subjective information about the participants' exercise behavior.

Before summarizing the main research questions and predictions of the present study, let me emphasize that conducting the present study in the context of the goal "starting to exercise" primarily served the purpose of longitudinally investigating the association between intergoal relations and objective information on the participants' longer term goal realization. In contrast to typical study designs in health psychology research, it was *not* the purpose of this study to identify a comprehensive set of potential determinants of regular physical exercise. Other determinants that were found to be related to longer term exercise adherence (for overviews, see Fuchs, 1997; Wagner, 1999) were therefore merely regarded as control variables. Specifically, these control variables in-

cluded information on (a) the duration of the current exercise phase, the participant's (b) exercise motivation, (c) exercise context, (d) exercise-specific self-efficacy, (e) exercise-specific intention strength, (f) exercise enjoyment, and (g) exercise biography.

2.12. Summary of the Theoretical Background, Research Questions, and Hypotheses

Understanding human development is not possible without considering ways in which people themselves influence their life course. This active life management occurs in a reality of biological and societal constraints, finite resources, and limited agency. Given these limitations and constraints, which strategies do people apply to manage their lives? Can one discern behaviors, or behavior characteristics, that differentiate people who manage their lives successfully from those who don't?

The action-theoretical specification of the model of selection, optimization, and compensation emphasizes the roles that setting and pursuing personal goals play in life management. Through the selection of personal goals, individuals give direction to their development. The successful realization of goals furthermore requires the investment of effort and other resources (optimization) as well as the effortful counteraction of losses (compensation). There is empirical evidence that people who report engaging in selection, optimization, and compensation experience higher levels of psychological well-being than people who engage less in SOC-relevant behaviors; however, not all expressions of selection, optimization, and compensation are equally adaptive. Being overly selective might prematurely preclude possible developmental pathways. Not investing enough resources, investing inappropriate resources, or overinvesting resources at the expense of other life tasks might be instances of maladaptive expressions of optimization and compensation. A fruitful approach to understanding adaptive life management could therefore be the study of characteristics of more or less adaptive implementations of the SOC-principles.

In this vein, the main research interest of the present study is in the characteristics of adaptive goal selection. Previous research showed that merely having goals is a necessary, but not sufficient precondition for adaptive life management. There is empirical evidence that people who are successful in managing their lives—that is, who experience high levels of psychological and physical well-being and who pursue their goals effectively—tend to have a limited number of goals, for which they possess adequate resources, which they selected for self-determined reasons, which may provide them with

few long-term "visions" and concrete, instrumental subgoals, and which are framed as approach rather than as avoidance goals.

The present study addresses the nature of the relations among a person's multiple goals as another potential characteristic of adaptive goal selection. Previous empirical investigations on intergoal relations can be classified into two groups. One group of studies investigated vertical goal relations, that is, relations between lower level goals and higher order motivational themes, such as motives, needs, or possible selves. These studies showed that favorable relations between lower level goals and higher level motivational themes are associated with both a more successful pursuit of the lower level goals and a higher psychological well-being. In these studies, the higher level motivational themes were often indirectly assessed or theoretically assumed to be important to the individual. They thus were not equivalent to the self-set goals that play a central role in active life management.

The second group of empirical investigations focused on horizontal intergoal relations, that is, on relations between self-reported goals at about the same hierarchy level. These horizontal intergoal relations are also of interest to the present study. Previous studies showed that conflict among same-level goals is associated with a higher risk of physical symptomatology. Rumination and action inhibition may play a mediating role in this association. Results on the association between goal conflict and psychological well-being were less consistent. Studies employing a unipolar assessment strategy (i.e., assessing the degree of goal conflict only) found that goal conflict was associated with impairments in psychological well-being. Studies employing a bipolar assessment strategy (i.e., assessing intergoal relations on a scale ranging from conflict to facilitation) did not observe such a relationship.

In addition to this inconsistent empirical picture, other questions also remained open. Previous assessment methods generally requested a relatively unspecific and holistic evaluation of intergoal relations. Thus, no empirical information is available on *why* people perceive their goals as conflicting or facilitative. Bipolar assessment strategies build on the theoretical assumption that intergoal conflict, independence, and facilitation represent different zones along a single dimension. This assumption has not yet been empirically verified. Also, previous research was typically conducted in young adult student samples. Little is known about the relevance of goal conflict in other age groups. Finally, previous

research emphasized the investigation of the assumed consequences of goal conflict, but what are its antecedents?

These open questions lead to the research aims of the present study. One aim was to develop a new questionnaire that assesses specific sources of intergoal conflict and facilitation. Based on theoretical considerations from role theory (Greenhaus & Beutell, 1985) and artificial intelligence research (Wilensky, 1983), this new instrument assesses resource constraints (time, energy, money) and incompatibility of goal attainment strategies as potential sources of intergoal conflict, and instrumental relationships between goals as well as overlap in goal attainment strategies as potential sources of intergoal facilitation. The empirical separation of conflict and facilitation allows empirical testing of the assumption that they represent opposite poles of a single dimension (i.e., are highly negatively correlated).

Another aim of the study was to apply this instrument in samples of younger and older adults. The main hypothesis was that older adults tend to select less conflicting and more facilitative goals than younger adults. This prediction is in line with developmental theories that emphasize the potential of continuing psychological growth in adulthood, which is often assumed to be characterized by structural changes (i.e., an increased integration of various aspects of the person). Also, as compared to younger age groups, older adults live with less clearly defined social norms of what goals they should pursue. Furthermore, resource limitations become increasingly salient in older adulthood. The need to invest these increasingly limited resources economically into nonconflicting, ideally facilitative goals should therefore increase.

Another aim of the study was to investigate potential antecedents of goal conflict. I hypothesized that the habitual tendency to use certain strategies in the coordination of multiple goals (i.e., prioritization, sequencing, compromising, distancing) as well as the resource intensity of selected goals might be two influencing factors in this respect.

Furthermore, the study was aimed to clarify the association between intergoal relations and psychological well-being with the newly developed questionnaire. The central assumption was that goal conflict impairs psychological well-being and that this relationship might have been obscured in studies employing bipolar assessment strategies because of the neglect of potential differential effects of differing configurations of intergoal relations.

A final aim of the study was to investigate the prediction that three factors would act as mediators between intergoal conflict and psychological well-being: the likelihood of experiencing various kinds of conflicting situations, the involvement in activities furthering and hindering the pursuit of one's goals, and the longer term progress toward goal realization.

In order to obtain objective information on the participants' longer term goal realization, the present study was conducted in the context of the goal "starting regular physical exercise." This goal was selected because of the following reasons: (a) Longer term realization (i.e., exercise adherence) can be objectively observed. (b) Regular physical exercise is time-consuming and thus potentially in conflict with other goals of the individual. (c) It is a relatively frequent goal that is relevant for younger and older adults. (d) Exercise beginners show sufficient variation in their exercise behavior within a few months.

In short, the purpose of the present study was to investigate the following research questions using a new method for the assessment of intergoal relations:

1. Do older adults select less conflicting and more facilitative goals than do younger adults?
2. What factors influence the degree of conflict among a person's goals?
3. Is there a negative relationship between goal conflict and psychological well-being?
4. Which instances mediate this negative association between goal conflict and psychological well-being?

Table 3 summarizes the empirical predictions of the present study.

Table 3. *Summary of Hypotheses*

	Hypotheses
	1. Intergoal Relations in Younger and Older Adults
1	Compared to younger adults, older adults have less conflicting and more facilitative goals.
	2. Potential Antecedents of Goal Conflict
2a	Individuals who tend to engage habitually in the following strategies of co-ordinating multiple goals report lower levels of goal conflict than do individuals who are less inclined to use these strategies:
2a-1	- Setting priorities
2a-2	- Temporally sequencing the pursuit of multiple goals

(table continues)

Table 3 *(continued)*

	Hypotheses
2a-3	- Seeking and accepting compromises (i.e., lowering aspiration levels) when encountering difficulties in working on multiple goals
2a-4	- Distancing oneself from some goal(s) when encountering difficulties in pursuing multiple goals
2b	Individuals with highly resource-intensive goals report higher levels of goal conflict than individuals with less resource-intensive goals do.

3. Goal Conflict and Subjective Well-Being

3	Individuals with highly conflicting goals experience lower levels of subjective well-being than do individuals with less conflicting goals. This association would be observable on the following facets of psychological well-being, both concurrently and prospectively:
3a	- Positive psychological functioning (Ryff, 1989)
3b	- Satisfaction with life
3c	- Satisfaction with one's goals
3d	- Habitual emotional well-being (retrospective assessment for past months)
3e	- Short-term emotional well-being (retrospective assessment for past hours)
3f	- Enjoyment of everyday activities
3g	- Dislike of everyday activities
3h	- Enjoyment of the pursuit of one's goals

4. Goal Conflict and the Experience of Situational Conflict

4	Individuals with highly conflicting goals tend to experience more conflict situations of the following kind than individuals with less conflicting goals do:
4a	- Situations in which one engages in an activity that furthers (at least) one goal, but simultaneously hinders (at least) one other goal
4b	- Situations in which one would rather be doing something else instead of what one is doing
4c	- Situations in which one should be doing something other than what one is doing

5. Goal Conflict and the Involvement in Goal-Relevant Activities

5a	Individuals with highly conflicting goals tend to engage less in activities that *further* their goals than individuals with less conflicting goals do.
5b	Individuals with highly conflicting goals tend to engage more in activities that *hinder* their goals than individuals with less conflicting goals do.

6. Goal Conflict and Goal Realization

6a	Individuals with highly conflicting goals tend to progress less toward their goals than individuals with less conflicting goals do.

(table continues)

Table 3 *(continued)*

	Hypotheses
6b	Individuals whose exercise goal is in conflict with their other goals exercise less than individuals with a less conflicting exercise goal do. This would be observable with respect to a number of exercise behavior characteristics:
6b-1	- Exercise regularity
6b-2	- Exercise duration
6b-3	- Exercise frequency
6b-4	- Degree of adherence to one's originally intended exercise frequency
	7. Mediation Hypotheses
7	The following factors mediate the negative relationship between goal conflict and subjective well-being:
7a	- The experience of conflict situations
7b	- Involvement in goal-relevant activities: (Lack of) involvement in activities furthering one's goals, and involvement in activities hindering one's goals
7c	- (Lack of) goal progress